Transportation Impact Study and Haul Route Assessment

Caledon Pit/Quarry

December 2022 (revised July 2023) | Project # 10042

CBM Aggregates, a division of St. Marys Cement Inc. (Canada)

LICENSED PROFESSIONAL ENGINEER
August 23, 2023
J. D. LAW
100509666
PROVINCE OF ONTARIO

VOTORANTIM cimentos cbm | TYLin

EXECUTIVE SUMMARY

T.Y. Lin International Canada Inc. (TYLin) was retained by CBM Aggregates (CBM), a division of St. Marys Cement Inc. (Canada) to complete a Transportation Impact Study (TIS) and Haul Route Assessment for the proposed CBM Caledon Pit / Quarry. This assessment concluded the following:

- Updated traffic volume counts surveyed June 2023 are deemed acceptable, ware adopted as baseline traffic conditions for traffic capacity and queueing analyses. These new traffic counts required revisions to the December 2022 TIS included herein such as; baseline and future traffic volumes, calibrated signal timing, updated traffic analysis, and access design.
- During the a.m. peak hour, a total of 30 new passenger car trips were estimated consisting of 15 inbound and outbound trips. During the p.m. peak hour, a total of 60 new car trips would be generated consisting of 25 inbound and 35 outbound trips. As employees and contractors are assumed to be entering and exiting the site outside of the adjacent road peak hours on Saturdays, no passenger car trips would be generated during the Saturday peak hour since staff is not expected to arrive or depart during the peak hours.
- During the a.m. peak hour, a total of 75 new truck trips would be generated consisting of 30 inbound and 45 outbound trips. During each of the p.m. and Saturday peak hours, a total of 60 new truck trips would be generated consisting of 30 inbound and 30 outbound trips.
- The proposed truck distribution includes 95% of truck traffic heading east on Charleston Sideroad towards Hurontario Street (with 90% travelling south and 5% travelling north on Hurontario Street) and the remaining 5% truck traffic heading west on Charleston Sideroad.
- A haul route assessment was undertaken to determine the location of the new future site access for the Caledon Pit / Quarry and includes several site access considerations including existing haul route restrictions, impact to existing residents, access spacing requirements in accordance with Region of Peel Road Characterization Study (RCS) and TAC guidelines, physical constraints, and safety considerations.
- It was determined that the preferred location of the proposed site access is along Charleston Sideroad (Regional Road 24) between Mississauga Road and Main Street (Regional Road 136) / Cataract Road. TYLin recommends the site access be located approximately 600 metres east of Mississauga Road and 720 metres west of Regional Road 136 measured curb extension-to-curb extension.
- Horizontal and vertical sightline assessments were conducted in the field. Based on a 100 km/h design speed, the proposed Charleston Sideroad access location satisfies

Transportation Association of Canada combination truck stopping sight distance and intersection sight distance requirements.

- The requirement for a traffic signal was not explicitly warranted at the proposed Charleston Sideroad site access under future total conditions based on a traffic volume. However, signalization of the access is recommended to improve the operation of the intersection by providing suitable gaps for trucks to enter and exit the site and accelerate safely without posing risk to other vehicles using Charleston Sideroad. It is noted that if the Region desires a signalized site access, the installation of the signal can be implemented at the cost of the client. Additionally, Charleston Sideroad is classified as Rural Road and satisfies the Region's minimum 600-metre full movement intersection spacing design criteria, preserving the arterial function of Charleston Sideroad, measured from curb extension to curb extension.
- A dedicated eastbound left-turn and westbound right-turn lane is proposed at the site access using requirements from the Region's RCS as well as the Transportation Association of Canada Geometric Design Guide for Canadian Road (TAC Manual).
- Under baseline conditions, all study intersections operate with reserve capacity and low delays with the exception of long delays for the eastbound through and westbound through movements in the PM and Saturday peak hours, though overall operations are still considered acceptable.
- This traffic impact assessment analyzed one future horizon year for the future conditions of the pit / quarry. As a result, the analyses adopted future background and total traffic conditions at a 2032 planning horizon year.
- During future background conditions, with the addition of background corridor growth, all intersections are expected to operate well and within capacity. However, southbound and northbound movements at Hurontario Street and Charleston Sideroad are expected to be at critical capacity but still with acceptable delay and with reserve capacity available. Long delays are again noted for the eastbound and westbound movements. As a result, TYLin recommends that the Region considers future monitoring in order to determine if adjustments to the signal timing plan and intersection operation parameters (e.g. cycle length adjustments, split optimizations) are required to accommodate an increase in background traffic, as needed.
- Under future total conditions, overall all intersections operate well with reserve capacity and acceptable delays with the addition of projected site traffic. The northbound, and southbound movements at the Hurontario Street and Charleston Sideroad intersection continue to operate with critical capacity but with acceptable delay and with reserve capacity available . It was observed the addition of site traffic does not materially impact

the operation of the intersection. The remaining study intersections, including the proposed site access, are expected to operate with reserve capacity and relatively low delays.

- Queueing analysis for all intersections projected that the average queues can be accommodated across all horizons within the effective storage. With the exception of Hurontario Street and Charleston Sideroad, the queueing analysis shows that the 95th percentile queues can be accommodated by the available storage. However, at Hurontario Street and Charleston Sideroad, it is observed under baseline and future background conditions that 95th percentile queues exceed the available storage length for multiple movements and is expected to continue under future total conditions. As a result, traffic analysis shows that the addition of site traffic would not contribute materially to the conditions at this intersection.
- It is concluded that the adjacent Charleston Sideroad study intersections at Main Street and Mississauga Road can accommodate the proposed Caledon Pit / Quarry development with significant reserve capacity. Under baseline and future traffic conditions the Hurontario Street and Charleston Sideroad intersection experiences acceptable though near capacity operations for several movements.

Overall based on this assessment it is concluded that:

- The proposed haul route is an existing and identified haul route in the Town of Caledon Official Plan;
- With the implementation of the recommendations, the proposed truck traffic from the CBM Pit / Quarry will not have unacceptable impacts on the safe and efficient use of the road network; and
- From an overall transportation perspective, the proximity of the site to market will result in minimizing the length and number of vehicle trips required to transport an essential raw material needed for the construction and maintenance of communities.

The results of the assessment provide the basis for the following technical recommendation to be included on the Aggregate Resources Act Site Plan for the proposed Caledon Pit / Quarry:

- Prior to shipping the licensee shall enter into an agreement with the Region of Peel for the construction of the: a) entrance / exit, b) Charleston Sideroad improvements,
- Prior to below water operations commencing in the Main Area and prior to operations commencing in the South Area, the licensee shall enter into an agreement with the Region of Peel for a crossing underneath Main Street and Charleston Sideroad, respectively.

TABLE OF CONTENTS

APPENDICES

LIST OF FIGURES

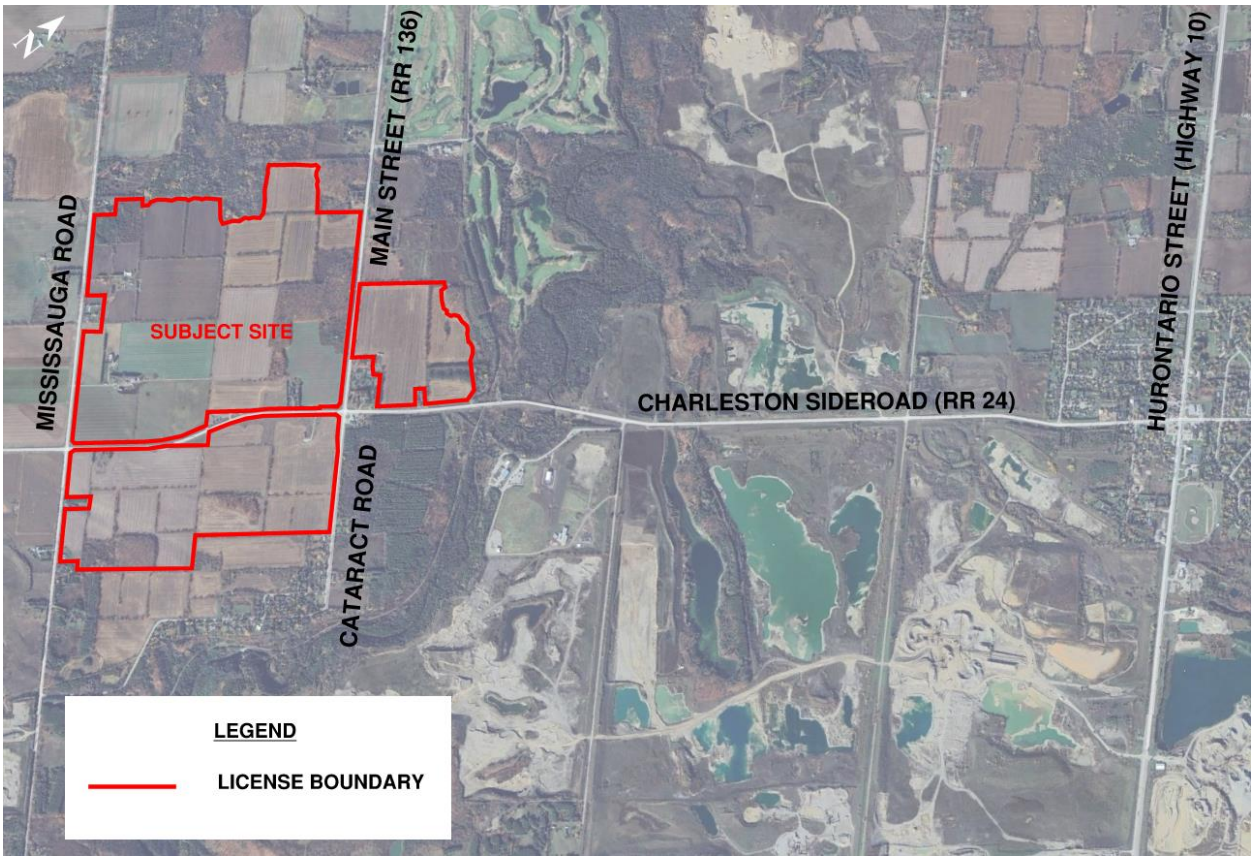
LIST OF TABLES

1 INTRODUCTION

CBM Aggregates (CBM), a division of St. Marys Cement Inc. (Canada) is applying to the Ministry of Natural Resources and Forestry (MNRF) for a Class A Licence (Pit and Above Water / Quarry Below Water) and to the Town of Caledon for an Official Plan Amendment and Zoning By-law Amendment to permit a mineral aggregate operation. T.Y. Lin International Canada Inc. (TYLin) has been retained by CBM to complete a Transportation Impact Study and Haul Route Assessment for the proposed CBM Caledon Pit / Quarry in accordance with the Terms of Reference found in **Appendix A**, Caledon Official Plan Sections 5.11.2.4.14 and 5.11.2.5, and the MNRF, Aggregate Resources Act Ontario Regulation 244/97.

CBM owns / controls approximately 323 hectares of land located at the northwest, northeast and southwest intersection of Regional Road 24 (Charleston Sideroad) and Regional Road 136 (Main Street). Of these lands, 261 hectares are proposed to be licensed under the Aggregate Resources Act and designated / zoned under the Planning Act to permit the proposed CBM Caledon Pit / Quarry. These lands are mapped as a Caledon High Potential Mineral Aggregate Resource Area (CHPMARA) in the Town of Caledon Official Plan and High Potential Mineral Aggregate Resource Area (HPMARA) in the Region of Peel Official Plan and are protected for their aggregate potential. The subject lands are generally bounded by Mississauga Road to the west, Main Street to the east, and Cataract to the east and south. The proposed pit / quarry location is shown in **Figure 1-1**.

Figure 1-1 Proposed Caledon Pit / Quarry Location



The remaining approximately 62 hectares of land owned / controlled by CBM are not subject to the application. These lands are referred to as "CBM Additional Lands" and these lands include approximately 36 hectares of land that is located adjacent to the minor urban centre of Cataract. As part of the application, CBM is proposing to create an upland forest and meadow grassland on these lands and is exploring the potential of conveying them permanently to a public authority for long term protection.

The lands proposed to be licensed under the Aggregate Resources Act are referred to as the "Subject Site" and are legally described as Part of Lots 15-18, Concession 4 WSCR and Part of Lot 16, Concession 3 WSCR (former Geographic Township of Caledon). The Subject Site is approximately 261 hectares and extraction is proposed on approximately 200 hectares. These lands are referred to as the "Extraction Area". The remaining approximate 61 hectares within the Subject Site and outside of the Extraction Area are referred to as the "Setback / Buffer Lands". The Setback / Buffer Lands are used to provide setbacks to surrounding land uses and natural heritage features and the majority of these lands include a 5-metre visual / acoustic berm and visual plantings.

The proposed Extraction Area includes approximately 78 million tonnes of a high-quality bedrock resource and approximately four million tonnes of a high-quality sand and gravel resource; the largest known available source of dolostone in the Greater Toronto and Hamilton Area (GTHA) Testing has confirmed that the mineral aggregate resource found on-site is suitable for the production of a wide range of construction products, including the use for high performance concrete. The bedrock resource provides some of the strongest and most durable aggregate material in Southern Ontario. The primary market area for the proposed CBM Caledon Pit / Quarry is the Greater Toronto Area, including the Town of Caledon and the Region of Peel. This site represents a close to market source of a high-quality mineral aggregate resource.

The proposed tonnage limit for the proposed CBM Caledon Pit / Quarry is 2.5 million tonnes per year and on average CBM anticipates shipping approximately 2.0 million tonnes per year. The proposed CBM Caledon Pit / Quarry is proposed to be operated in 7 phases. Phases 1, 2A, 3, 4, 5 are located to the northwest of the intersection of Regional Road 24 and 136. This area is referred to as the "Main Area". Phase 2B is located to the northeast of the intersection of Regional Road 24 and 136. This area is referred to as the "North Area". Phases 6 and 7 are located to the southwest of the intersection of Regional Road 24 and 136. This area is referred to as the "South Area".

Operations would commence in the Main Area and Phase 1 would include the permanent processing area (crushing, screening, and wash plant), aggregate recycling area and the entrance / exit for the quarry. Until such time as sufficient space is opened up to establish the permanent processing area, a temporary mobile crushing and processing plant is proposed to be used in Phase 1.

The entrance / exit for the CBM Caledon Pit / Quarry is proposed to be located onto Regional Road 24, approximately 720m west of Regional Road 136, measured from curb extension-to-curb extension. The entrance / exit is proposed to be controlled by a new traffic light and the installation of auxiliary turn lanes and tapers on Regional Road 24 at CBM's expense. The primary haul route for the proposed CBM Caledon Pit / Quarry is trucks will travel eastward on Regional Road 24 and then southward on Highway 10. The proposed haul route is an existing aggregate haul route and is designated as an aggregate haul route in the Town of Caledon Official Plan.

Access to the North Area for aggregate extraction is anticipated approximately 10 years after the start of the operations in the Main Area. There will be no processing in the North Area and aggregate extracted from the North Area is proposed to be transported to the Main Area through a proposed tunnel underneath Regional Road 136 that would accommodate either a conveyor system or a truck crossing. Access to South Area is anticipated approximately 30 years after the start of the operations in the Main Area. There will only be initial processing in the South Area and

aggregate extracted from the South Area is proposed to be transported to the Main Area through a proposed tunnel underneath Regional Road 24 that would accommodate either a conveyor system or a truck crossing. Aside from the establishment of a 1-hectare stormwater settling pond on the easternmost portion of the North Area in the initial year of operation, the North and South areas will be maintained in their current state and agricultural uses until they are required for preparation for aggregate extraction.

The CBM Caledon Pit / Quarry is proposed to operate (extraction, processing, and drilling) 7:00 am to 7:00 pm Monday to Saturday, excluding statutory holidays and shipping is proposed from 6:00 am to 7:00 pm Monday to Saturday consistent with other mineral aggregate operations in Caledon. CBM is also proposing to permit limited shipping in the evening (7:00 pm to 6:00 am) to support public authority contracts that require the delivery of aggregates during these hours to complete public infrastructure projects. These activities will be limited to only highway trucks and shipping loaders and no other operations will be permitted during evening hours. Site preparation and rehabilitation is proposed to be permitted 7:00 am to 7:00 pm Monday to Friday.

The proposed CBM Caledon Pit / Quarry involves stripping topsoil and overburden from the subject site to create perimeter berms and any excess soil will be temporarily stored in the northern portion of the Main Area or used for progressive rehabilitation of the site. The proposed Extraction Area includes extracting both sand and gravel below the water table and the site will be dewatered to allow operations in a dry state. The proposed Extraction Area includes extracting sand and gravel resources (e.g., pit) at surface where it is located on site, and bedrock resources below the sand and gravel and/or overburden (e.g., quarry). The proposed quarry is proposed below the water table and the quarry will be dewatered to operate the quarry in a dry state. The site will be extracted in sequence of the proposed phases (Phase 1 to 7) and following extraction of Phase 7 the permanent processing plant in Phase 1 will be removed and this will be the final area to be extracted and rehabilitated. The phasing of the proposed mineral aggregate operation has been designed to reach final extraction limits and depths within each phase so progressive rehabilitation of the side slopes can be completed.

The proposed Aggregate Resources Act Site Plans includes all of the technical recommendations from this report to ensure that the site operates in accordance with applicable provincial standards and the applicable policy requirements of the Provincial Policy Statement, Places To Grow Plan, Greenbelt Plan, Region of Peel Official Plan and Town of Caledon Official Plan.

The objective of this study is to determine the traffic volumes anticipated to be generated by truck activity associated with the proposed quarry activity during the typical weekday a.m., p.m., and Saturday peak periods; to assess the impact of traffic on the adjacent road network; and as necessary, to recommend possible improvements to accommodate the projected site-related traffic (as separate and distinct from traffic generated by background scenarios).

2 SITE CHARACTERISTICS

2.1 Study Environs

CBM owns / controls approximately 323 hectares of land located at the northwest, northeast and southwest intersection of Regional Road 24 (Charleston Sideroad) and Regional Road 136 (Main Street). Of these lands, 261 hectares are proposed to be licensed under the Aggregate Resources Act and designated / zoned under the Planning Act to permit the proposed CBM Caledon Pit / Quarry. These lands are mapped as a Caledon High Potential Mineral Aggregate Resource Area (CHPMARA) in the Town of Caledon Official Plan and High Potential Mineral Aggregate Resource Area (HPMARA) in the Region of Peel Official Plan and are protected for their aggregate potential. The subject lands are generally bounded by Mississauga Road to the west, Main Street to the east, and Cataract to the east and south.

2.2 Study Area

The haul route analyses include the following intersections, as requested during pre-consultation with the review agencies:

- Hurontario Street (Highway 10) and Charleston Sideroad (Peel Regional Road 24)
- Charleston Sideroad (Peel Regional Road 24) and Main Street (Peel Regional Road 136)
- Charleston Sideroad (Peel Regional Road 24) and Mississauga Road
- Charleston Sideroad (Peel Regional Road 24) and Future Site Access

Further details regarding the proposed location of the future site access are found in **Section 4**.

2.3 Pit / Quarry Statistics

The proposed tonnage limit for the proposed CBM Caledon Pit / Quarry is 2.5 million tonnes per year and on average CBM anticipates shipping approximately 2.0 million tonnes per year with an average of truck aggregate capacity of approximately 30 tonnes. The CBM Caledon Pit / Quarry is proposed to operate (extraction, processing, and drilling) 7:00 am to 7:00 pm Monday to Saturday, excluding statutory holidays and shipping is proposed from 6:00 am to 7:00 pm Monday to Saturday consistent with other mineral aggregate operations in Caledon. CBM is also proposing to permit limited shipping in the evening (7:00 pm to 6:00 am) to support public authority contracts that require the delivery of aggregates during these hours to complete public infrastructure projects. These activities will be limited to only highway trucks and shipping loaders and no other operations will be permitted during evening hours.

CBM is expected to employ approximately 30 staff members during the day shift (5:00 a.m. to 5:00 p.m.) and 20 members during the night shift (5:00 p.m. to 5:00 a.m.), should a public authority project require a night shift. Additionally, approximately 20 contractors will be on site for non-haulage operations during the day shift should one be needed for public authority contracts, when the site is at full operations.

2.4 Proposed Routing Plan and Haul Route Roadways

In accordance with Caledon Official Plan Section 5.11.2.4.14, the following primary haul routes for trucks destined to/from Caledon Pit / Quarry are proposed: 95% of truck traffic is anticipated to head east on Charleston Sideroad towards Hurontario Street (with 90% travelling south and 5% travelling north on Hurontario Street) and the remaining 5% is proposed to head west on Charleston Sideroad.

3 BASELINE TRAFFIC CONDITIONS

3.1 Road Network

Hurontario Street (Highway 10) is an existing north-south provincial highway with a rural four-lane cross-section under the jurisdiction of the MTO. Within the study area, Hurontario Street has a posted speed limit of 50 km/h north of Charleston Sideroad until Mistywood Drive / Chester Drive where it transitions to 60 km/h. The posted speed limit south of Charleston Sideroad is 50 km/h and increases to 80 km/h approximately one kilometre south of Charleston Sideroad.

Charleston Sideroad (Regional Road 24) is an existing east-west Rural Road with a two-lane cross-section under the jurisdiction of the Region of Peel. Within the study area, Charleston Sideroad has a posted speed limit of 80 km/h west of Willoughby Road and decreases to 50-60 km/h through Caledon Village.

Main Street (Regional Road 136) is an existing north-south Rural Road with a two-lane cross-section under the jurisdiction of the Region of Peel. Within the study area, Main Street has a posted speed limit of 80 km/h.

Mississauga Road is an existing north-south road with a rural two-lane cross-section under the jurisdiction of the Town of Caledon. Within the study area, Mississauga Road has a posted speed limit of 80 km/h north of Charleston Sideroad and 60 km/h south of Charleston Sideroad.

Cataract Road is an existing local road with a rural two-lane cross-section under the jurisdiction of the Town of Caledon. Cataract Road runs north-south from Charleston Sideroad (Peel Regional Road 24) and bends approximately 930 metres south of Charleston Sideroad and intersects as an east-west roadway with Mississauga Road. Within the study area, Cataract Road has a posted speed limit of 40 km/h.

3.2 Baseline 2023 Traffic Volumes

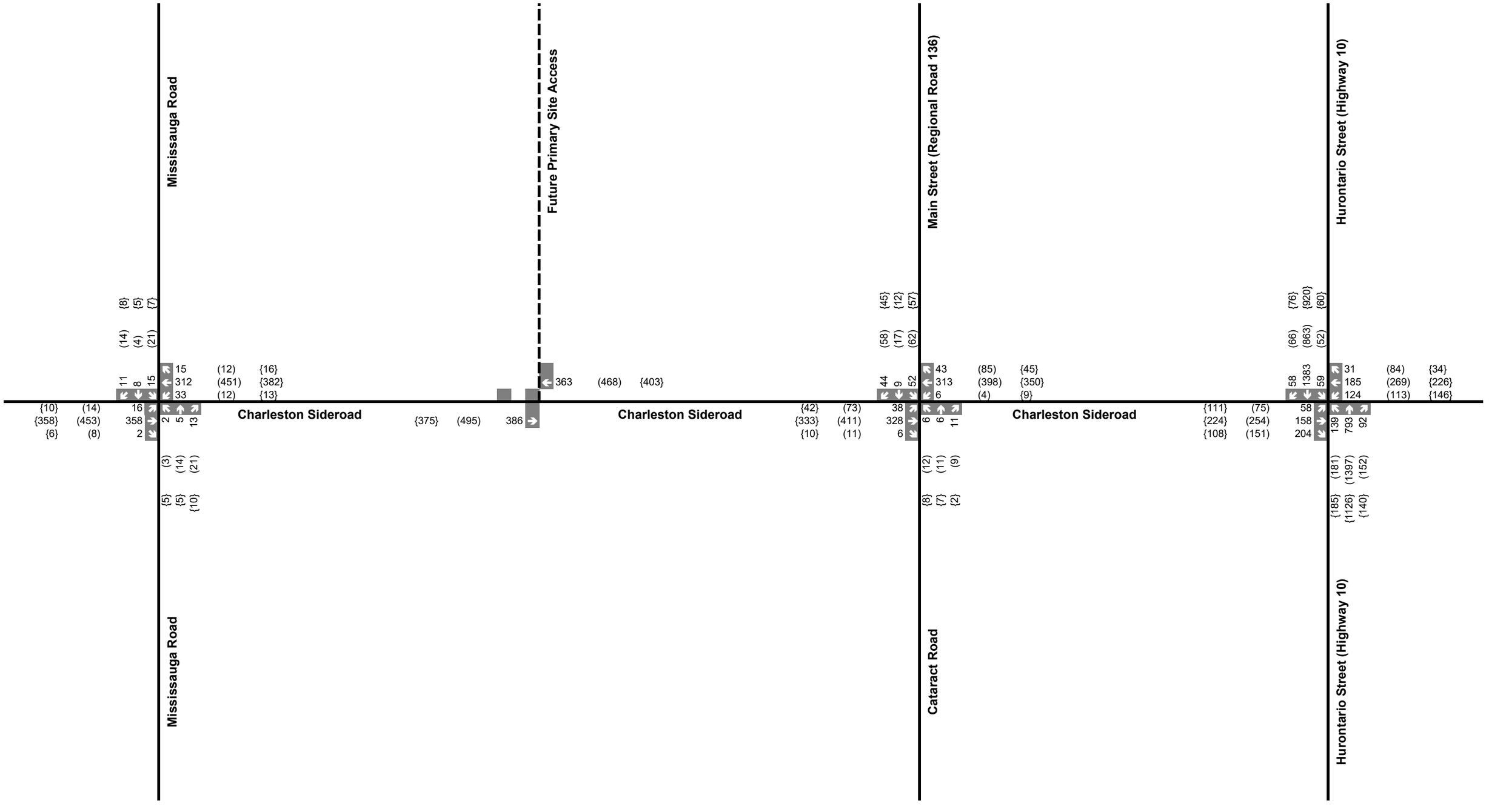
Turning movement counts (TMC) were obtained during 2020, 2021, 2022, and during 2023 with additional TMC data received for the intersection of Charleston Sideroad and Hurontario Street from MTO for the year of 2018. The table below summarizes the data collection dates and times. Existing traffic data is provided in **Appendix B**.

Table 3-1 Turning Movement Count Data Summary

Intersection	Date of Data Received		
	AM	PM	Saturday
Hurontario Street and Charleston Sideroad	May 16, 2018 November 5, 2020 July 8, 2021 April 21, 2022 June 22, 2023 June 23, 2023	May 16, 2018 November 5, 2020 July 8, 2021 April 21, 2022 June 22, 2023 June 23, 2023	November 7, 2020 July 10, 2021 April 23, 2022 June 24, 2023
Charleston Sideroad and Main Street / Cataract Road	November 5, 2020 July 8, 2021 April 21, 2022 June 22, 2023 June 23, 2023	November 5, 2020 July 8, 2021 April 21, 2022 June 22, 2023 June 23, 2023	November 7, 2020 July 10, 2021 April 23, 2022 June 24, 2023
Charleston Sideroad and Mississauga Road	November 5, 2020 July 8, 2021 April 21, 2022 June 22, 2023 June 23, 2023	November 5, 2020 July 8, 2021 April 21, 2022 June 22, 2023 June 23, 2023	November 7, 2020 July 10, 2021 April 23, 2022 June 24, 2023

Under previous versions of this report, the TMC data was observed for all the collection years to determine the most conservative observed traffic volumes in the study network. At Charleston Sideroad & Hurontario Street, 2018 pre-COVID MTO traffic counts were adopted as baseline traffic volumes as they were the most conservative. However, upon revision, it is generally understood that municipalities across southern Ontario are currently accepting new traffic counts without adjustment for COVID-related factors . Therefore, 2023 data were adopted for the revision and used without adjustment factors applied for COVID-related reductions.

A comparison of total intersection volumes showed that Thursday June 22, 2023 had a greater total volume of vehicles in both the AM and PM peak hours when compared to peak hour volumes on Friday June 23, 2023. Therefore, Thursday June 23 data was selected for the AM and PM peak hour traffic analysis in order to achieve a more conservative analysis. **Figure 3-1** shows the baseline 2023 traffic volumes.



Legend

xx A.M. Peak Hour Traffic
(xx) P.M. Peak Hour Traffic
{xx} Saturday Peak Hour Traffic

TYLin

Figure 3-1

Existing 2023 Traffic Volumes

4 SITE ACCESS CONSIDERATIONS

In order to satisfy Section 5.11.2.4.4 of the Caledon Official Plan, an evaluation of alternative haul routes has been identified and evaluated. As part of the haul route assessment, the potential locations that were considered for the future site access include:

- The segment on Charleston Sideroad between Mississauga Road and Main Street / Cataract Road;
- The segment on Main Street approximately 600 metres north of Charleston Sideroad and adjacent to the subject lands bounded by Main Street; and
- The segment of Mississauga Road north of Charleston Sideroad and south of existing residential dwellings (approximately 300 metres north of Charleston Sideroad).

A qualitative review was done based on several criteria in order to determine the preferred location for the site access as described below.

4.1 Haul Route Restrictions

One of the criteria for determining the ideal site access location includes a review of heavy vehicle restrictions along the study area roadways where a site access could be proposed. The following summarizes the findings:

- **Charleston Sideroad:** There are no heavy vehicle restrictions along Charleston Sideroad within the vicinity of the subject site and thus, this road is a viable option for a site access location.
- **Mississauga Road:** There are heavy vehicle restrictions on Mississauga Road from King Street to Bush Street, south of the subject site. Furthermore, municipal heavy restrictions (seasonal or all-year) are placed along Mississauga Road directly north and south of the subject lands. In order to propose a site access along Mississauga Road, road improvements may be required to accommodate heavy vehicle activity.
- **Main Street:** There are no heavy vehicle restrictions along Main Street within the study area.
- **Cataract Road:** There are heavy vehicle restrictions along Cataract Road within the vicinity of the site and thus, does not establish a feasible location for a site access.

Additionally, as per the Town of Caledon Official Plan (OP) (April 2018), haul routes for new aggregate operations are to be on High-capacity Arterial roads only. Both Charleston Sideroad and Main Street are identified as high-capacity arterial roads as per the Caledon OP Section 5.11.2.5.1 and Schedule J.

As Cataract Road and Mississauga Road have heavy vehicle restrictions, Charleston Sideroad and Main Street are considered to be preferred alternatives for the future site access location based on heavy vehicle restrictions criteria.

4.2 Access Spacing Requirements

Access spacing requirements were determined using Transportation Association of Canada (TAC) Chapter 9 – Intersections Guidelines and Peel Region Road Characterization Study (RCS). Excerpts from TAC Chapter 9 Guidelines and Peel Region RCS are found in **Appendix C**.

As per TAC Chapter 9 – Intersections Guidelines, minimum intersection spacing along arterial roadways is 200 metres. This allows sufficient space required for left-turn lane facilities and potential acceleration / deceleration distances required at adjacent intersections. Furthermore, satisfying the minimum intersection spacing will ensure that storage and taper lengths of potential left-turn lanes do not impact the private residential accesses.

In accordance with Peel Region RCS guidelines, full-moves intersections along rural roads such as Charleston Sideroad and Main Street are required to be spaced a minimum of 600 metres measured from curb extension to curb extension. Along the segment of Charleston Sideroad between Mississauga Road and Main Street / Cataract Road, there are two-600-metre segments where a site access cannot be located which provides a smaller potential area where a site access can be placed. Main Street has only one-600-metre restricted segment within the vicinity of the study area, and Mississauga Road is a local road which follows TAC guideline's intersection spacing requirements of 200 metres, thus permitting a larger range of acceptable access spacing along Mississauga Road where a quarry access can be located.

4.3 Traffic Signal Infrastructure and Existing Intersection Improvements

Left-turn infrastructure is present at the intersection of Charleston Sideroad and Main Street, allowing for easier left turns to and from the north. Should auxiliary lanes be recommended as a mitigation measure to service the quarry, external road improvements would be required on Charleston Sideroad at Mississauga Road or the quarry access. Furthermore, currently there are traffic signals located only at the Charleston Sideroad and Main Street intersection. If signalization is required at the potential access along Charleston Sideroad, or Mississauga Road intersection, road improvements would be necessary to accommodate signal infrastructure, at CBM's expense.

4.4 Horizontal and Vertical Sightlines

A site visit was conducted on November 16, 2021, by TYLin Staff to assess vertical and horizontal sightlines along the study area road network based on intersection sight distance (ISD) and stopping sight distance (SSD) in accordance with TAC guidelines to confirm practicality for site access locations. **Table 4-1** summarizes the ISD and SSD from Equation 9.9.1, Table 9.9.4 and 9.9.6 from the TAC guidelines that were referred to during the site investigation.

Table 4-1 ISD and SSD for Different Design Vehicles

Parameter	Design Speed	
	90 km/hour	100 km/hour
Left-Turn ISD (m)		
Passenger Car	190	210
Single-Unit Truck	240	265
Combination Truck	290	320
Right-Turn ISD (m)		
Passenger Car	165	185
Single-Unit Truck	215	240
Combination Truck	265	295
Left/Right-Turn SSD (m)		
Passenger Car[1]	160	185

[1] - TAC guidelines only provide SSD for passenger vehicles however Section 2.5.3.1 of TAC states that SSD requirements for trucks are generally longer due to additional distance required to stop as well as due to cabin position.

Figure 4-1 shows the approximate locations where measurements were taken for the sightline review.

Figure 4-1 Approximate Location of SSD and ISD Measurements

Along Mississauga Road, right-turn ISD requirements were not met for trucks at the potential site access near Location 1. Near Location 2, only right-turn ISD was assessed due to limited sightlines at Location 1. All right-turn ISD requirements were met at Location 2.

Along Charleston Sideroad, all sightline distances met the required criteria near Location 3. It was observed that some road signs cause slight visual obstructions due to the horizontal curve. It is recommended to clear all landscape or other obstructions near the edge of the property as driver's sightline may go through the property line in the future.

Along Main Street at Location 4, the right-turn ISD requirements were only met for a single-unit truck due to a crest in the road. All sightline distances met the required standards at Location 5.

Further details and images of the site visit can be found in **Appendix D**.

4.5 Safety and Route Considerations

The Belfountain Village and Conservation Area is located south of the subject site along Mississauga Road; although temporarily closed, this Conservation Area would generate non-site

related traffic when reopened and create potential conflicts with trucks turning outbound along Mississauga Road. Aside from the heavy truck restrictions, this is another reason that Mississauga Road is not a preferred roadway for a site access location.

CBM confirmed the proposed truck distribution estimates 95% of truck traffic heading east on Charleston Sideroad towards Hurontario Street (with 90% travelling south and 5% travelling north on Hurontario Street) and the remaining 5% truck traffic heading west on Charleston Sideroad to serve other markets west of the study area. Placing a site access along the proposed haulage route creates a more efficient haulage process. As the haulage route is proposed to primarily travel along Charleston Sideroad, it is a preferred road for a site access location.

4.6 Physical Constraints

The segment on Charleston Sideroad that is between Mississauga Road and Main Street / Cataract Road as well as the segment on Main Street that is approximately 300 metres north of Charleston Sideroad and adjacent to the subject lands bounded by Main Street are the two preferred locations for the site access. An additional review was conducted to identify if there are physical constraints that could constrain a site location along this segment of Charleston Road.

The most significant physical constraint that is relevant to the site access is the access's proximity to adjacent intersections. TAC Chapter 9 guidelines and Peel Region RCS was used to determine the locations along Charleston Sideroad where the access would not be recommended.

It is noted that between Mississauga Road and Main Street / Cataract Road, there is one active private access for a site that is owned by CBM (1420 Charleston Sideroad) on Charleston Sideroad approximately 230 metres west of Main Street / Cataract Road. There is also a private access on Main Street approximately 180 metres north of Charleston Sideroad.

At its intersection with Main Street / Cataract Road, Charleston Sideroad has an eastbound left-turn storage length and taper length of approximately 125 metres and 85 metres, respectively. At its intersection with Mississauga Road, Charleston Sideroad has a westbound right-turn storage and taper length of 30 metres each. At its intersection with Charleston Sideroad, Main Street has a southbound left-turn storage and taper length of approximately 65 and 105 metres, respectively.

Figure 4-2 shows the locations along study area road network where a site location is not recommended as per TAC and RCS site access guidelines.

Figure 4-2 Locations along Study Area Road Network where Site Access is not Recommended for Aggregate Haul Trucks

4.7 Preferred Future Site Access Location

A site access consideration review was conducted to determine the preferred location for the future site access. Several factors and conditions were analyzed quantitatively and qualitatively including haul route restrictions, existing capacity analysis results, a high-level sightline review, study area road classifications, safety / route considerations, and physical constraints.

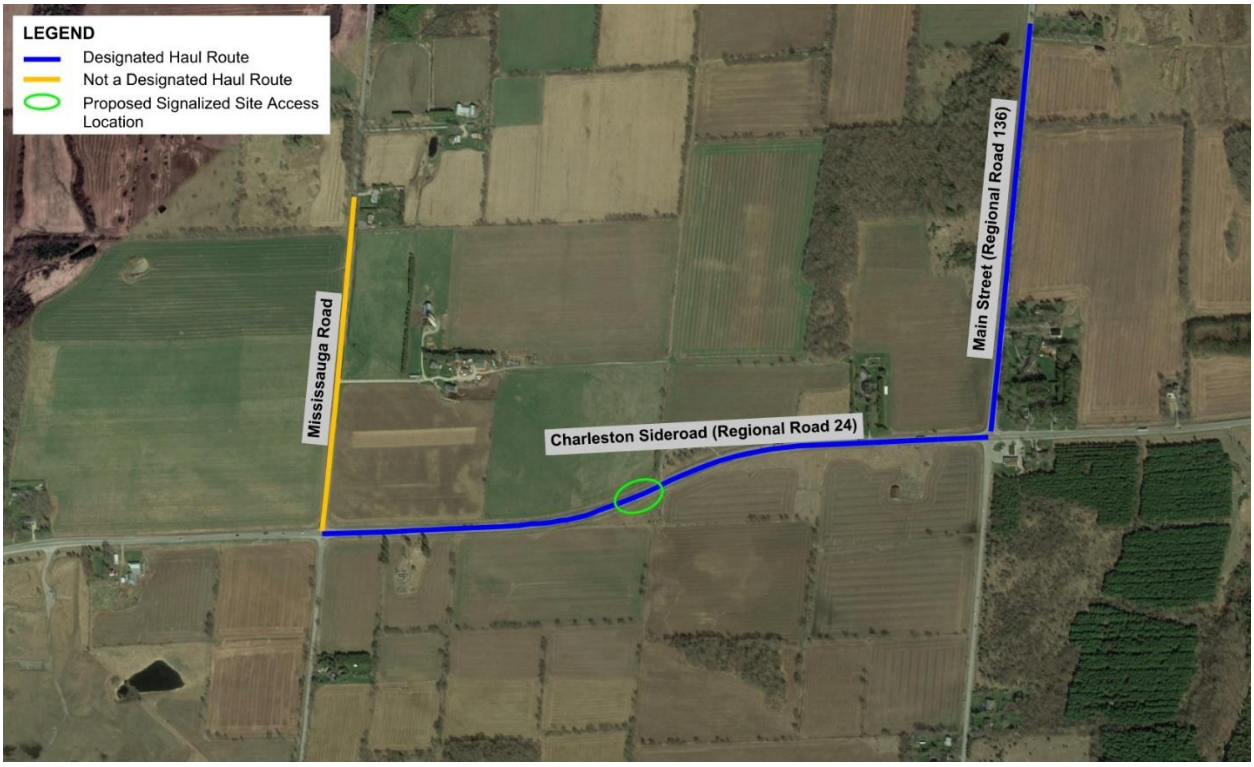
Due to heavy vehicle restrictions, Cataract Road and Mississauga Road are not considered preferred locations for the site access unless future road improvements are completed to accommodate heavy truck activity. Main Street is considered as an alternative location for the proposed site access as it does not pose any physical or safety concerns. However, Main Street is the primary north-south connection to /from Alton serving local residents. Additionally, there are no physical or safety concerns for Charleston Sideroad and moreover, the haulage route travels primarily along this roadway; therefore, Charleston Sideroad is another preferred alternative for the future site access location.

After conducting the site access consideration review, TYLin recommends the future site access to be located along the segment of Charleston Sideroad (Regional Road 24) between Mississauga Road and Main Street / Cataract Road. The potential location for the site access adhere to TAC

and Peel Region's RCS guidelines of minimum intersection spacing. This will allow for any future left and right-turn facilities and their associated storage and taper lengths to be accommodated by adjacent intersections and will not interfere with private residential driveway access.

Figure 4-3 illustrates the preferred location for the future site access.

Figure 4-3 Preferred Future Site Access Location



4.8 Existing Access to 1420 Charleston Sideroad

A heritage property is currently located at 1420 Charleston Sideroad with a single driveway access. The property is currently in use as a residence, and is proposed to be adaptively reused as an office and laboratory during the license period with intention to revert the property back to residential use following surrender of the license. The proposed office/lab space will employ a total of 6 employees. Based on the number of employees, TYLin anticipates the number of site-generated trips to/from the existing access to this property will be nominal. Therefore, it is TYLin's opinion that any traffic impact to/from this access and study intersections will be inconsequential, and it is recommended that no further analysis is required.

5 FUTURE BACKGROUND CONDITIONS

5.1 Study Horizon Years

As per pre-consultation correspondence and in order to satisfy Caledon Official Plan Section 5.11.2.4.14, a planning horizon study period of 2032 was assumed for future conditions traffic analysis, which correlates to 10 years post-baseline 2022 conditions. Although revised counts were undertaken in 2023, the 2032 horizon was kept to maintain consistency previous versions of this report allowing for comparative analysis.

5.2 Study Area Road Network Improvements

The Region of Peel and the Town of Caledon confirmed there are no current planning capital roadwork improvements in the study area within the 2032 planning horizon.

5.3 Background Developments

During pre-consultation, Town staff confirmed there are no significant background developments within the vicinity of the site that is anticipated to impact the traffic analysis during the planning horizon period. However, background corridor growth rates, compounded annually (see **Section 5.4**), were applied to future traffic projections to account for population and employment forecasts. A portion of these growth rates includes background development outside of the Town's jurisdiction to account for future commuter traffic travelling through the study area.

5.4 Background Corridor Growth

All traffic was grown from the year the data was collected to predict future non-quarry related traffic volumes along the haul routes for the future horizon years using the following growth rates that were agreed upon through pre-consultation correspondence:

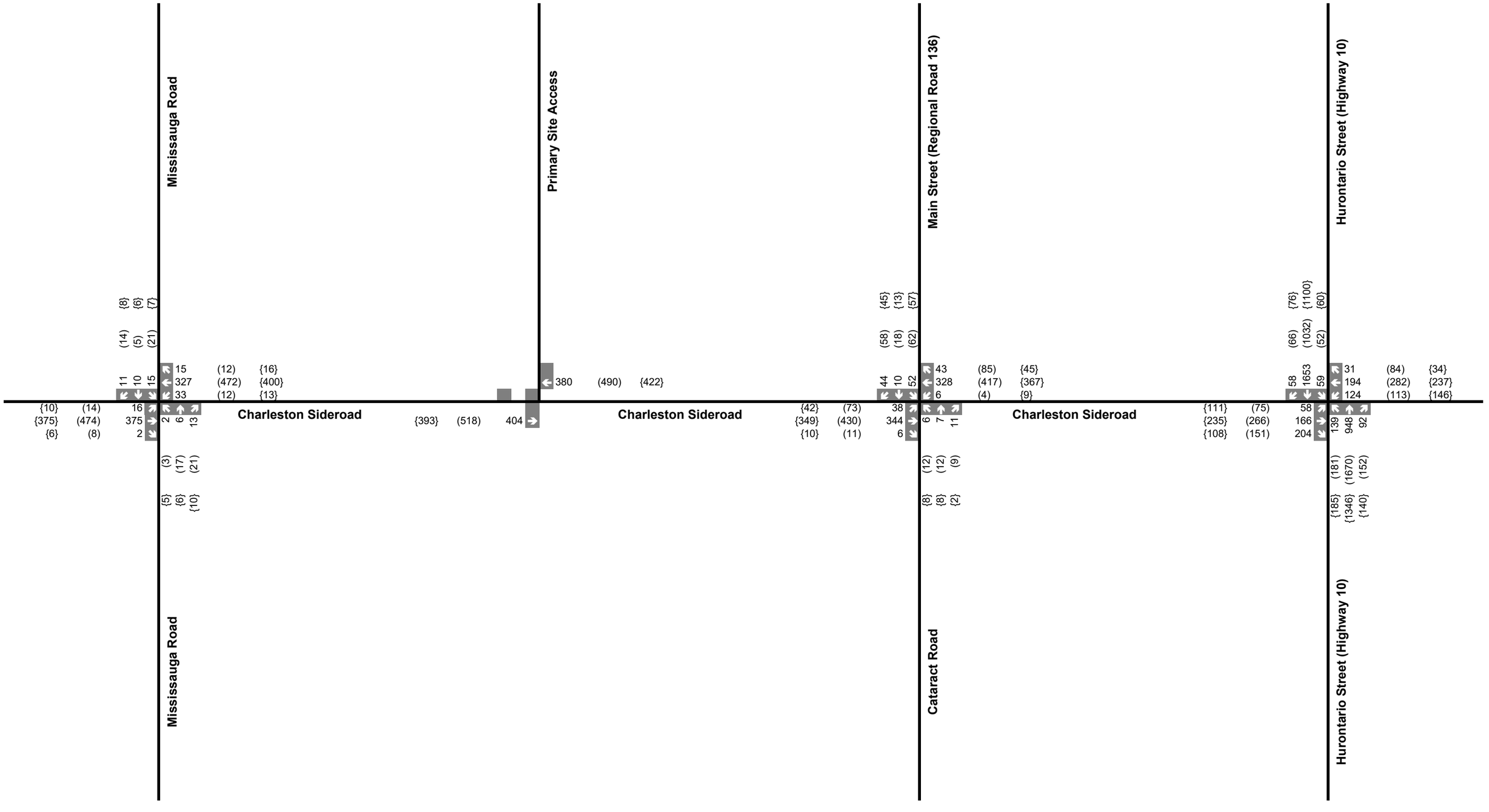
- 2% for Hurontario Street
- 0.5% for Charleston Sideroad
- 0.5% for Main Street
- 2% for Cataract Road
- 2% for Mississauga Road

Utilizing the calculated growth factors, compounded annually, traffic counts for the study area intersections were grown and balanced to the horizon year.

5.5 Future Background Traffic Volumes

The 2023 baseline traffic plus the corridor growth were combined to produce the 2032 background weekday a.m., p.m., and Saturday peak hour traffic volumes.

The future background 2032 traffic volumes are presented in **Figure 5-1**.



Legend

xx A.M. Peak Hour Traffic
(xx) P.M. Peak Hour Traffic
{xx} Saturday Peak Hour Traffic

Figure 5-1

Future Background
2032 Traffic Volumes

6 SITE GENERATED TRAFFIC

6.1 Site Trip Generation

New employee (passenger car) and truck trips were generated using the following methodology based on data received through pre-consultation correspondence.

6.1.1 Passenger Car Peak Hour Trips

CBM estimates the quarry will employ approximately 30 staff during the day shift between 5:00 a.m. to 5:00 p.m. and 20 employees during the night shift between 5:00 p.m. to 5:00 a.m., should one be needed for public authority projects. As shift change occurs at 5:00 p.m., it is assumed that there will be no employee trips during the a.m. or Saturday peak hours. Although night shift staff members are not intended to be onsite regularly, 20 employees were included during the p.m. peak hour as a conservative measure. Additionally, approximately 20 contractors are estimated to be on site for non-haulage operations during the day shift. It is assumed that these contractors will be entering and exiting the site at different off-peak hours during the day shift, and as a conservative measure, these trips were split 75%-25% between the a.m. and p.m. peak hour, respectively.

Table 6-1 summarizes the new employee passenger car trips generated for all peak hours.

Table 6-1 Passenger Car Peak Hour Trips

Employee Passenger Car Trips								
AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
In	Out	Total	In	Out	Total	In	Out	Total
15	15	30	25	35	60	0	0	0

As seen in **Table 6-1**, there are a total of 30 passenger car trips generated during the a.m. peak hour consisting of 15 inbound and 15 outbound trips. During the p.m. peak hour, a total of 60 trips are generated consisting of 25 inbound and 35 outbound trips. Staff members will be entering and exiting the site outside of the adjacent street peak on Saturdays. Additionally, CBM confirmed contractors are not expected to be onsite on Saturdays. However, on the rare occurrence contractors visit the site on Saturday they would be entering/exiting during the opening hours of the site, outside of the adjacent street Saturday peak hours. Therefore, no passenger car trips are generated on Saturday.

6.1.2 Truck Peak Hour Trips

Caledon Pit / Quarry is proposed to ship a maximum of 2,500,000 tonnes of aggregate per year

with an average of truck aggregate capacity of approximately 30 tonnes.

The haulage hours of operation are between 6:00 a.m. and 7:00 p.m. on weekdays and Saturdays, with no haulage activity occurring on Sundays and holidays; thus, totaling to 78 hours per week (minimum of 312 hours per month) of haulage activity. Based on data received, it was determined that the month of July had the highest percentage of the total haulage activity and therefore will generate the largest volume of new truck trips.

It has been our experience that additional peaking occurs during early morning shipping activity, to provide material to construction sites in the morning. As a result, additional outbound loaded trucks could occasionally occur creating a short-lived 'peak within a peak' condition (generally occurring prior to the adjacent street peak).

To account for this peaking, the a.m. peak hour outbound truck volume was increased by an additional 50%, equating to 45 loaded outbound truck trips per hour. We have adopted this peak trip generation as the design-hour vehicle volume for our site-impact analysis. As alluded to above, these 'peak within a peak' activities are predicted to occur largely outside of the adjacent street peak hours, so in this respect we are predicting an unlikely (and conservative) scenario of the quarry and adjacent street peaks coinciding.

Table 6-2 summarizes the new truck trips generated.

Table 6-2 Truck Peak Hour Trips

Truck Trips								
AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
In	Out	Total	In	Out	Total	In	Out	Total
30	45	75	30	30	60	30	30	60

As seen in **Table 6-2**, there are a total of 75 new truck trips generated during the a.m. peak hour consisting of 30 inbound and 45 outbound trips. During both of the p.m. and Saturday peak hours, a total of 60 new tuck trips are generated consisting of 30 inbound and 30 outbound trips.

6.1.3 Passenger Car Equivalent Factors

In order to satisfy Caledon Official Plan Section 5.11.2.4.14, a comparison between the percentage of heavy vehicle peak hour generation and passenger car equivalent (PCE) was completed for the purpose of the heavy truck impact analyses. PCE factors were applied to account for the additional time it takes a heavy vehicle (in this case, different PCE's for each of the loaded and empty gravel trucks) to travel through an intersection. Based on TYLin's previous pit / quarry traffic study experience, a PCE of 3.0 for outbound loaded trucks and a PCE of 2.0 for inbound empty trucks was adopted. The subsequent PCE adjusted volumes are summarized in **Table 6-3**.

Table 6-3 Passenger Car Equivalent (PCE) Adjusted Vehicle Peak Hour Trips

Truck Trips								
AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
In	Out	Total	In	Out	Total	In	Out	Total
60	135	195	60	90	150	60	90	150

Heavy vehicle volumes generated by the site are accounted for in the future total conditions using the heavy vehicle percentage parameter in the traffic analysis model. Therefore, a PCE factor was not included in the future total volumes for the purpose of traffic capacity analysis. However, it is noted that the PCE factor was applied to future total traffic volumes when conducting a signal warrant at the future proposed site access. Further details are provided in **Section 8.1**.

6.2 Site Trip Distribution and Assignment

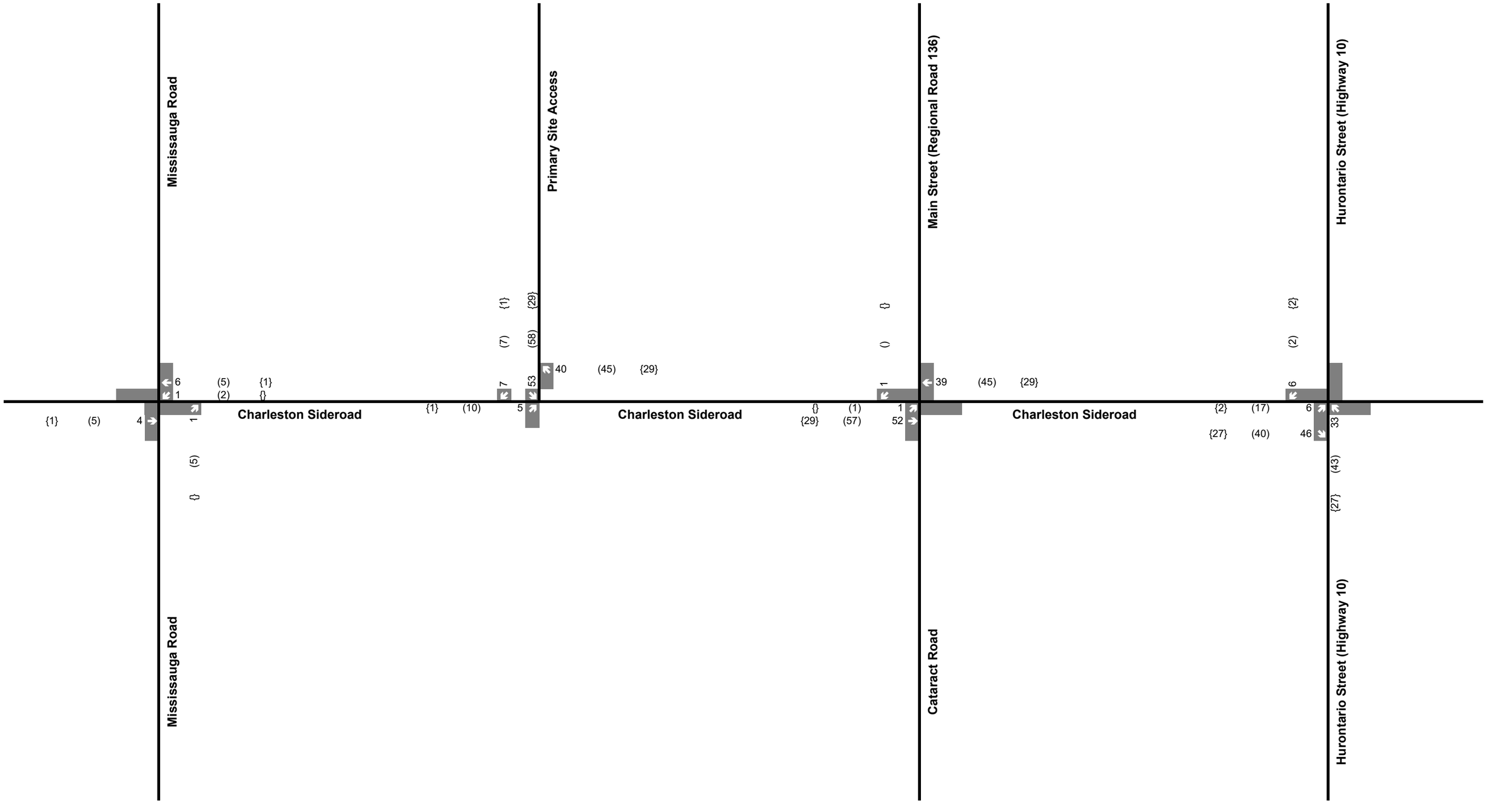
Truck trips were distributed throughout the network based on the proposed haulage route as outlined in **Section 2.4**: 95% heading east on Charleston Sideroad towards Hurontario Street (with 90% travelling south and 5% travelling north on Hurontario Street) and the remaining 5% heading west on Charleston Sideroad.

Distribution of employee trips was derived from a review of 2016 Transportation Tomorrow Survey (TTS) summary data and existing travel patterns. Site traffic was assigned to the road network based on these distributions and have been provided in **Table 6-4**.

Table 6-4 Passenger Site Trip Distribution

Directions	AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
	In	Out	In	Out	In	Out
North	21%	28%	0%	26%	0%	26%
East	18%	19%	0%	35%	0%	35%
South	47%	29%	100%	34%	100%	34%
West	13%	24%	0%	5%	0%	5%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

The estimated proposed site trips during the a.m., p.m., and Saturday peak periods are shown in **Figure 6-1**.



Legend

xx A.M. Peak Hour Traffic
(xx) P.M. Peak Hour Traffic
{xx} Saturday Peak Hour Traffic

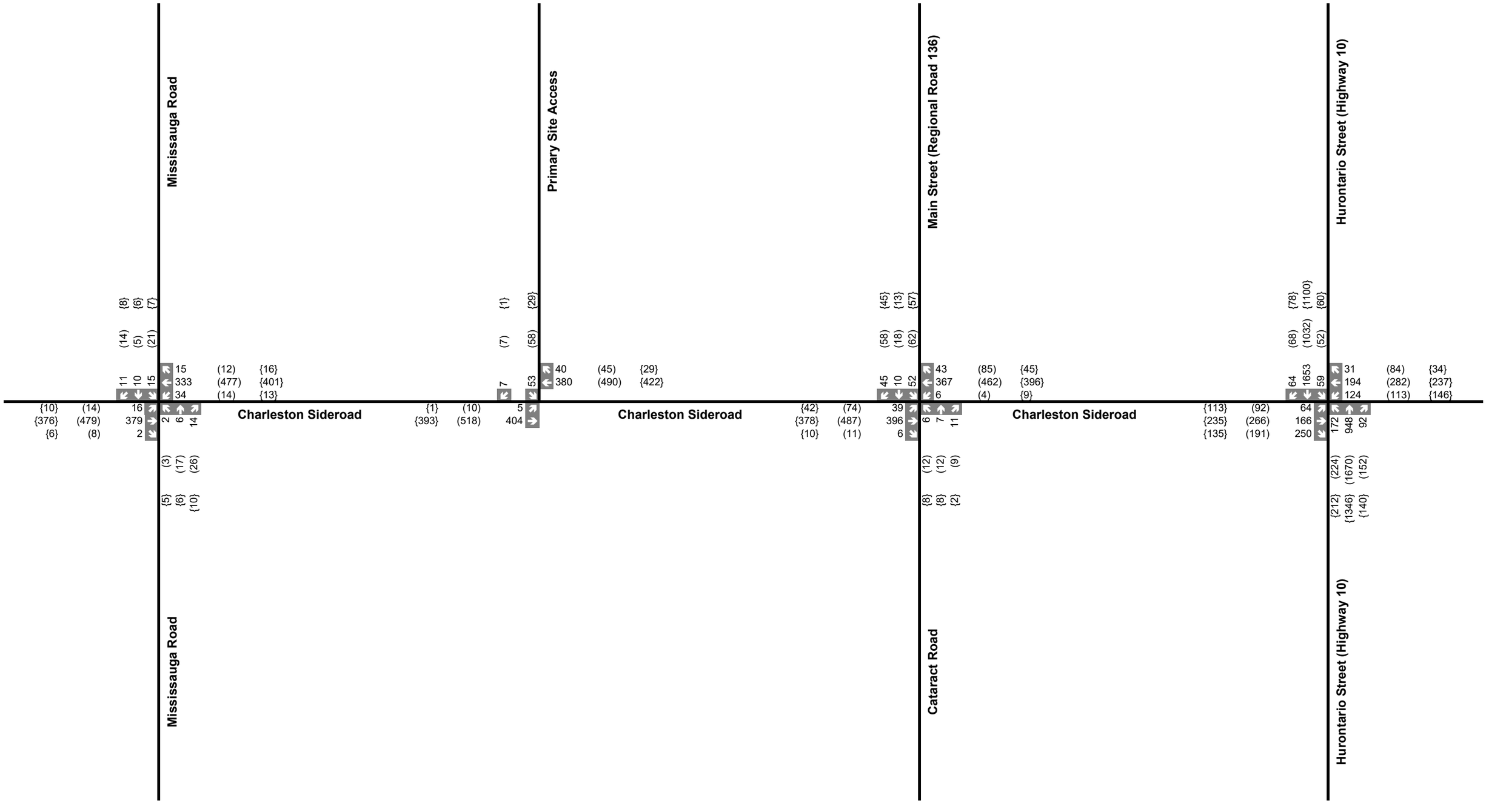
TYLin

Figure 6-1

Caledon Quarry Site
Generated Traffic Volumes

7 FUTURE TOTAL TRAFFIC CONDITIONS

The future total traffic conditions for the peak study hours in the 2032 planning horizon was derived by combining the projected future background traffic with the corresponding estimate of the total site generated traffic. **Figure 7-1** summarizes the future total traffic volumes for the 2032 planning horizon during the weekday a.m., p.m., and Saturday peak hours.



Legend

xx A.M. Peak Hour Traffic
(xx) P.M. Peak Hour Traffic
{xx} Saturday Peak Hour Traffic

TYLin

Figure 7-1

Future Total 2032 Traffic Volumes

8 SITE ACCESS WARRANT ANALYSIS

8.1 Signal Warrant

A signal warrant was conducted under future total 2032 conditions to determine if a signal is warranted at the proposed site access on Charleston Sideroad from a capacity standpoint. It was determined that a signal warrant was not satisfied. An additional signal warrant was completed using PCE factors to account for the heavy vehicle trips and was also not satisfied under future total conditions. Results of the signal warrant can be found in **Appendix E**.

Although a signal warrant is not explicitly satisfied at the site access, it is recommended that the site access is signalized in future conditions in order to improve operations and allow for ease of traffic flow onto Charleston Sideroad.

It is noted that if signalization of the future site access on Charleston Sideroad is desired by the Region, a signal can be installed at the cost of the client accordingly, as agreed to by CBM.

8.2 Left-Turn Warrant Analysis

Left-turn warrants were conducted using MTO's Ontario Geometric Design Standards (OGDS) Chapter E – At Grade Intersections guidelines. Under future total 2032 conditions, southbound left-turn warrant analysis was conducted at the site access. It was determined that from a capacity standpoint, a left-turn warrant was not satisfied. Therefore, a southbound left-turn lane is not proposed at the site access.

An eastbound left-turn warrant was also conducted under future total conditions with a design speed of 100 km/h (posted speed at Charleston Sideroad is 80 km/h). It was determined that an eastbound left-turn lane is warranted with a minimum storage length of 25 metres during the p.m. peak hour in accordance with OGDS Chapter E and 15 metre storage warranted in the a.m. peak hour). Additionally, as per the Region's RCS, an auxiliary eastbound left-turn lane is recommended to provide increased safety on the road mitigating slower-moving turning vehicles from the higher-speed vehicles in the through lanes. See **Appendix F** for the results of the left-turn lane warrants.

8.3 Auxiliary Right-Turn Lane

TAC Chapter 9 – Intersections states that a right-turn lane (without a separate signal indication) is recommended when the right-turning volume is 10% to 20% of the total approaching volume. Under future total conditions, the right-turning volume is approximately 12% during the a.m. peak

hour.

Furthermore, the Region's RCS, recommends including an auxiliary right-turn lane at a new access in order to mitigate traffic flow. Therefore, a right-turn lane at the site access is proposed under future total conditions.

Design criteria for the auxiliary left and right-turn lanes at the site access are discussed in further detail in **Section 9**.

9 PROPOSED SITE ACCESS CONCEPTUAL DESIGN

As part of this study, a conceptual design was considered for the future site access. As mentioned in **Section 4**, Charleston Sideroad is the preferred location for the site access in order to have the least traffic impact on the adjacent study network. The proposed site access is planned to be modelled as a 'T' intersection with access to the site north of Charleston Sideroad proposed within the horizon period.

Region of Peel Public Works Standard Drawings, Peel Region RCS, as well as TAC Chapter 8 – Access and Chapter 9 – Intersections guidelines were referenced when designing the future site access at Charleston Sideroad. The criteria that were used are summarized below. Excerpts from the relevant studies and guidelines is found in **Appendix G**.

9.1 Left-Turn and Right-Turn Auxiliary Lane Requirements

Table 6 in the RCS states some design criteria for auxiliary left and right-turn lanes for rural roads (note that Charleston Road is classified as a rural road as per the RCS).

The minimum RCS storage length for both the left and right-turn lanes is 30 metres. The lane width is required to be a minimum of 3.5 metres for both the left and right-turn lanes.

In accordance with TAC Table 9.14.2, the minimum right-turn taper for a 3.50-metre-wide right-turn lane with a design speed of 100 km/h (based on an 80 km/h posted speed, for higher design speeds, the 100 km/h design speed dimensions are used) is between 60 metres and 84 metres. The minimum parallel deceleration length is between 60 and 130 metres. Furthermore, the minimum storage length was determined to be 15 metres. Therefore, the total minimum auxiliary lane (storage plus deceleration) is required to be between 75 metres and 145 metres. TYLin proposes an auxiliary lane length of 75 metres and a taper length of 85 metres for the dedicated westbound right-turn lane at the site access.

For the dedicated left-turn lane with a width of 3.50 metres, a minimum 15-metre storage length is required as per Section 9.17.4.3 of the TAC guideline. The left-turn lane warrant conducted in **Section 8.2** identifies that a storage length of 25 metres is warranted in the PM peak hour, though based on the queueing analysis conducted (**Section 11**), it is expected that a storage length of 15 metres would satisfy the 95th percentile queues and would therefore be sufficient. Notwithstanding, from a safety perspective, a 25 metres storage length is recommended. The minimum approach taper for a design speed of 100 km/h is 105 metres as per TAC table 9.17.1. A minimum braking distance is required to be a minimum of 115 metres as per Table 2.5.2 of the TAC guideline. Therefore, TYLin proposes an auxiliary lane length of 140 metres (25 metre storage

plus 115-metre braking distance) and a taper length of 105 metres for the dedicated eastbound left-turn lane at the site access.

9.2 Access Spacing and Snow Storage Access Considerations

As mentioned in **Section 4.2**, a minimum of 600 metres is required between full-moves intersections/accesses along Charleston Sideroad from curb extension to curb extension. As such, the access was proposed approximately 600 metres east of Mississauga Road and approximately 720 metres west of Main Street. It is noted that a snow storage facility is located on Charleston Sideroad with 'enter only' and 'exit only' accesses located approximately 820 metres and 710 metres east of Mississauga Road, respectively.

Sound transportation engineering design recommends locating right-turn lane tapers beyond a driveway curb return to mitigate any driver confusion. Therefore, the access design proposes that the 85-metre westbound right-turn lane taper begins west of the inbound (easterly) and ahead of the outbound (westerly) snow storage facility accesses.

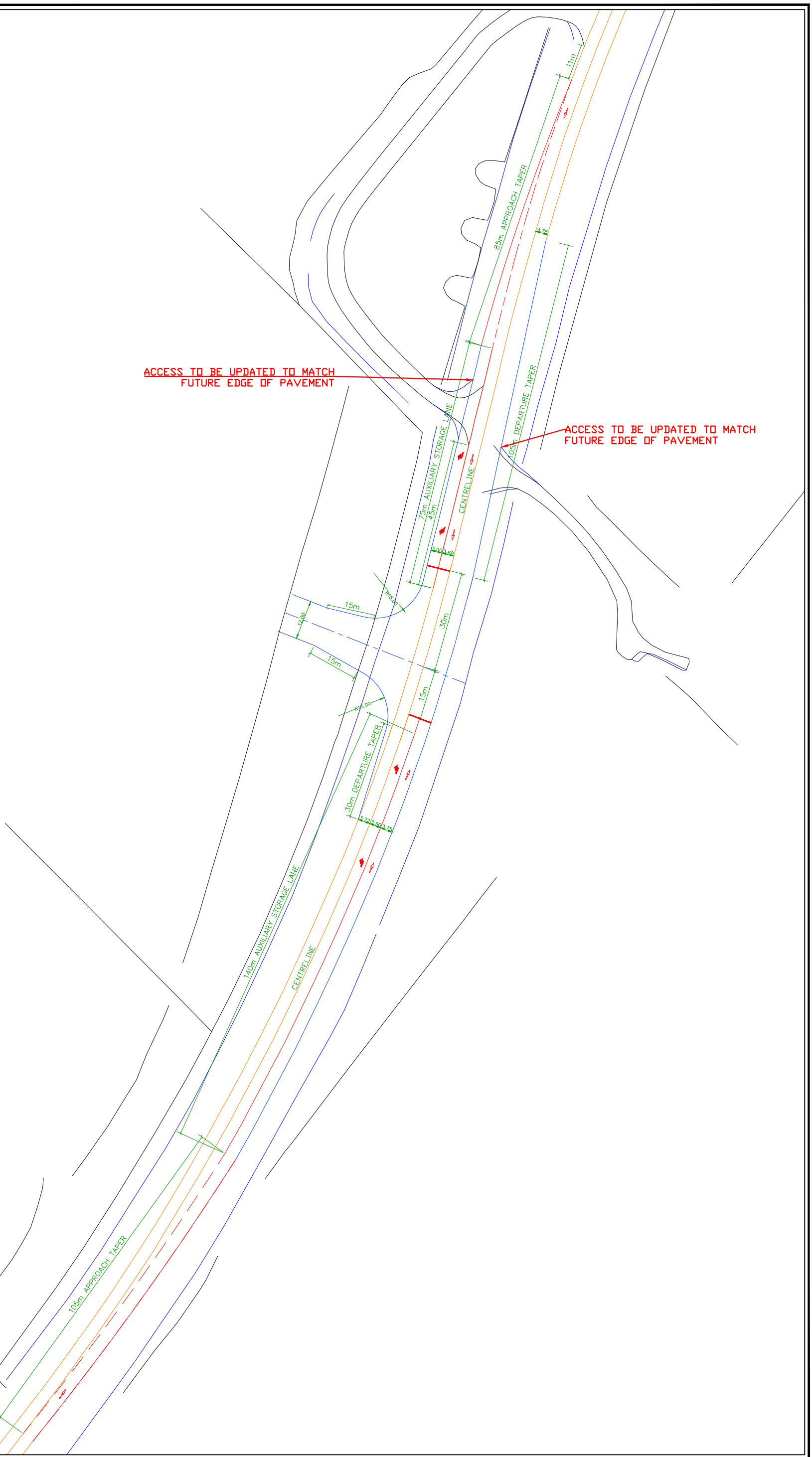
It is expected that the snow storage facility will be gated and not in use during the peak operational months of the quarry (during the spring, summer, and fall seasons); thus, the 45-metre spacing between the outbound access of the snow storage facility and the proposed site access (from curb extension to curb extension) is deemed sufficient and is not expected to negatively impact the operations at the snow storage facility or the operations at the quarry access.

9.3 Left-Turn Lane Design and Curb Radii

Figure 9.17.2 in the TAC guidelines provided three alternatives for an auxiliary left-turn lane. As per TAC, it is preferred that the left-turn lane be designed right of the road centerline. Therefore, the conceptual design of the left-turn lane was modelled after Figure 9.17.2a of the TAC guideline.

A minimum curb radius of 15 metres is required at the site access. In order to accommodate truck maneuvers in and out of the site, a curb radius of 15 metres and 18 metres was proposed for the inbound and outbound curb radii, respectively. Additionally, in order for trucks to exit the site without encroaching onto the incoming lane, a 30-metre departure taper was proposed for trucks turning right out of the site.

Figure 9-1 illustrates the conceptual design for the proposed site access on Charleston Sideroad. **Appendix H** shows the swept path analysis of dump trucks and trucks with pony trailers entering and exiting the site. It is concluded that the design trucks can maneuver the site without conflict and do not encroach onto adjacent lanes.



TYLin

CALEDON QUARRY - CONCEPTUAL DESIGN
FUTURE SITE ACCESS AT CHARLESTON SIDEROAD

SCALE:	NTS
DATE:	JULY 2023
DESIGNED BY:	AX
CHECKED BY:	MD

N

PROJECT No. 10042

FIGURE No. 9-1

File : C:\Users\alan.xaykongsa\OneDrive - T.Y. Lin International\Project Files\10042-Caledon Quarry\04 Conceptual Design\10042_CaledonQuarry_Access_Concept flat_25m_20230731.dwg, Layout : Fig 9-1 - CD Date :Aug 09, 2023 - 1:36pm, Edit By : alan.xaykongsa

10 CAPACITY ANALYSIS

The capacity analysis identifies how well the intersections and access driveways are operating and how they are expected to operate in the future. The analysis contained in this report utilized the Highway Capacity Manual (HCM) 2000 techniques within the Synchro Software package. The reported intersection volume-to-capacity ratios (v/c) are a measure of the saturation volume for each turning movement, while the levels-of-service (LOS) are a measure of the average delay for each turning movement. Queueing characteristics are reported as the predicted 95th percentile queues, derived using SimTraffic micro-simulation software using the following methodology: 10 minutes seeding time, one-hour recording, and 10 runs.

The analysis includes identification of all intersections and for all movements; volume to capacity (v/c) ratios, LOS indicators and 50th and 95th percentile queue lengths. 'Critical' intersections and movements are shown in bold below, in accordance with the Region of Peel's Traffic Impact Study Guidelines for signalized and unsignalized intersections:

- 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 shall exceed 1.00
- 95th percentile queue lengths for individual movements that exceeds available lane storage

All detailed Synchro intersection capacity sheets are found in **Appendix I**.

10.1 Baseline 2023 Capacity Analysis

The Synchro / HCM capacity results for study intersections during the weekday a.m., p.m., and Saturday peak hours under existing traffic conditions are shown in **Table 10-1**.

Recorded video footage for the intersection of Hurontario Street (Highway 10) and Charleston Sideroad (RR 24) showed drivers commonly completing movements during the amber and all-red signal traffic signal phases. Accordingly, the signal timings were calibrated to account to the driver behaviour by applying a lost time adjustment of -2.0 seconds for all movements at the intersection, which was carried forward to all future horizon years.

Additionally, the available storage of exclusive turn lanes at Hurontario Street and Charleston Sideroad was recalibrated by modelling the existing painted storage lanes to the effective storage based on driver behaviour and available vehicle space within the painted medians. A comparison of painted versus effective storage is provided in **Table 10-2**.

Table 10-1 Baseline 2023 Capacity Analysis Summary

Intersection	Movement	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
		V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
Hurontario Street (Highway 10) & Charleston Sideroad (RR 24)	*Overall*	*0.69*	*27*	*C*	*0.76*	*30*	*C*	*0.63*	*26*	*C*
	EBL	0.26	41	D	0.37	39	D	0.51	52	D
	EBT	0.62	54	D	0.80	62	**E**	0.71	57	**E**
	EBR	0.22	47	D	0.10	43	D	0.07	45	D
	WBL	0.48	41	D	0.55	40	D	0.66	47	D
	WBT	0.64	53	D	0.77	57	**E**	0.71	48	**E**
	WBR	0.02	44	D	0.06	41	D	0.02	44	D
	NBL	0.67	31	C	0.50	12	B	0.51	12	B
	NBTR	0.50	16	B	0.81	26	C	0.62	18	B
	SBL	0.19	10	A	0.35	20	B	0.24	12	B
	SBTR	0.75	24	C	0.54	20	B	0.51	*18*	B
Charleston Sideroad (RR 24) & Main Street (RR 136) / Cataract Road	*Overall*	*0.29*	*9*	*A*	*0.35*	*10*	*A*	*0.28*	*9*	*A*
	EBL	0.05	4	A	0.11	5	A	0.06	4	A
	EBTR	0.29	6	A	0.67	6	A	0.28	6	A
	WBL	0.01	4	A	0.01	4	A	0.01	4	A
	WBT	0.30	6	A	0.34	6	A	0.28	6	A
	WBR	0.03	4	A	0.06	4	A	0.03	4	A
	NBL	0.03	30	C	0.06	30	C	0.04	30	C
	NBTR	0.03	30	C	0.05	30	C	0.03	30	C
	SBL	0.25	32	C	0.29	32	C	0.27	32	C
	SBTR	0.25	30	C	0.10	30	C	0.08	30	C
Charleston Sideroad (RR 24) & Mississauga Road	EBL	0.01	8	A	0.01	9	A	0.01	8	A
	EBTR	0.22	0	A	0.28	0	A	0.23	0	A
	WBL	0.04	9	A	0.01	9	A	0.01	8	A
	WBTR	0.20	0	A	0.28	0	A	0.25	0	A
	SBLTR	0.05	14	B	0.11	17	C	0.05	14	B
	NBLTR	0.10	17	C	0.15	21	C	0.06	15	C

Table 10-2 Painted and Effective Storage Length of Exclusive Turn Lanes

Lane	Painted Storage (m)	Painted Taper (m)	Effective Storage (m)	Effective Taper (m)
EBL	35	45	80	0
EBR	65	20	65	20
WBL	40	15	80	65
WBR	60	55	60	55
NBL	65	50	130	65
SBL	20	40	60	0

As seen in **Table 10-1**, under baseline conditions all intersections operate acceptably with reserve capacity and acceptable delays. No intersections or movements are considered critical, though

notable delays are experienced in the PM/Saturday peak hours for the intersection of Hurontario Street (Highway 10) at Charleston Sideroad (RR 24) for the eastbound through (62/57 seconds) and westbound through movements (57/48 seconds) with a level of service "E". Notwithstanding, these operations are still considered acceptable from a traffic capacity standpoint under baseline conditions.

10.2 Future Background 2032 Capacity Analysis

The Synchro / HCM capacity results for study intersections during the weekday a.m., p.m. and Saturday peak hours under future background 2032 traffic conditions are shown in **Table 10-3**. All timings and calibrations from the Baseline 2023 scenario were carried forward.

Table 10-3 Future Background 2032 Capacity Analysis Summary

Intersection	Movement	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
		V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
Hurontario Street (Highway 10) & Charleston Sideroad (RR 24)	*Overall*	*0.79*	*32*	*C*	*0.87*	*36*	*D*	*0.72*	*28*	*C*
	EBL	0.26	40	D	0.39	39	D	0.51	42	D
	EBT	0.64	54	D	0.82	64	**E**	0.72	57	**E**
	EBR	0.26	47	D	0.10	42	D	0.07	44	D
	WBL	0.48	41	D	0.56	37	D	0.66	47	D
	WBT	0.65	53	D	0.79	48	**E**	0.73	58	**E**
	WBR	0.02	43	D	0.06	41	D	0.02	44	D
	NBL	0.74	51	D	0.60	14	B	0.62	17	B
	NBTR	0.59	18	B	**0.95**	26	D	0.74	22	C
	SBL	0.22	11	B	0.36	26	C	0.30	16	B
	SBTR	**0.90**	32	C	0.64	21	C	0.61	20	B
Charleston Sideroad (RR 24) & Main Street (RR 136) / Cataract Road	*Overall*	*0.30*	*9*	*A*	*0.37*	*10*	*A*	*0.29*	*9*	*A*
	EBL	0.05	4	A	0.11	5	A	0.06	4	A
	EBTR	0.30	6	A	0.38	7	A	0.29	6	A
	WBL	0.01	4	A	0.01	4	A	0.01	4	A
	WBT	0.31	6	A	0.36	6	A	0.30	6	A
	WBR	0.03	4	A	0.06	4	A	0.03	4	A
	NBL	0.03	30	C	0.06	30	C	0.04	30	C
	NBTR	0.03	30	C	0.05	30	C	0.03	30	C
	SBL	0.25	32	C	0.29	32	C	0.27	32	C
	SBTR	0.07	30	C	0.11	31	C	0.08	30	C
Charleston Sideroad (RR 24) & Mississauga Road	EBL	0.01	8	A	0.01	9	A	0.01	8	A
	EBTR	0.23	0	A	0.29	0	A	0.24	0	A
	WBL	0.04	9	A	0.01	9	A	0.01	8	A
	WBTR	0.21	0	A	0.29	0	A	0.26	0	A
	SBLTR	0.06	15	B	0.14	18	C	0.06	15	C
	NBLTR	0.12	18	C	0.17	23	C	0.06	16	C

As seen in **Table 10-3**, under future background conditions all intersections operate acceptably with reserve capacity and acceptable delays. No intersections are at critical capacity, though the intersection of Hurontario Street (Highway 10) at Charleston Sideroad (RR 24) is approaching critical capacity with a v/c ratio of 0.87, and the southbound through-right movement at critical capacity in the AM peak hour (v/c ratio of 0.90) and the northbound through-right critical capacity in the PM peak hour (v/c ratio of 0.95). The critical movements are likely the result of the anticipated growth in north-south volumes along Highway 10. As under baseline conditions, notable delays are experienced in the PM/Saturday peak hours for the eastbound through (64/57 seconds) and westbound through movements (57/48 seconds) with a level of service "E". Notwithstanding, the intersection is shown to operate acceptably from a traffic capacity and delay standpoint under future background conditions. TYLin recommends that the Region consider future monitoring as needed in order to determine if adjustments to the signal timing plan and intersection operation parameters (e.g. cycle length adjustments, split optimizations) are required to accommodate an increase in background traffic.

10.3 Future Total 2032 Capacity Analysis

The Synchro/HCM capacity results for study intersections during the weekday a.m., p.m. and Saturday peak hours under future total 2032 traffic conditions are shown in **Table 10-4**. The calibrations that were made Hurontario Street (Highway 10) and Charleston Sideroad (RR 24) under baseline conditions were carried forward to future total conditions, with no additional modifications or adjustments were made under future total conditions.

Additionally, as mentioned in **Section 8.1**, a signal is proposed at the site access on Charleston Sideroad. The signal timing plan has been modeled as per the Region of Peel Synchro Guidelines (December 2010).

Table 10-4 Future Total 2032 Capacity Analysis Summary

Intersection	Movement	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
		V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
Hurontario Street (Highway 10) & Charleston Sideroad (RR 24)	*Overall*	*0.83*	*37*	*D*	*0.88*	*37*	*D*	*0.75*	*30*	*C*
	EBL	0.30	41	D	0.48	40	D	*0.52*	41	D
	EBT	0.64	54	D	0.84	66	**E**	0.78	62	**E**
	EBR	0.50	50	D	0.15	43	D	0.11	44	D
	WBL	0.48	41	D	0.58	42	D	0.70	51	D
	WBT	0.65	53	D	0.85	67	**E**	0.75	50	**E**
	WBR	0.02	43	D	0.06	42	D	0.02	43	D
	NBL	0.82	62	**E**	0.80	30	C	0.79	30	C
	NBTR	0.59	18	B	**0.95**	37	D	0.75	23	C
	SBL	0.23	12	B	0.35	27	C	0.34	17	B

Intersection	Movement	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
		V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
	SBTR	**0.95**	*41*	D	0.64	23	C	0.67	22	C
Charleston Sideroad (RR 24) & Main Street (RR 136) / Cataract Road	*Overall*	*0.35*	*9*	*A*	*0.42*	*10*	*A*	*0.35*	*9*	*A*
	EBL	0.06	4	A	0.12	5	A	0.07	4	A
	EBTR	0.37	6	A	0.45	7	A	0.37	6	A
	WBL	0.01	4	A	0.01	4	A	0.01	4	A
	WBT	0.36	6	A	0.42	6	A	0.37	6	A
	WBR	0.03	4	A	0.06	4	A	0.03	4	A
	NBL	0.03	30	C	0.06	30	C	0.04	30	C
	NBTR	0.03	30	C	0.05	30	C	0.03	30	C
	SBL	0.25	32	C	0.29	31	C	0.27	32	C
	SBTR	0.07	30	C	0.11	30	C	0.08	30	C
Charleston Sideroad (RR 24) & Mississauga Road	EBL	0.01	8	A	0.01	9	A	0.01	8	A
	EBTR	0.24	0	A	0.30	0	A	0.24	0	A
	WBL	0.04	9	A	0.02	9	A	0.01	8	A
	WBTR	0.22	0	A	0.30	0	A	0.36	0	A
	SBLTR	0.06	15	B	0.15	18	C	0.06	16	C
	NBLTR	0.12	18	C	0.19	25	C	0.06	16	C
Charleston Sideroad (RR 24) & Site Access	*Overall*	*0.37*	*18*	*B*	*0.43*	*20*	*B*	*0.34*	*17*	*B*
	EBL	0.02	11	B	0.04	11	B	0.01	11	B
	EBT	0.58	18	B	0.73	22	C	0.55	17	B
	WBT	0.61	19	B	0.69	21	C	0.60	18	B
	WBR	0.04	11	B	0.05	11	B	0.04	11	B
	SBLR	0.14	12	B	0.13	12	B	0.08	12	B

As seen in **Table 10-4**, under future total conditions all intersections operate acceptably with reserve capacity and acceptable delays with the addition of projected site traffic. No intersections are at critical capacity, though as under future background conditions, the intersection of Hurontario Street (Highway 10) at Charleston Sideroad (RR 24) is approaching critical capacity with a v/c ratio of 0.88, and the southbound through-right movement at critical capacity in the AM peak hour (v/c ratio of 0.95) and the northbound through-right critical capacity in the PM peak hour (v/c ratio of 0.95). As previously noted, the critical movements are likely the result of the anticipated growth in north-south volumes along Highway 10.

As under baseline conditions, notable delays are experienced in the PM/Saturday peak hours for the eastbound through (66/62 seconds) and westbound through movements (67/48 seconds), with a level of service "E". With the addition of site traffic, there is an increase in delay for the northbound left movement across all peak hours, with the AM peak hour having a notable delay of 62 seconds (level of service "E") and the PM and SAT peak hours with level of service "C"; however, as these movements have not yet met critical capacity, the movement is still considered to operate acceptably.

The proposed signalized site access is projected is operate well under future total conditions with no capacity or delay concerns.

Overall, under future total conditions, the intersections in the study network are shown to operate acceptably from a traffic capacity and delay standpoint, and the overall impact of site traffic is considered reasonably immaterial and acceptable. As under future background conditions, TYLin recommends that the Region consider future monitoring as needed in order to determine if adjustments to the signal timing plan and intersection operation parameters (e.g. cycle length adjustments, split optimizations) are required to accommodate an increase in traffic.

11 QUEUEING ANALYSIS

Queueing analysis was conducted using SimTraffic micro-simulation software using the following methodology: 10 minutes seeding time, one-hour recording, and 10 runs. A summary of the average (50th percentile) and 95th percentile queue lengths derived from microsimulation of baseline, future background 2032, and future total 2032 traffic conditions. The 95th percentile queue lengths that are bolded are predicted to extend beyond available storage of a dedicated turn lane or extend beyond an upstream intersection and/or major access point. Queueing analysis detailed conditions are provided in **Appendix J**.

Table 11-1 Queueing Analysis Summary - Baseline

Intersection	Movement	Effective Storage (m)	Queue Length (m)					
			AM		PM		Saturday	
			50th	95th	50th	95th	50th	95th
Hurontario Street (Highway 10) & Charleston Sideroad (RR 24)	EBL	80	13	32	36	**83**	43	**86**
	EBR	65	35	**66**	46	**102**	29	**77**
	WBL	80	28	52	70	**144**	77	**144**
	WBR	60	6	17	41	**117**	8	**37**
	NBL	130	29	58	23	42	22	42
	NBTR	-	55	90	87	162	64	118
	SBL	60	19	53	15	39	13	38
	SBTR	-	95	136	57	106	55	100
Charleston Sideroad (RR 24) & Main Street (RR 136) / Cataract Road	EBL	125	4	12	9	20	5	13
	EBTR	-	18	40	22	46	17	37
	WBL	60	1	4	1	4	1	4
	WBR	90	2	9	4	12	2	8
	NBL	70	1	7	3	11	2	7
	NBTR	-	3	9	3	10	2	8
	SBL	85	9	20	10	22	9	20
	SBLTR	-	6	15	9	21	6	14
Charleston Sideroad (RR 24) & Mississauga Road	EBL	30	1	4	1	5	1	4
	WBL	30	4	15	1	6	1	4
	WBTR	-	0	1	0	1	0	1
	NBLTR	-	6	16	7	15	4	10
	SBLTR	-	5	11	6	13	3	9

Table 11-2 Queueing Analysis Summary – Future Background

Intersection	Movement	Effective Storage (m)	Queue Length (m)					
			AM		PM		Saturday	
			50th	95th	50th	95th	50th	95th
Hurontario Street (Highway 10) & Charleston Sideroad (RR 24)	EBL	80	13	33	40	**90**	42	**87**
	EBR	65	37	**67**	54	**112**	31	**83**
	WBL	80	29	57	68	**124**	71	**124**
	WBR	60	7	17	38	**106**	17	**69**
	NBL	130	33	63	48	**135**	27	58
	NBTR	-	66	106	136	250	83	151
	SBL	60	25	**77**	16	45	15	49
	SBTR	-	143	217	67	126	68	122
Charleston Sideroad (RR 24) & Main Street (RR 136) / Cataract Road	EBL	125	4	12	9	19	5	13
	EBTR	-	18	39	26	53	18	40
	WBL	60	1	4	0	3	1	5
	WBR	90	2	8	5	14	2	8
	NBL	70	1	7	3	10	2	7
	NBTR	-	3	10	3	11	2	8
	SBL	85	8	19	11	22	10	21
	SBLTR	-	6	14	8	18	6	13
Charleston Sideroad (RR 24) & Mississauga Road	EBL	30	1	5	1	6	1	4
	WBL	30	0	1	1	6	1	4
	WBTR	-	4	15	0	1	0	1
	NBLTR	-	5	16	7	16	4	11
	SBLTR	-	5	12	6	14	3	9

Table 11-3 Queueing Analysis Summary – Future Total

Intersection	Movement	Effective Storage (m)	Queue Length (m)					
			AM		PM		Saturday	
			50th	95th	50th	95th	50th	95th
Hurontario Street (Highway 10) & Charleston Sideroad (RR 24)	EBL	80	15	41	43	**91**	48	**92**
	EBR	65	54	**91**	61	**114**	43	**96**
	WBL	80	28	55	76	**125**	81	**125**
	WBR	60	7	20	43	**113**	20	**77**
	NBL	130	59	118	54	**127**	44	88
	NBTR	-	70	115	116	232	83	153
	SBL	60	29	**89**	19	56	18	56
	SBTR	-	222	433	73	142	79	143
Charleston Sideroad (RR 24) & Main Street (RR 136) / Cataract Road	EBL	125	4	10	7	17	3	10
	EBTR	-	22	51	28	59	20	49
	WBL	60	1	4	1	4	1	5
	WBR	90	2	8	5	13	3	10
	NBL	70	1	5	2	9	2	8
	NBTR	-	2	7	3	8	1	5
	SBL	85	9	20	10	22	10	22
	SBLTR	-	6	13	8	18	7	16
Charleston Sideroad (RR 24) & Mississauga Road	EBL	30	1	5	2	8	1	5
	WBL	30	4	14	1	6	1	6
	WBTR	-	0	1	0	1	0	1
	NBLTR	-	6	17	7	15	5	13
	SBLTR	-	5	10	5	11	3	8
Charleston Sideroad (RR 24) & Site Access	EBL	130	1	5	3	9	0	7
	WBR	75	7	20	7	19	7	22
	SBLR	-	11	29	10	27	7	21

As shown in all tables, the average queue length for all movements at all intersections is expected to be accommodated by the effective storage for all horizons. Furthermore, all movements at the intersection of Charleston Sideroad at Main Street/Cataract Road, Mississauga Road, and the proposed site access are expected to have 95th percentile queues that will be accommodated in the effective storage.

Under baseline conditions, at the intersection of Charleston Sideroad (RR 24) and Hurontario Street (Highway 10) intersection, the 95th percentile queue for the eastbound right movement is expected to exceed the available storage for all peak periods. Additionally, under PM and Saturday conditions, the 95th percentile queues for the eastbound left, and westbound left and right, movements are expected to exceed available storage.

All 95th percentile queues noted as exceeding the storage under baseline conditions are also expected to exceed the available storage under future background conditions, with the inclusion of the southbound left queue in the AM peak hour and the northbound left queue in the PM peak hour. It is expected that increase in critical queues is due to the anticipated growth along both corridors.

Finally, all 95th percentile queues noted as exceeding the storage under future background conditions are also expected to exceed the available storage under future total conditions. The northbound left queue in the AM peak hour is also shown to be approaching the storage length. Given that only one movement is significantly impacted between future background and future total conditions, it is suggested based on the analysis that the impact of the projected site traffic on future operations at this intersection is reasonably immaterial and acceptable. Furthermore, it is noted again that the average queues at this intersection are expected to be accommodated within the effective storage.

Based on the results of the queueing analysis, it is recommended that the intersection of Charleston Sideroad at Hurontario Street (Highway 10) continued to be monitored as needed by the Town, Region, and Province for existing/future queueing issues prior to evaluating potential mitigation measures for the intersection.

12 CONCLUSIONS AND RECOMMENDATIONS

After conducting the above Haul Route Assessment and Transportation Impact Study, TYLin summarizes the following conclusions and recommendations.

The Caledon Pit / Quarry is expected to ship a maximum of 2,500,000 tonnes of aggregate annually with an assumed average truck aggregate capacity of 30 tonnes. The Quarry is proposed to operate during weekdays and Saturdays during the year, with haulage operation hours being from 6:00 a.m. to 7:00 p.m. Using historical haulage activity data, it was determined that July has the typical highest haulage activity.

During pre-consultation with the Town, no background developments within the vicinity of the study area were identified within the horizon year. However, background corridor growth rates, compounded annually, were applied to future traffic projections to account for population and employment forecasts. A portion of these growth rates include background development outside of the Town's jurisdiction to account for future commuter traffic travelling through the study area. A growth rate of 2% was applied to Hurontario Street, Mississauga Road and Cataract Road, whereas a growth rate of 0.5% was applied to Charleston Sideroad and Main Street (Regional Road 136).

During the a.m. peak hour, a total of 30 new passenger car trips were estimated consisting of 15 inbound and outbound trips. During the p.m. peak hour, a total of 60 new trips were generated consisting of 25 inbound and 35 outbound trips. As employees are entering and exiting the site outside of peak hours on Saturdays, no passenger car trips were generated during the Saturday peak hour.

During the a.m. peak hour, a total of 75 new truck trips were generated consisting of 30 inbound and 45 outbound trips. During each of the p.m. and Saturday peak hours, a total of 60 new truck trips are generated consisting of 30 inbound and 30 outbound trips.

The proposed truck distribution includes 95% of truck traffic heading east on Charleston Sideroad towards Hurontario Street (with 90% travelling south and 5% travelling north on Hurontario Street) and the remaining 5% truck traffic heading west on Charleston Sideroad.

A haul route assessment was undertaken to determine the location of the new future site access for the Caledon Pit / Quarry and include several site access considerations including existing haul route restrictions, impact to existing residents, access spacing requirements in accordance with Region of Peel Road Characterization Study (RCS) and TAC guidelines, physical constraints, and safety considerations. It was determined that the preferred location of the proposed site access is along Charleston Sideroad (Regional Road 24) between Mississauga Road and Main Street (Regional Road 136) / Cataract Road. TYLin recommends the site access be located approximately

600 metres east of Mississauga Road and 720 metres west of Regional Road 136, measured between curb extensions.

Horizontal and vertical sightline assessments were conducted in the field. Based on a 100 km/h design speed, the proposed Charleston Sideroad access location satisfies Transportation Association of Canada combination truck stopping sight distance and intersection sight distance requirements. It is recommended to keep clear low-lying landscape or other obstructions near the edge of the property to ensure driver's sightlines are not encumbered in the future.

A traffic signal warrant was not explicitly satisfied at the proposed Charleston Sideroad site access under future total conditions based on a traffic volume. However, signalization of the access is recommended to improve the operation of the intersection by providing suitable gaps for trucks to enter and exit the site and accelerate safely without posing risk to other vehicles using Charleston Sideroad. It is noted that if the Region desires a signalized site access, the installation of the signal can be implemented at CBM's expense. Additionally, Charleston Sideroad is classified as Rural Road and satisfies the Region's minimum 600-metre full movement intersection spacing design criteria, preserving the arterial function of Charleston Sideroad.

Additionally, a dedicated eastbound left-turn and westbound right-turn lane is proposed at the site access using requirements from the Region's RCS as well as TAC Chapter 9 – Intersections. It is recommended to include a dedicated westbound right-turn lane with an auxiliary lane (storage plus deceleration) length of 75 metres and a taper length of 85 metres. Furthermore, a dedicated eastbound left-turn lane with an auxiliary lane length of 140 metres and a taper length of 105 metres is recommended.

Under baseline conditions, all study intersections operate with reserve capacity and low delays with the exception of long delays for the eastbound through and westbound through movements in the PM and Saturday peak hours, though overall operations are still considered acceptable.

During future background conditions, with the addition of background corridor growth, all intersections are expected to operate well and within capacity. However, southbound and northbound movements at Hurontario Street and Charleston Sideroad are expected to be at critical capacity but still with acceptable delay and with reserve capacity available. Long delays are again noted for the eastbound and westbound movements. As a result, TYLin recommends that the Region considers future monitoring as needed in order to determine if adjustments to the signal timing plan and intersection operation parameters (e.g. cycle length adjustments, split optimizations) are required to accommodate an increase in background traffic.

Under future total conditions, overall all intersections operate well with reserve capacity and acceptable delays with the addition of projected site traffic. The northbound, and southbound movements at the Hurontario Street and Charleston Sideroad intersection continue to operate with critical capacity but with acceptable delay and with reserve capacity available . It was observed

the addition of site traffic does not materially impact the operation of the intersection. The remaining study intersections, including the proposed site access, are expected to operate with reserve capacity and relatively low delays. As under future background conditions, TYLin recommends that the Region consider future monitoring as needed in order to determine if adjustments to the signal timing plan and intersection operation parameters (e.g. cycle length adjustments, split optimizations) are required to accommodate an increase in traffic.

Queueing analysis for all intersections projected that the average queues can be accommodated across all horizons within the effective storage. With the exception of Hurontario Street and Charleston Sideroad, the queueing analysis shows that the 95th percentile queues can be accommodated by the available storage. However, at Hurontario Street and Charleston Sideroad, it is observed under baseline and future background conditions that 95th percentile queues exceed the available storage length for multiple movements and is expected to continue under future total conditions. As previously discussed, TYLin recommends that the Region consider future monitoring as needed in order to determine if adjustments to the signal timing plan and intersection operation parameters (e.g. cycle length adjustments, split optimizations) are required to accommodate future increases in traffic.

Overall based on this assessment it is concluded that:

- The proposed haul route is an existing and identified haul route in the Town of Caledon Official Plan;
- With the implementation of the recommendations, the proposed truck traffic from the CBM Pit / Quarry will not have unacceptable impacts on the safe and efficient use of the road network; and
- From an overall transportation perspective, the proximity of the site to market will result in minimizing the length and number of vehicle trips required to transport an essential raw material needed for the construction and maintenance of communities.

The results of the assessment provide the basis for the following technical recommendation to be included on the Aggregate Resources Act Site Plan for the proposed Caledon Pit / Quarry:

- Prior to shipping the licensee shall enter into an agreement with the Region of Peel for the construction of the: a) entrance / exit, b) Charleston Sideroad improvements,
- Prior to below water operations commencing in the Main Area and prior to operations commencing in the South Area, the licensee shall enter into an agreement with the Region of Peel for a crossing underneath Main Street and Charleston Sideroad, respectively.

APPENDIX A

Pre-Consultation Correspondence

TYLin

MEMORANDUM

To:	**Hashim Ali Hamdani, Region of Peel** **Kamran Yousaf, Ministry of Transportation of Ontario** **Arash Olia, Town of Caledon**	**From:**	**T.Y. Lin International Canada Inc.** **Date:** August 25, 2022
Re:	**Terms of Reference (UPDATED), Haul Route Assessment and Transportation Impact Study, Caledon Quarry Project**		

Introduction

T.Y. Lin International Canada Inc. (TYLin) is pleased to present this Updated Terms of Reference describing the proposed work program for the Haul Route Assessment and Transportation Impact Study to be prepared in support of the proposed CBM Aggregates, a division of St. Marys Cement Inc. (Canada) (CBM) Caledon Quarry project in the Town of Caledon.

The below is provided for review, discussion, and comment. The final version provide herein has been updated to reflect comments received from the Town of Caledon, Region of Peel and the Ministry of Transportation of Ontario (MTO) to confirm the methods and procedures for our transportation assessment in support of the proposed Caledon Quarry Licensing. The acceptance of this work plan by the reviewing agencies is provided in **Attachment 1**.

Proposed Terms of Reference

TYLin was retained by CBM Aggregates, a division of St. Marys Cement Inc. (Canada) (CBM), to assist with the licence application for lands located near Charleston Sideroad (Peel Regional Road 24), Mississauga Road, and Main Street in the Town of Caledon. A figure illustrating the site location is shown in attached **Figure 1**.

TYLin

Figure 1 – Site Location

This study will provide an assessment of the application taking into consideration the applicable in-effect policies contained in the relevant Provincial Plans, Region of Peel Official Plan and Town of Caledon Official Plan.

Furthermore, where relevant, this study shall be shared with other technical experts completing studies for the application to avoid internal inconsistencies.

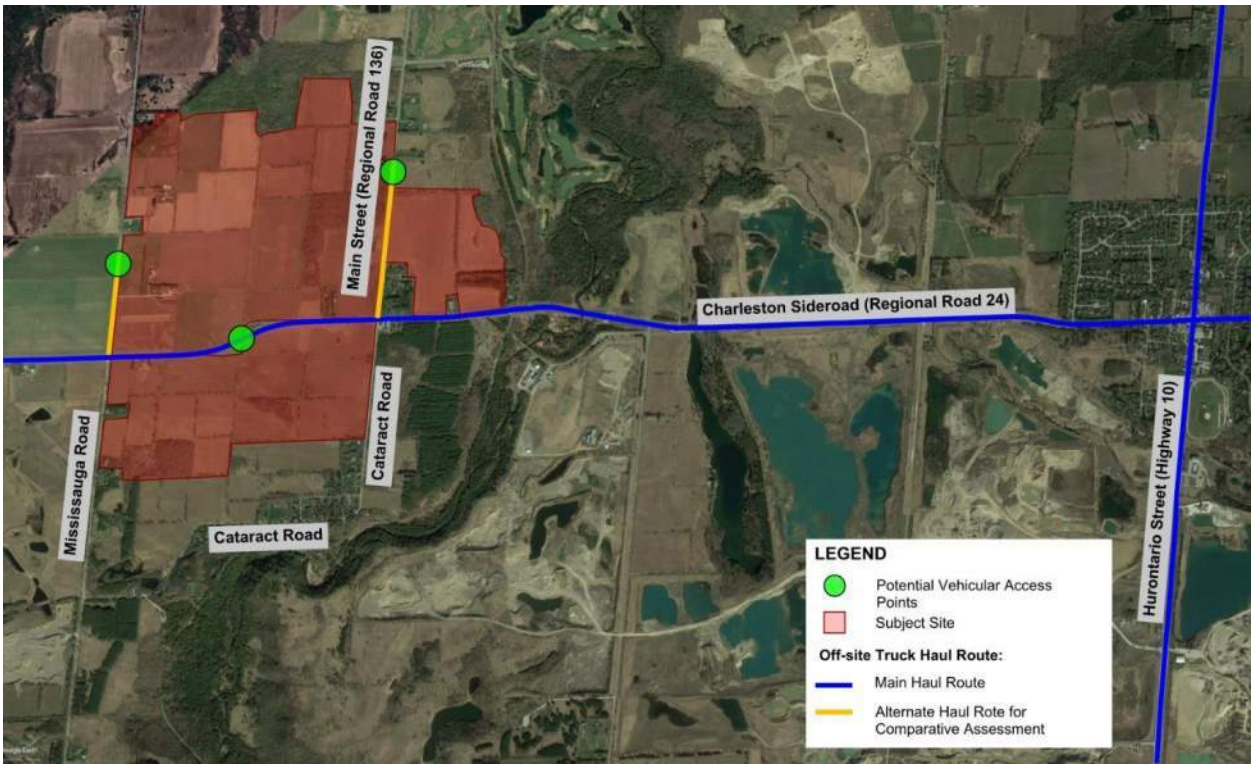
In order to properly scope this project, we present the following scope of work for the fulsome study, which has been updated as per previously received comments from the Town of Caledon, Region of Peel, and MTO.

1. *Traffic Impact Study to be prepared in accordance with Region and MTO traffic impact study guidelines and clearly present the methodologies, information, assumptions and conclusions to the reviewing agencies.*
2. *Collect road inventory information about the study area road network. Due to the established hauling activities in the area, our study will be focused on the intersections of Charleston Sideroad with Hurontario Street (Highway 10), Main Street (Regional Road 136), and Mississauga Road, as well as future site access. Data will be collected for three weekdays*

during the construction season and a Saturday to understand the current traffic patterns in the area. The counts will be conducted to include the proposed operating hours of the quarry.

3. *MTO recommends utilizing the provided turning movement counts (2018) and signal timing plan at Highway 10 intersection with Regional Road 24 (Charleston Sideroad).*
4. *Obtain the most recent available TMCs and/or average annual daily traffic (AADT) from Region staff to undertake a comparative analysis of data collected in Task 2.*
5. *The collected counts will be used to create a baseline for AM, PM, and weekend peak hour traffic operations.*
6. *Obtain from the Town and Region land use and traffic generation information for any relevant nearby proposed developments, and any potential/committed future road or intersection improvements, that will be on-stream within the development horizon of the proposed Caledon Quarry site. This information will inform the 'future background' traffic condition against which to measure site traffic impacts.*
7. *Obtain the most recent traffic signal timing parameters at the signalized study intersections.*
8. *Create a traffic operations model (using Synchro/SimTraffic v.10) to test the effects of the site traffic on the existing and future study area roadway system. It is typical for these types of studies to emulate a horizon of ten years beyond initial opening year (to be confirmed).*
9. *Prepare trip generation estimates for the proposed quarry based on standard first principles approach, utilized in many ARA licence applications. This exercise will be based on the future annual extraction licence for the proposed quarry and on the proposed haulage times of the day and days of the week.*
10. *Distribute/assign the resultant peak hour trips to the primary/alternate haul route(s) for comparative and detailed operational assessments. Please refer to* **Figure 2** *for potential vehicular access and main off-site haul route to and from aggregate operation.*

Figure 2 – Primary and Alternate Haul Routes



11. *Contact Regional staff to confirm an acceptable annual growth rate applied to planning horizons along the subject Regional Road.*
12. *Review MTO's published traffic volume data to derive an appropriate growth rate applied to planning horizons along Highway 10.*
13. *Prepare peak hour operational analyses to investigate and document the impacts of the proposed quarry traffic. This will include a review of intersection turning movement delays, volume to capacity ratios, and vehicular queuing. This will also include recommendations for the proposed site access lane configurations and a conceptual layout for same.*
14. *Present the effects of the traffic generated by the proposed quarry along with mitigation measures necessary along the haul route(s) to accommodate the additional traffic load, which would include conceptional designs of any roadway modifications in-line with applicable agency standards. Recommendations on traffic control measures at all affected haul route intersections as well as the proposed site access will be included.*
15. *Identify existing and potential safety issues using collision data information provided by Town or Region and recommend potential mitigation measures.*

TYLin

Thank you in advance for your attention to this matter. We look forward to your comments on the preceding scope of work and the requested information.

Should you have any questions, please do not hesitate to contact us.

Enclosed: Attachment 1 – Agency Correspondence

Michael Dowdall

Director, Traffic | michael.dowdall@tylin.com

Attachment 1
Agency Correspondence

TYLin

Michael Dowdall

Subject: FW: Transportation Study - Terms of Reference - Input Request

---

From: Arash Olia <Arash.Olia@caledon.ca>
Sent: Saturday, December 19, 2020 8:22 PM
To: Alycia Gruchalla <AGruchalla@tmig.ca>
Cc: Michael Dowdall <MDowdall@tmig.ca>
Subject: RE: Transportation Study - Terms of Reference - Input Request

Hi Alycia,

Based on the terms of reference for the TIS, the subject application is located on Charleston Sideroad between Mississauga Road and Main Street (RR 136). Since Charleston Sideroad is a regional road, and the other intersections mentioned in the TIS are either regional or MTO highways (with the possible exception of Cataract Road and any proposed internal roads) review of the TIS ToR's should primarily be addressed by the Region of Peel.

Regarding first principals vs ITE guidelines for trip generation, note the following, I would recommend to take a conservative approach regarding trip generation and use whatever methodology would result in the higher trip generation numbers.

Regards,

Arash Olia, P.Eng., Ph.D.
Manager, Transportation Engineering
Engineering Services Department

Office: 905.584.2272 x.4073
Cell: 416.452.7091
Email: arash.olia@caledon.ca

Town of Caledon | www.caledon.ca | www.visitcaledon.ca | Follow us @YourCaledon

---

From: Alycia Gruchalla <agruchalla@tmig.ca>
Sent: Thursday, December 17, 2020 3:03 PM
To: Arash Olia <Arash.Olia@caledon.ca>
Cc: Michael Dowdall <mdowdall@tmig.ca>
Subject: Transportation Study - Terms of Reference - Input Request

Hello Arash,

TMIG has been retained to perform a haul route assessment and transportation impact study in support of the proposed CBM Aggregates, a division of St. Marys Cement Inc., Caledon Quarry project in the Town of Caledon.

Michael Dowdall

From: Khan, Ayesha <ayesha.khan@peelregion.ca>
Sent: Friday, January 15, 2021 9:20 AM
To: Alycia Gruchalla
Cc: Michael Dowdall; Hamdani, Hashim
Subject: RE: Transportation Study - Terms of Reference - Input Request

Good morning Alycia,
We've reviewed your terms of reference submitted in support of the Caledon Quarry Project and wish to offer the following comments:

- We are satisfied with the study area scope/road network;
- We are satisfied with the horizon of 10 years post full build-out for the analyses;
- Please contact Transportation to confirm growth rates along the subject Regional road(s).
- Please contact Damian Jamroz (damian.jamroz@peelregion.ca), Supervisor of Traffic Operations to obtain the most recent TMCs and/or average annual daily traffic (AADT).
- Please contact Rick Laing (rick.laing@peelregion.ca), Supervisor of Traffic Signals and Streetlighting, 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)
- Please see the following link for further details on our website for the preferred general layout and requirements of the TIS -https://www.peelregion.ca/pw/transportation/business/traffic-impact-study.asp

Feel free to reach out to me if you have any further questions.

Thank you,

Ayesha Khan
Technical Analyst, Traffic Development & Permits
Traffic Engineering
Region of Peel
10 Peel Centre Drive, Suite B, 4th Floor
Brampton, ON L6T 4B9
(905) 791 - 7800 ext. **7909**

Region of Peel
working with you

From: Alycia Gruchalla <AGruchalla@tmig.ca>
Sent: January 5, 2021 2:22 PM
To: Khan, Ayesha <ayesha.khan@peelregion.ca>
Cc: Carrick, Sean <sean.carrick@peelregion.ca>; Michael Dowdall <MDowdall@tmig.ca>
Subject: Transportation Study - Terms of Reference - Input Request

Michael Dowdall

From: Yousaf, Kamran (MTO) <Kamran.Yousaf@ontario.ca>
Sent: Friday, June 25, 2021 5:00 PM
To: Sara Rahman
Cc: Alycia Gruchalla; Aurini, Shawn (MTO); Lau, Wes (MTO); Zivkovic, Branko (MTO); Hakomaki, Eric (MTO)
Subject: RE: Terms of Reference Contact
Attachments: 16470 - 10 & RR24 - 26-09-18.pdf; Signalized_Hwy 10 at RR 24 - Charleston Sideroad - Main St.pdf; General Guidelines for the Preparation of Traffic Impact Studies Feb 2021.pdf

Hi Sara,

After review of the draft TIS submitted for the proposed quarry in Caledon, MTO would recommend the following:

Since Highway 10 and RR24 intersection is mentioned in the analysis of the study, MTO recommends utilizing the following documents listed in preparation of the TIS:

- Ministry's TIS guideline;
- Ministry's TMC from 2018;
- Ministry's signal timing plan at Hwy 10/RR24 intersection.
- Published traffic volume data: https://www.library.mto.gov.on.ca/SydneyPLUS/TechPubs/Portal/tp/tvSplash.aspx

All documents have been attached for your reference.

Thank you,
Kamran Yousaf

From: Sara Rahman <SRahman@tmig.ca>
Sent: June 24, 2021 12:22 PM
To: Yousaf, Kamran (MTO) <Kamran.Yousaf@ontario.ca>
Cc: Alycia Gruchalla <AGruchalla@tmig.ca>; Aurini, Shawn (MTO) <Shawn.Aurini@ontario.ca>
Subject: RE: Terms of Reference Contact

Hi Kamran,

I am following up on my previous email about the proposed terms of reference for the new Caledon Quarry project (please see attached). I wanted to confirm if you had any questions or comments about the proposed scope of work.

Thanks,

Sara Rahman
TMIG | **TYLI**
+1.905.738.5700 x261 | c: +1.403.862.8438

APPENDIX B

Existing Traffic Data

Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & HIGHWAY 10 (HURONTARIO ST)
Date: Thu, Jun 22, 2023 Deployment Lead: Walter Fugaj

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Turning Movement Count (1 . CHARLESTON SIDEROAD & HIGHWAY 10 (HURONTARIO ST)) CustID: 02408233 MioID:

Start Time	N Approach HURONTARIO ST						E Approach CHARLESTON SIDEROAD						S Approach HURONTARIO ST						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)	Int. Total (1 hr)
	Left N:E	Thru N:S	Right N:W	UTurn N:N	Peds N:	Approach Total	Left E:S	Thru E:W	Right E:N	UTurn E:E	Peds E:	Approach Total	Left S:W	Thru S:N	Right S:E	UTurn S:S	Peds S:	Approach Total	Left W:N	Thru W:E	Right W:S	UTurn W:W	Peds W:	Approach Total		
06:00:00	4	317	4	0	0	325	43	18	1	0	0	62	18	96	12	0	0	126	8	32	41	0	0	81	594	
06:15:00	13	367	8	0	1	388	16	16	1	0	0	33	19	122	14	0	0	155	8	26	51	0	0	85	661	
06:30:00	7	277	6	0	0	290	43	33	5	0	1	81	42	188	15	0	0	245	18	33	41	0	0	92	708	
06:45:00	9	342	10	0	0	361	38	32	1	0	0	71	29	167	12	0	0	208	13	41	39	0	2	93	733	2696
07:00:00	7	348	5	0	0	360	38	21	1	0	0	60	22	116	15	0	0	153	10	33	64	0	0	107	680	2782
07:15:00	15	377	7	0	1	399	26	38	5	0	1	69	33	159	24	0	2	216	12	38	62	0	0	112	796	2917
07:30:00	15	360	16	0	0	391	30	46	7	0	1	83	33	199	19	0	0	251	7	30	52	0	0	89	814	3023
07:45:00	16	314	16	0	0	346	32	44	7	0	0	83	37	230	28	0	0	295	21	49	42	0	0	112	836	3126
08:00:00	13	332	19	0	2	364	36	57	12	0	0	105	36	205	21	0	0	262	18	41	48	0	0	107	838	3284
08:15:00	12	281	11	0	0	304	34	45	11	0	0	90	37	200	25	0	0	262	19	38	49	0	0	106	762	3250
08:30:00	20	243	15	0	2	278	29	49	7	0	2	85	28	179	25	0	0	232	21	65	56	0	0	142	737	3173
08:45:00	16	240	6	0	0	262	31	37	3	0	0	71	29	182	33	0	0	244	25	56	45	0	0	126	703	3040
09:00:00	19	230	11	0	0	260	35	63	9	0	0	107	42	189	23	0	0	254	12	50	29	0	0	91	712	2914
09:15:00	12	229	14	0	0	255	37	34	15	0	0	86	36	182	32	0	0	250	17	50	31	0	0	98	689	2841
09:30:00	5	230	16	0	0	251	29	40	7	0	2	76	33	218	19	0	0	270	15	58	38	0	1	111	708	2812
09:45:00	12	183	11	0	0	206	31	37	8	0	0	76	43	179	26	0	0	248	19	59	38	0	0	116	646	2755
BREAK																										
14:00:00	13	237	18	0	0	268	20	43	7	0	0	70	39	217	43	0	0	299	17	40	35	0	0	92	729	
14:15:00	12	210	7	0	2	229	27	43	5	0	0	75	35	223	34	0	0	292	20	50	39	0	0	109	705	
14:30:00	17	181	14	0	0	212	32	48	10	0	0	90	37	232	32	0	0	301	26	50	25	0	0	101	704	
14:45:00	7	184	11	0	1	202	25	50	19	0	0	94	44	262	35	0	0	341	26	60	35	0	0	121	758	2896
15:00:00	19	164	15	0	1	198	18	57	11	0	0	86	51	347	27	0	2	425	20	47	25	0	0	92	801	2968
15:15:00	12	214	16	0	0	242	30	44	16	0	0	90	60	282	51	0	4	393	17	60	29	0	0	106	831	3094
15:30:00	13	196	14	0	1	223	29	59	19	0	0	107	46	307	46	0	0	399	23	62	49	0	0	134	863	3253
15:45:00	19	219	18	0	6	256	43	55	22	0	4	120	32	324	29	0	1	385	18	47	33	0	0	98	859	3354
16:00:00	9	223	18	0	2	250	33	79	25	0	0	137	48	348	31	0	0	427	23	77	31	0	2	131	945	3498
16:15:00	20	230	18	0	5	268	32	66	25	0	2	123	42	354	38	0	0	434	22	56	40	0	0	118	943	3610
16:30:00	8	223	16	0	1	247	26	72	13	0	3	111	39	350	34	0	3	423	16	63	42	0	1	121	902	3649
16:45:00	15	187	14	0	0	216	22	52	21	0	1	95	51	345	49	1	0	446	14	58	38	0	0	110	867	3657
17:00:00	12	219	11	0	2	242	22	77	11	0	2	110	42	318	35	0	4	395	28	75	35	0	1	138	885	3597
17:15:00	20	203	22	0	2	245	31	66	16	0	0	113	43	339	30	1	0	413	25	67	32	0	0	124	895	3549
17:30:00	16	217	14	0	3	247	30	56	22	0	3	108	54	324	28	0	0	406	27	74	28	0	2	129	890	3537
17:45:00	13	192	16	0	2	221	34	49	7	0	4	90	36	309	40	0	0	385	21	50	26	0	3	97	793	3463
Grand Total	625	10963	673	1	43	12262	1449	2213	491	0	45	4153	1814	10838	1379	2	22	14033	911	2395	1755	0	16	5061	**35509**	-
Approach%	5.1%	89.4%	5.5%	0%		-	34.9%	53.3%	11.8%	0%		-	12.9%	77.2%	9.8%	0%		-	18%	47.3%	34.7%	0%		-	**-**	-
Totals %	1.8%	30.9%	1.9%	0%		34.5%	4.1%	6.2%	1.4%	0%		11.7%	5.1%	30.5%	3.9%	0%		39.5%	2.6%	6.7%	4.9%	0%		14.3%	**-**	-
Heavy	78	832	77	0		-	91	364	55	0		-	322	1072	159	0		-	58	388	306	0		-	**-**	-
Heavy %	12.5%	7.6%	11.4%	0%		-	6.3%	16.4%	11.2%	0%		-	17.8%	9.9%	11.5%	0%		-	6.4%	16.2%	17.4%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & HIGHWAY 10 (HURONTARIO ST)
Date: Thu, Jun 22, 2023 Deployment Lead: Walter Fugaj

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 07:15 AM - 08:15 AM **Weather: Clear Sky (14.12 °C)**

Start Time	N Approach HURONTARIO ST						E Approach CHARLESTON SIDEROAD						S Approach HURONTARIO ST						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)
	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	
07:15:00	15	377	7	0	1	399	26	38	5	0	1	69	33	159	24	0	2	216	12	38	62	0	0	112	796
07:30:00	15	360	16	0	0	391	30	46	7	0	1	83	33	199	19	0	0	251	7	30	52	0	0	89	814
07:45:00	16	314	16	0	0	346	32	44	7	0	0	83	37	230	28	0	0	295	21	49	42	0	0	112	836
08:00:00	13	332	19	0	2	364	36	57	12	0	0	105	36	205	21	0	0	262	18	41	48	0	0	107	838
Grand Total	59	1383	58	0	3	1500	124	185	31	0	2	340	139	793	92	0	2	1024	58	158	204	0	0	420	**3284**
Approach%	3.9%	92.2%	3.9%	0%		-	36.5%	54.4%	9.1%	0%		-	13.6%	77.4%	9%	0%		-	13.8%	37.6%	48.6%	0%		-	**-**
Totals %	1.8%	42.1%	1.8%	0%		45.7%	3.8%	5.6%	0.9%	0%		10.4%	4.2%	24.1%	2.8%	0%		31.2%	1.8%	4.8%	6.2%	0%		12.8%	**-**
PHF	0.92	0.92	0.76	0		0.94	0.86	0.81	0.65	0		0.81	0.94	0.86	0.82	0		0.87	0.69	0.81	0.82	0		0.94	**-**
Heavy	5	45	9	0		59	5	47	4	0		56	36	126	16	0		178	7	22	19	0		48	**-**
Heavy %	8.5%	3.3%	15.5%	0%		3.9%	4%	25.4%	12.9%	0%		16.5%	25.9%	15.9%	17.4%	0%		17.4%	12.1%	13.9%	9.3%	0%		11.4%	**-**
Lights	54	1338	49	0		1441	119	138	27	0		284	103	667	76	0		846	51	136	185	0		372	**-**
Lights %	91.5%	96.7%	84.5%	0%		96.1%	96%	74.6%	87.1%	0%		83.5%	74.1%	84.1%	82.6%	0%		82.6%	87.9%	86.1%	90.7%	0%		88.6%	**-**
Single-Unit Trucks	0	9	3	0		12	1	6	2	0		9	3	32	4	0		39	3	5	2	0		10	**-**
Single-Unit Trucks %	0%	0.7%	5.2%	0%		0.8%	0.8%	3.2%	6.5%	0%		2.6%	2.2%	4%	4.3%	0%		3.8%	5.2%	3.2%	1%	0%		2.4%	**-**
Buses	2	7	1	0		10	1	1	0	0		2	0	2	3	0		5	1	1	1	0		3	**-**
Buses %	3.4%	0.5%	1.7%	0%		0.7%	0.8%	0.5%	0%	0%		0.6%	0%	0.3%	3.3%	0%		0.5%	1.7%	0.6%	0.5%	0%		0.7%	**-**
Articulated Trucks	0	13	2	0		15	1	11	1	0		13	4	40	1	0		45	1	13	3	0		17	**-**
Articulated Trucks %	0%	0.9%	3.4%	0%		1%	0.8%	5.9%	3.2%	0%		3.8%	2.9%	5%	1.1%	0%		4.4%	1.7%	8.2%	1.5%	0%		4%	**-**
Aggregate Trucks	3	16	3	0		22	2	29	1	0		32	29	52	8	0		89	2	3	13	0		18	**-**
Aggregate Trucks %	5.1%	1.2%	5.2%	0%		1.5%	1.6%	15.7%	3.2%	0%		9.4%	20.9%	6.6%	8.7%	0%		8.7%	3.4%	1.9%	6.4%	0%		4.3%	**-**
Pedestrians	-	-	-	-	3	-	-	-	-	-	2	-	-	-	-	-	2	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	42.9%		-	-	-	-	28.6%		-	-	-	-	28.6%		-	-	-	-	0%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 04:00 PM - 05:00 PM Weather: Broken Clouds (23.66 °C)

Start Time	N Approach HURONTARIO ST						E Approach CHARLESTON SIDEROAD						S Approach HURONTARIO ST						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)
	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	
16:00:00	9	223	18	0	2	250	33	79	25	0	0	137	48	348	31	0	0	427	23	77	31	0	2	131	945
16:15:00	20	230	18	0	5	268	32	66	25	0	2	123	42	354	38	0	0	434	22	56	40	0	0	118	943
16:30:00	8	223	16	0	1	247	26	72	13	0	3	111	39	350	34	0	3	423	16	63	42	0	1	121	902
16:45:00	15	187	14	0	0	216	22	52	21	0	1	95	51	345	49	1	0	446	14	58	38	0	0	110	867
Grand Total	52	863	66	0	8	981	113	269	84	0	6	466	180	1397	152	1	3	1730	75	254	151	0	3	480	**3657**
Approach%	5.3%	88%	6.7%	0%		-	24.2%	57.7%	18%	0%		-	10.4%	80.8%	8.8%	0.1%		-	15.6%	52.9%	31.5%	0%		-	**-**
Totals %	1.4%	23.6%	1.8%	0%		26.8%	3.1%	7.4%	2.3%	0%		12.7%	4.9%	38.2%	4.2%	0%		47.3%	2.1%	6.9%	4.1%	0%		13.1%	**-**
PHF	0.65	0.94	0.92	0		0.92	0.86	0.85	0.84	0		0.85	0.88	0.99	0.78	0.25		0.97	0.82	0.82	0.9	0		0.92	**-**
Heavy	4	78	6	0		88	5	28	4	0		37	6	54	5	0		65	6	27	37	0		70	**-**
Heavy %	7.7%	9%	9.1%	0%		9%	4.4%	10.4%	4.8%	0%		7.9%	3.3%	3.9%	3.3%	0%		3.8%	8%	10.6%	24.5%	0%		14.6%	**-**
Lights	48	785	60	0		893	108	241	80	0		429	174	1343	147	1		1665	69	227	114	0		410	**-**
Lights %	92.3%	91%	90.9%	0%		91%	95.6%	89.6%	95.2%	0%		92.1%	96.7%	96.1%	96.7%	100%		96.2%	92%	89.4%	75.5%	0%		85.4%	**-**
Single-Unit Trucks	2	25	1	0		28	2	8	1	0		11	2	20	3	0		25	3	4	4	0		11	**-**
Single-Unit Trucks %	3.8%	2.9%	1.5%	0%		2.9%	1.8%	3%	1.2%	0%		2.4%	1.1%	1.4%	2%	0%		1.4%	4%	1.6%	2.6%	0%		2.3%	**-**
Buses	0	4	0	0		4	1	1	2	0		4	0	5	1	0		6	2	2	3	0		7	**-**
Buses %	0%	0.5%	0%	0%		0.4%	0.9%	0.4%	2.4%	0%		0.9%	0%	0.4%	0.7%	0%		0.3%	2.7%	0.8%	2%	0%		1.5%	**-**
Articulated Trucks	2	27	4	0		33	0	13	1	0		14	2	17	1	0		20	1	11	1	0		13	**-**
Articulated Trucks %	3.8%	3.1%	6.1%	0%		3.4%	0%	4.8%	1.2%	0%		3%	1.1%	1.2%	0.7%	0%		1.2%	1.3%	4.3%	0.7%	0%		2.7%	**-**
Aggregate Trucks	0	22	1	0		23	2	6	0	0		8	2	12	0	0		14	0	10	29	0		39	**-**
Aggregate Trucks %	0%	2.5%	1.5%	0%		2.3%	1.8%	2.2%	0%	0%		1.7%	1.1%	0.9%	0%	0%		0.8%	0%	3.9%	19.2%	0%		8.1%	**-**
Pedestrians	-	-	-	-	7	-	-	-	-	-	5	-	-	-	-	-	3	-	-	-	-	-	2	-	**-**
Pedestrians%	-	-	-	-	35%		-	-	-	-	25%		-	-	-	-	15%		-	-	-	-	10%		**-**
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	1	-	**-**
Bicycles on Crosswalk%	-	-	-	-	5%		-	-	-	-	5%		-	-	-	-	0%		-	-	-	-	5%		**-**

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 07:15 AM - 08:15 AM **Weather: Clear Sky (14.12 °C)**

	Bicycles on Crosswalk	Pedestrians
N	0	3
S	0	2
E	0	2
W	0	0

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 04:00 PM - 05:00 PM **Weather: Broken Clouds (23.66 °C)**

Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & HIGHWAY 10 (HURONTARIO ST)
Date: Sat, Jun 24, 2023 Deployment Lead: Walter Fugaj

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Turning Movement Count (1 . CHARLESTON SIDEROAD & HIGHWAY 10 (HURONTARIO ST)) CustID: 02408233 MioID:

Start Time	N Approach HURONTARIO ST						E Approach CHARLESTON SIDEROAD						S Approach HURONTARIO ST						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)	Int. Total (1 hr)
	Left N:E	Thru N:S	Right N:W	UTurn N:N	Peds N:	Approach Total	Left E:S	Thru E:W	Right E:N	UTurn E:E	Peds E:	Approach Total	Left S:W	Thru S:N	Right S:E	UTurn S:S	Peds S:	Approach Total	Left W:N	Thru W:E	Right W:S	UTurn W:W	Peds W:	Approach Total		
06:00:00	0	61	2	0	0	63	7	1	1	0	0	9	11	58	7	0	0	76	1	7	8	0	0	16	164	
06:15:00	0	80	0	0	0	80	7	8	0	0	0	15	12	64	12	0	0	88	6	18	15	0	0	39	222	
06:30:00	3	65	7	0	0	75	15	3	1	0	0	19	15	95	10	0	0	120	8	12	7	0	0	27	241	
06:45:00	4	75	4	0	0	83	14	13	0	0	0	27	19	97	9	0	0	125	6	19	6	0	1	31	266	893
07:00:00	3	102	3	0	1	108	16	17	2	0	0	35	19	87	12	1	0	119	10	15	9	0	1	34	296	1025
07:15:00	4	101	4	0	1	109	16	13	3	0	0	32	18	114	14	0	0	146	5	23	12	0	0	40	327	1130
07:30:00	4	138	2	0	0	144	8	15	7	0	0	30	16	159	14	0	0	189	10	25	5	0	0	40	403	1292
07:45:00	3	106	8	0	1	117	18	13	5	0	0	36	31	148	16	0	0	195	15	23	9	0	0	47	395	1421
08:00:00	11	114	8	0	0	133	14	21	0	0	0	35	15	187	15	0	0	217	13	37	16	0	0	66	451	1576
08:15:00	7	121	11	0	3	139	20	20	6	0	2	46	25	191	20	0	0	236	14	51	18	0	0	83	504	1753
08:30:00	11	167	7	0	2	185	19	18	8	0	2	45	19	206	22	0	0	247	24	42	13	0	0	79	556	1906
08:45:00	7	142	10	0	1	159	10	21	6	0	0	37	36	224	18	0	0	278	20	48	12	0	0	80	554	2065
09:00:00	15	154	11	0	0	180	19	36	1	0	0	56	37	207	25	0	2	269	27	57	24	0	2	108	613	2227
09:15:00	10	163	10	0	0	183	23	30	9	0	0	62	37	206	30	0	0	273	19	40	20	0	0	79	597	2320
09:30:00	7	193	8	0	0	208	30	18	13	0	2	61	31	237	23	0	0	291	19	42	17	0	0	78	638	2402
09:45:00	14	175	13	0	0	202	48	48	16	0	0	112	30	241	29	0	1	300	29	53	22	0	0	104	718	2566
BREAK																										
14:00:00	12	230	16	0	1	258	42	44	4	0	1	90	46	228	26	0	0	300	26	68	29	0	1	123	771	
14:15:00	13	245	28	0	0	286	35	55	13	0	0	103	39	216	42	0	1	297	31	62	37	0	1	130	816	
14:30:00	19	217	12	0	1	248	24	41	7	0	0	72	24	239	30	0	4	293	22	57	35	0	0	114	727	
14:45:00	14	267	21	0	2	302	34	34	11	0	0	79	34	246	43	0	1	323	18	62	33	0	0	113	817	3131
15:00:00	22	202	12	0	5	236	42	48	8	0	0	98	40	239	39	1	2	319	23	48	29	0	0	100	753	3113
15:15:00	11	236	13	0	1	260	50	56	9	0	0	115	40	234	35	0	1	309	27	54	25	0	0	106	790	3087
15:30:00	16	268	19	0	3	303	36	38	10	0	0	84	30	206	33	1	0	270	19	55	32	0	0	106	763	3123
15:45:00	15	231	17	0	1	263	38	47	7	0	2	92	26	202	42	0	6	270	21	47	32	0	3	100	725	3031
16:00:00	18	217	20	0	1	255	40	59	6	0	0	105	42	211	42	0	1	295	18	43	35	0	0	96	751	3029
16:15:00	19	245	21	0	2	285	26	41	8	0	0	75	36	195	39	0	2	270	17	42	30	0	0	89	719	2958
16:30:00	19	217	15	0	1	251	29	54	8	0	0	91	32	180	23	0	1	235	19	47	38	0	0	104	681	2876
16:45:00	4	254	12	0	0	270	37	49	7	0	0	93	30	222	38	0	0	290	19	42	34	0	0	95	748	2899
17:00:00	13	206	11	0	0	230	22	45	3	0	0	70	33	223	31	0	0	287	13	43	22	0	0	78	665	2813
17:15:00	15	206	18	0	0	239	33	46	11	0	0	90	25	189	28	0	0	242	17	51	31	0	0	99	670	2764
17:30:00	12	205	13	0	0	230	33	37	3	0	0	73	23	207	37	0	0	267	13	30	27	0	0	70	640	2723
17:45:00	9	230	13	0	0	252	26	41	3	0	0	70	27	167	21	0	0	215	12	31	22	0	0	65	602	2577
Grand Total	568	9191	597	1	42	10357	1374	1801	363	0	25	3538	1574	10149	1364	4	48	13091	966	2201	1115	1	17	4283	**31269**	-
Approach%	5.5%	88.7%	5.8%	0%		-	38.8%	50.9%	10.3%	0%		-	12%	77.5%	10.4%	0%		-	22.6%	51.4%	26%	0%		-	-	-
Totals %	1.8%	29.4%	1.9%	0%		33.1%	4.4%	5.8%	1.2%	0%		11.3%	5%	32.5%	4.4%	0%		41.9%	3.1%	7%	3.6%	0%		13.7%	-	-
Heavy	10	164	16	0		-	19	50	4	0		-	26	193	25	0		-	11	51	24	0		-	-	-
Heavy %	1.8%	1.8%	2.7%	0%		-	1.4%	2.8%	1.1%	0%		-	1.7%	1.9%	1.8%	0%		-	1.1%	2.3%	2.2%	0%		-	-	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 09:00 AM - 10:00 AM **Weather: Light Rain (17.81 °C)**

Start Time	N Approach HURONTARIO ST						E Approach CHARLESTON SIDEROAD						S Approach HURONTARIO ST						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)
	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	
09:00:00	15	154	11	0	0	180	19	36	1	0	0	56	37	207	25	0	2	269	27	57	24	0	2	108	613
09:15:00	10	163	10	0	0	183	23	30	9	0	0	62	37	206	30	0	0	273	19	40	20	0	0	79	597
09:30:00	7	193	8	0	0	208	30	18	13	0	2	61	31	237	23	0	0	291	19	42	17	0	0	78	638
09:45:00	14	175	13	0	0	202	48	48	16	0	0	112	30	241	29	0	1	300	29	53	22	0	0	104	718
Grand Total	46	685	42	0	0	773	120	132	39	0	2	291	135	891	107	0	3	1133	94	192	83	0	2	369	**2566**
Approach%	6%	88.6%	5.4%	0%		-	41.2%	45.4%	13.4%	0%		-	11.9%	78.6%	9.4%	0%		-	25.5%	52%	22.5%	0%		-	**-**
Totals %	1.8%	26.7%	1.6%	0%		30.1%	4.7%	5.1%	1.5%	0%		11.3%	5.3%	34.7%	4.2%	0%		44.2%	3.7%	7.5%	3.2%	0%		14.4%	**-**
PHF	0.77	0.89	0.81	0		0.93	0.63	0.69	0.61	0		0.65	0.91	0.92	0.89	0		0.94	0.81	0.84	0.86	0		0.85	**-**
Heavy	1	11	1	0		13	3	5	1	0		9	3	19	3	0		25	2	4	3	0		9	**-**
Heavy %	2.2%	1.6%	2.4%	0%		1.7%	2.5%	3.8%	2.6%	0%		3.1%	2.2%	2.1%	2.8%	0%		2.2%	2.1%	2.1%	3.6%	0%		2.4%	**-**
Lights	45	674	41	0		760	117	127	38	0		282	132	872	104	0		1108	92	188	80	0		360	**-**
Lights %	97.8%	98.4%	97.6%	0%		98.3%	97.5%	96.2%	97.4%	0%		96.9%	97.8%	97.9%	97.2%	0%		97.8%	97.9%	97.9%	96.4%	0%		97.6%	**-**
Single-Unit Trucks	0	6	1	0		7	1	1	0	0		2	2	5	1	0		8	1	0	2	0		3	**-**
Single-Unit Trucks %	0%	0.9%	2.4%	0%		0.9%	0.8%	0.8%	0%	0%		0.7%	1.5%	0.6%	0.9%	0%		0.7%	1.1%	0%	2.4%	0%		0.8%	**-**
Buses	0	1	0	0		1	0	0	0	0		0	0	5	0	0		5	0	1	0	0		1	**-**
Buses %	0%	0.1%	0%	0%		0.1%	0%	0%	0%	0%		0%	0%	0.6%	0%	0%		0.4%	0%	0.5%	0%	0%		0.3%	**-**
Articulated Trucks	1	2	0	0		3	1	3	0	0		4	0	6	1	0		7	1	2	1	0		4	**-**
Articulated Trucks %	2.2%	0.3%	0%	0%		0.4%	0.8%	2.3%	0%	0%		1.4%	0%	0.7%	0.9%	0%		0.6%	1.1%	1%	1.2%	0%		1.1%	**-**
Aggregate Trucks	0	2	0	0		2	1	1	1	0		3	1	3	1	0		5	0	1	0	0		1	**-**
Aggregate Trucks %	0%	0.3%	0%	0%		0.3%	0.8%	0.8%	2.6%	0%		1%	0.7%	0.3%	0.9%	0%		0.4%	0%	0.5%	0%	0%		0.3%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	3	-	-	-	-	-	2	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	28.6%		-	-	-	-	42.9%		-	-	-	-	28.6%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & HIGHWAY 10 (HURONTARIO ST)
Date: Sat, Jun 24, 2023 Deployment Lead: Walter Fugaj

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

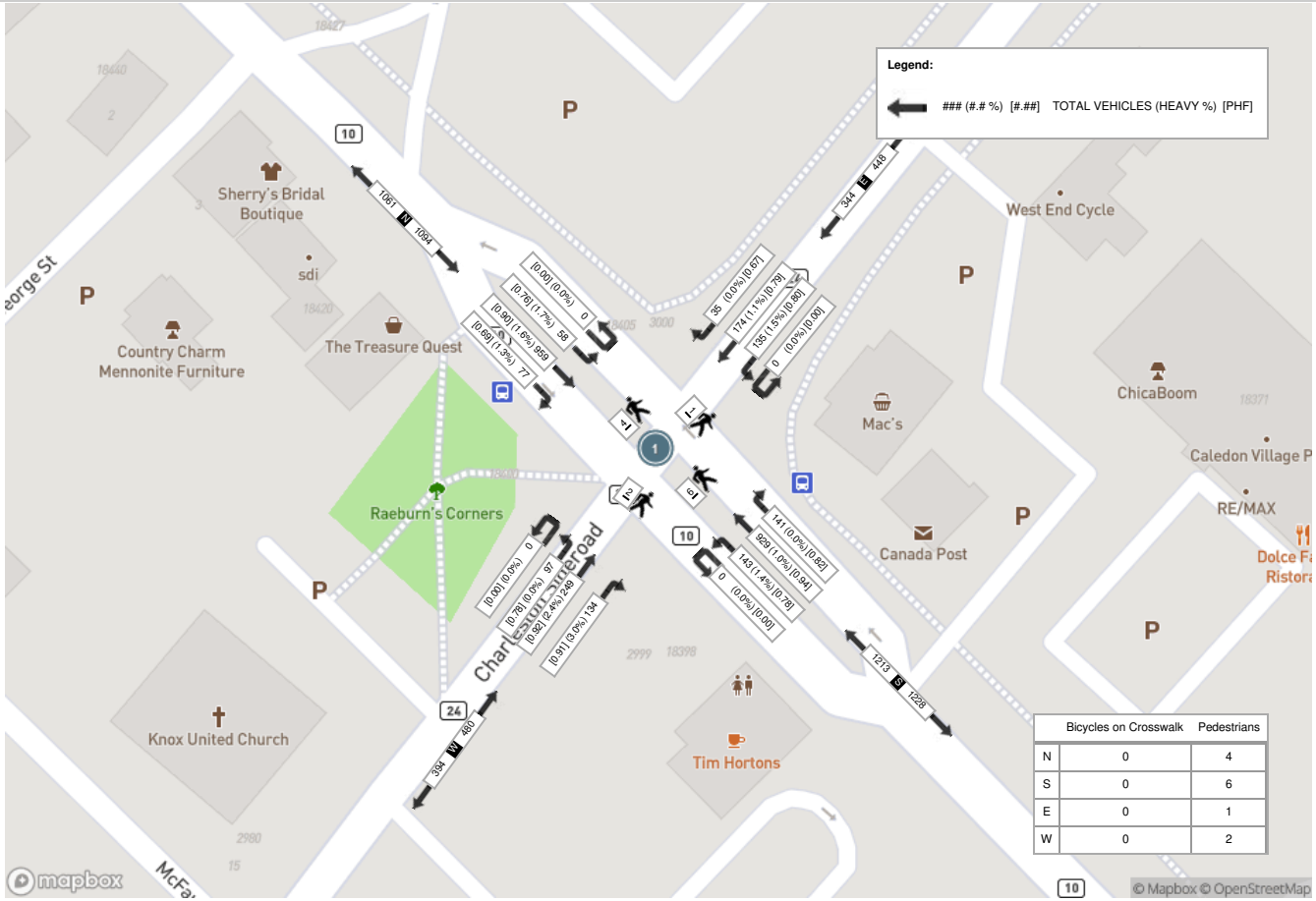
Peak Hour: 02:00 PM - 03:00 PM Weather: Moderate Rain (22.45 °C)

Start Time	N Approach HURONTARIO ST						E Approach CHARLESTON SIDEROAD						S Approach HURONTARIO ST						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)
	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	
14:00:00	12	230	16	0	1	258	42	44	4	0	1	90	46	228	26	0	0	300	26	68	29	0	1	123	771
14:15:00	13	245	28	0	0	286	35	55	13	0	0	103	39	216	42	0	1	297	31	62	37	0	1	130	816
14:30:00	19	217	12	0	1	248	24	41	7	0	0	72	24	239	30	0	4	293	22	57	35	0	0	114	727
14:45:00	14	267	21	0	2	302	34	34	11	0	0	79	34	246	43	0	1	323	18	62	33	0	0	113	817
Grand Total	58	959	77	0	4	1094	135	174	35	0	1	344	143	929	141	0	6	1213	97	249	134	0	2	480	**3131**
Approach%	5.3%	87.7%	7%	0%		-	39.2%	50.6%	10.2%	0%		-	11.8%	76.6%	11.6%	0%		-	20.2%	51.9%	27.9%	0%		-	**-**
Totals %	1.9%	30.6%	2.5%	0%		34.9%	4.3%	5.6%	1.1%	0%		11%	4.6%	29.7%	4.5%	0%		38.7%	3.1%	8%	4.3%	0%		15.3%	**-**
PHF	0.76	0.9	0.69	0		0.91	0.8	0.79	0.67	0		0.83	0.78	0.94	0.82	0		0.94	0.78	0.92	0.91	0		0.92	**-**
Heavy	1	15	1	0		17	2	2	0	0		4	2	9	0	0		11	0	6	4	0		10	**-**
Heavy %	1.7%	1.6%	1.3%	0%		1.6%	1.5%	1.1%	0%	0%		1.2%	1.4%	1%	0%	0%		0.9%	0%	2.4%	3%	0%		2.1%	**-**
Lights	57	944	76	0		1077	133	172	35	0		340	141	920	141	0		1202	97	243	130	0		470	**-**
Lights %	98.3%	98.4%	98.7%	0%		98.4%	98.5%	98.9%	100%	0%		98.8%	98.6%	99%	100%	0%		99.1%	100%	97.6%	97%	0%		97.9%	**-**
Single-Unit Trucks	1	7	0	0		8	1	1	0	0		2	2	7	0	0		9	0	1	2	0		3	**-**
Single-Unit Trucks %	1.7%	0.7%	0%	0%		0.7%	0.7%	0.6%	0%	0%		0.6%	1.4%	0.8%	0%	0%		0.7%	0%	0.4%	1.5%	0%		0.6%	**-**
Buses	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	**-**
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.4%	0%	0%		0.2%	**-**
Articulated Trucks	0	6	1	0		7	0	0	0	0		0	0	2	0	0		2	0	4	1	0		5	**-**
Articulated Trucks %	0%	0.6%	1.3%	0%		0.6%	0%	0%	0%	0%		0%	0%	0.2%	0%	0%		0.2%	0%	1.6%	0.7%	0%		1%	**-**
Aggregate Trucks	0	2	0	0		2	1	1	0	0		2	0	0	0	0		0	0	0	1	0		1	**-**
Aggregate Trucks %	0%	0.2%	0%	0%		0.2%	0.7%	0.6%	0%	0%		0.6%	0%	0%	0%	0%		0%	0%	0%	0.7%	0%		0.2%	**-**
Pedestrians	-	-	-	-	4	-	-	-	-	-	1	-	-	-	-	-	6	-	-	-	-	-	2	-	**-**
Pedestrians%	-	-	-	-	30.8%		-	-	-	-	7.7%		-	-	-	-	46.2%		-	-	-	-	15.4%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 09:00 AM - 10:00 AM **Weather: Light Rain (17.81 °C)**

Peak Hour: 02:00 PM - 03:00 PM **Weather: Moderate Rain (22.45 °C)**



Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & HIGHWAY 10 (HURONTARIO ST)
Date: Fri, Jun 23, 2023 Deployment Lead: Walter Fugaj

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Turning Movement Count (1 . CHARLESTON SIDEROAD & HIGHWAY 10 (HURONTARIO ST)) CustID: 02408233 MioID:

Start Time	N Approach HURONTARIO ST						E Approach CHARLESTON SIDEROAD						S Approach HURONTARIO ST						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)	Int. Total (1 hr)
	Left N:E	Thru N:S	Right N:W	UTurn N:N	Peds N:	Approach Total	Left E:S	Thru E:W	Right E:N	UTurn E:E	Peds E:	Approach Total	Left S:W	Thru S:N	Right S:E	UTurn S:S	Peds S:	Approach Total	Left W:N	Thru W:E	Right W:S	UTurn W:W	Peds W:	Approach Total		
06:00:00	7	268	8	0	0	283	36	10	0	0	2	46	20	90	11	0	0	121	4	19	41	0	0	64	514	
06:15:00	9	293	6	0	0	308	36	16	1	0	0	53	28	110	5	0	0	143	8	27	50	0	0	85	589	
06:30:00	10	285	12	0	0	307	31	27	3	0	0	61	43	174	17	0	0	234	12	35	31	0	2	78	680	
06:45:00	8	270	2	0	1	280	34	29	2	0	0	65	29	125	12	0	0	166	11	31	36	0	0	78	589	2372
07:00:00	6	308	8	0	0	322	32	21	1	0	1	54	30	114	19	0	0	163	11	47	43	0	0	101	640	2498
07:15:00	14	388	8	0	0	410	36	19	9	0	0	64	26	161	19	0	2	206	11	32	50	0	2	93	773	2682
07:30:00	12	275	10	0	3	297	38	45	6	0	2	89	37	181	18	0	0	236	12	37	36	0	0	85	707	2709
07:45:00	15	244	7	0	0	266	36	35	9	0	0	80	44	164	19	0	1	227	31	46	44	0	0	121	694	2814
08:00:00	8	301	14	0	2	323	26	44	1	0	0	71	35	187	30	0	1	252	10	46	42	0	0	98	744	2918
08:15:00	10	244	18	0	1	272	24	56	13	0	3	93	30	185	24	0	1	239	23	52	37	0	0	112	716	2861
08:30:00	18	209	14	1	2	242	26	37	6	0	2	69	45	172	22	0	0	239	17	50	41	0	0	108	658	2812
08:45:00	19	205	10	0	3	234	35	35	6	0	0	76	44	181	27	0	0	252	24	52	43	0	1	119	681	2799
09:00:00	17	232	9	0	0	258	28	36	10	0	0	74	26	203	25	0	2	254	24	44	25	0	1	93	679	2734
09:15:00	14	205	12	0	3	231	36	52	14	0	2	102	46	171	24	0	3	241	13	70	26	0	1	109	683	2701
09:30:00	14	204	12	0	1	230	28	43	4	0	0	75	44	216	21	0	2	281	19	43	27	0	4	89	675	2718
09:45:00	15	203	11	0	2	229	20	34	6	0	1	60	42	209	31	0	0	282	26	60	23	0	0	109	680	2717
BREAK																										
14:00:00	14	270	15	0	0	299	28	55	11	0	3	94	43	264	31	0	9	338	14	59	30	0	1	103	834	
14:15:00	16	221	20	0	0	257	31	58	15	0	1	104	42	265	40	0	3	347	25	55	29	0	2	109	817	
14:30:00	21	230	17	0	0	268	31	67	16	0	2	114	34	288	28	0	0	350	16	61	21	0	0	98	830	
14:45:00	20	215	8	0	0	243	23	59	11	0	1	93	41	310	29	0	4	380	10	61	24	0	1	95	811	3292
15:00:00	24	206	14	0	3	244	25	50	17	0	4	92	37	282	38	0	4	357	17	64	26	0	4	107	800	3258
15:15:00	20	230	14	0	0	264	21	62	11	0	1	94	36	288	34	0	2	358	25	61	21	0	0	107	823	3264
15:30:00	24	234	25	0	0	283	23	59	8	0	0	90	32	302	37	0	0	371	19	47	24	0	0	90	834	3268
15:45:00	26	268	21	0	2	315	30	64	13	0	0	107	26	312	31	0	0	369	13	47	26	0	1	86	877	3334
16:00:00	27	183	16	0	0	226	32	69	21	0	1	122	28	288	47	0	0	363	12	57	34	0	0	103	814	3348
16:15:00	28	254	22	0	0	304	17	69	28	0	0	114	21	225	24	0	1	270	30	65	22	0	0	117	805	3330
16:30:00	23	272	21	0	0	316	33	71	32	0	0	136	35	230	34	0	0	299	20	58	15	0	0	93	844	3340
16:45:00	20	249	17	0	0	286	17	50	33	0	0	100	25	290	27	0	2	342	13	78	21	0	1	112	840	3303
17:00:00	17	204	17	0	1	238	32	54	34	0	1	120	20	292	21	0	2	333	19	67	24	0	1	110	801	3290
17:15:00	26	268	13	0	1	307	27	69	26	0	1	122	34	322	27	0	1	383	24	76	21	0	0	121	933	3418
17:30:00	22	241	19	0	1	282	30	52	24	0	0	106	27	267	23	1	0	318	22	74	23	0	0	119	825	3399
17:45:00	15	222	9	0	1	246	32	47	14	0	0	93	26	277	19	0	2	322	29	65	27	0	0	121	782	3341
Grand Total	777	11015	667	2	48	12461	1391	2283	596	1	113	4271	1653	10955	1300	1	98	13909	899	2628	1453	0	52	4980	**35621**	-
Approach%	6.2%	88.4%	5.4%	0%		-	32.6%	53.5%	14%	0%		-	11.9%	78.8%	9.3%	0%		-	18.1%	52.8%	29.2%	0%		-	-	-
Totals %	2.2%	30.9%	1.9%	0%		35%	3.9%	6.4%	1.7%	0%		12%	4.6%	30.8%	3.6%	0%		39%	2.5%	7.4%	4.1%	0%		14%	-	-
Heavy	100	779	78	0		-	117	356	65	0		-	312	1034	180	0		-	68	408	256	0		-	-	-
Heavy %	12.9%	7.1%	11.7%	0%		-	8.4%	15.6%	10.9%	0%		-	18.9%	9.4%	13.8%	0%		-	7.6%	15.5%	17.6%	0%		-	-	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-

Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & HIGHWAY 10 (HURONTARIO ST)
Date: Fri, Jun 23, 2023 Deployment Lead: Walter Fugaj

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 07:15 AM - 08:15 AM Weather: Overcast Clouds (17.79 °C)

Start Time	N Approach HURONTARIO ST						E Approach CHARLESTON SIDEROAD						S Approach HURONTARIO ST						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)
	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	
07:15:00	14	388	8	0	0	410	36	19	9	0	0	64	26	161	19	0	2	206	11	32	50	0	2	93	773
07:30:00	12	275	10	0	3	297	38	45	6	0	2	89	37	181	18	0	0	236	12	37	36	0	0	85	707
07:45:00	15	244	7	0	0	266	36	35	9	0	0	80	44	164	19	0	1	227	31	46	44	0	0	121	694
08:00:00	8	301	14	0	2	323	26	44	1	0	0	71	35	187	30	0	1	252	10	46	42	0	0	98	744
Grand Total	49	1208	39	0	5	1296	136	143	25	0	2	304	142	693	86	0	4	921	64	161	172	0	2	397	**2918**
Approach%	3.8%	93.2%	3%	0%		-	44.7%	47%	8.2%	0%		-	15.4%	75.2%	9.3%	0%		-	16.1%	40.6%	43.3%	0%		-	**-**
Totals %	1.7%	41.4%	1.3%	0%		44.4%	4.7%	4.9%	0.9%	0%		10.4%	4.9%	23.7%	2.9%	0%		31.6%	2.2%	5.5%	5.9%	0%		13.6%	**-**
PHF	0.82	0.78	0.7	0		0.79	0.89	0.79	0.69	0		0.85	0.81	0.93	0.72	0		0.91	0.52	0.88	0.86	0		0.82	**-**
Heavy	6	47	7	0		60	3	30	5	0		38	34	122	17	0		173	8	25	16	0		49	**-**
Heavy %	12.2%	3.9%	17.9%	0%		4.6%	2.2%	21%	20%	0%		12.5%	23.9%	17.6%	19.8%	0%		18.8%	12.5%	15.5%	9.3%	0%		12.3%	**-**
Lights	43	1161	32	0		1236	133	113	20	0		266	108	571	69	0		748	56	136	156	0		348	**-**
Lights %	87.8%	96.1%	82.1%	0%		95.4%	97.8%	79%	80%	0%		87.5%	76.1%	82.4%	80.2%	0%		81.2%	87.5%	84.5%	90.7%	0%		87.7%	**-**
Single-Unit Trucks	0	6	4	0		10	0	5	1	0		6	3	27	4	0		34	2	6	2	0		10	**-**
Single-Unit Trucks %	0%	0.5%	10.3%	0%		0.8%	0%	3.5%	4%	0%		2%	2.1%	3.9%	4.7%	0%		3.7%	3.1%	3.7%	1.2%	0%		2.5%	**-**
Buses	2	9	0	0		11	1	2	1	0		4	1	4	1	0		6	1	1	1	0		3	**-**
Buses %	4.1%	0.7%	0%	0%		0.8%	0.7%	1.4%	4%	0%		1.3%	0.7%	0.6%	1.2%	0%		0.7%	1.6%	0.6%	0.6%	0%		0.8%	**-**
Articulated Trucks	1	16	2	0		19	0	11	2	0		13	3	51	3	0		57	3	13	0	0		16	**-**
Articulated Trucks %	2%	1.3%	5.1%	0%		1.5%	0%	7.7%	8%	0%		4.3%	2.1%	7.4%	3.5%	0%		6.2%	4.7%	8.1%	0%	0%		4%	**-**
Aggregate Trucks	3	16	1	0		20	2	12	1	0		15	27	40	9	0		76	2	5	13	0		20	**-**
Aggregate Trucks %	6.1%	1.3%	2.6%	0%		1.5%	1.5%	8.4%	4%	0%		4.9%	19%	5.8%	10.5%	0%		8.3%	3.1%	3.1%	7.6%	0%		5%	**-**
Pedestrians	-	-	-	-	5	-	-	-	-	-	2	-	-	-	-	-	4	-	-	-	-	-	2	-	**-**
Pedestrians%	-	-	-	-	38.5%		-	-	-	-	15.4%		-	-	-	-	30.8%		-	-	-	-	15.4%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & HIGHWAY 10 (HURONTARIO ST)
Date: Fri, Jun 23, 2023 Deployment Lead: Walter Fugaj

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 04:30 PM - 05:30 PM Weather: Light Rain (21.56 °C)

Start Time	N Approach HURONTARIO ST						E Approach CHARLESTON SIDEROAD						S Approach HURONTARIO ST						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)
	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	
16:30:00	23	272	21	0	0	316	33	71	32	0	0	136	35	230	34	0	0	299	20	58	15	0	0	93	844
16:45:00	20	249	17	0	0	286	17	50	33	0	0	100	25	290	27	0	2	342	13	78	21	0	1	112	840
17:00:00	17	204	17	0	1	238	32	54	34	0	1	120	20	292	21	0	2	333	19	67	24	0	1	110	801
17:15:00	26	268	13	0	1	307	27	69	26	0	1	122	34	322	27	0	1	383	24	76	21	0	0	121	933
Grand Total	86	993	68	0	2	1147	109	244	125	0	2	478	114	1134	109	0	5	1357	76	279	81	0	2	436	**3418**
Approach%	7.5%	86.6%	5.9%	0%		-	22.8%	51%	26.2%	0%		-	8.4%	83.6%	8%	0%		-	17.4%	64%	18.6%	0%		-	**-**
Totals %	2.5%	29.1%	2%	0%		33.6%	3.2%	7.1%	3.7%	0%		14%	3.3%	33.2%	3.2%	0%		39.7%	2.2%	8.2%	2.4%	0%		12.8%	**-**
PHF	0.83	0.91	0.81	0		0.91	0.83	0.86	0.92	0		0.88	0.81	0.88	0.8	0		0.89	0.79	0.89	0.84	0		0.9	**-**
Heavy	4	37	5	0		46	3	12	3	0		18	3	39	4	0		46	3	26	12	0		41	**-**
Heavy %	4.7%	3.7%	7.4%	0%		4%	2.8%	4.9%	2.4%	0%		3.8%	2.6%	3.4%	3.7%	0%		3.4%	3.9%	9.3%	14.8%	0%		9.4%	**-**
Lights	82	956	63	0		1101	106	232	122	0		460	111	1095	105	0		1311	73	253	69	0		395	**-**
Lights %	95.3%	96.3%	92.6%	0%		96%	97.2%	95.1%	97.6%	0%		96.2%	97.4%	96.6%	96.3%	0%		96.6%	96.1%	90.7%	85.2%	0%		90.6%	**-**
Single-Unit Trucks	2	11	2	0		15	0	1	2	0		3	1	12	1	0		14	0	6	1	0		7	**-**
Single-Unit Trucks %	2.3%	1.1%	2.9%	0%		1.3%	0%	0.4%	1.6%	0%		0.6%	0.9%	1.1%	0.9%	0%		1%	0%	2.2%	1.2%	0%		1.6%	**-**
Buses	1	4	1	0		6	0	0	0	0		0	0	3	1	0		4	0	0	1	0		1	**-**
Buses %	1.2%	0.4%	1.5%	0%		0.5%	0%	0%	0%	0%		0%	0%	0.3%	0.9%	0%		0.3%	0%	0%	1.2%	0%		0.2%	**-**
Articulated Trucks	0	16	2	0		18	0	10	0	0		10	0	20	0	0		20	2	14	0	0		16	**-**
Articulated Trucks %	0%	1.6%	2.9%	0%		1.6%	0%	4.1%	0%	0%		2.1%	0%	1.8%	0%	0%		1.5%	2.6%	5%	0%	0%		3.7%	**-**
Aggregate Trucks	1	6	0	0		7	3	1	1	0		5	2	4	2	0		8	1	6	10	0		17	**-**
Aggregate Trucks %	1.2%	0.6%	0%	0%		0.6%	2.8%	0.4%	0.8%	0%		1%	1.8%	0.4%	1.8%	0%		0.6%	1.3%	2.2%	12.3%	0%		3.9%	**-**
Pedestrians	-	-	-	-	2	-	-	-	-	-	2	-	-	-	-	-	5	-	-	-	-	-	2	-	**-**
Pedestrians%	-	-	-	-	18.2%		-	-	-	-	18.2%		-	-	-	-	45.5%		-	-	-	-	18.2%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

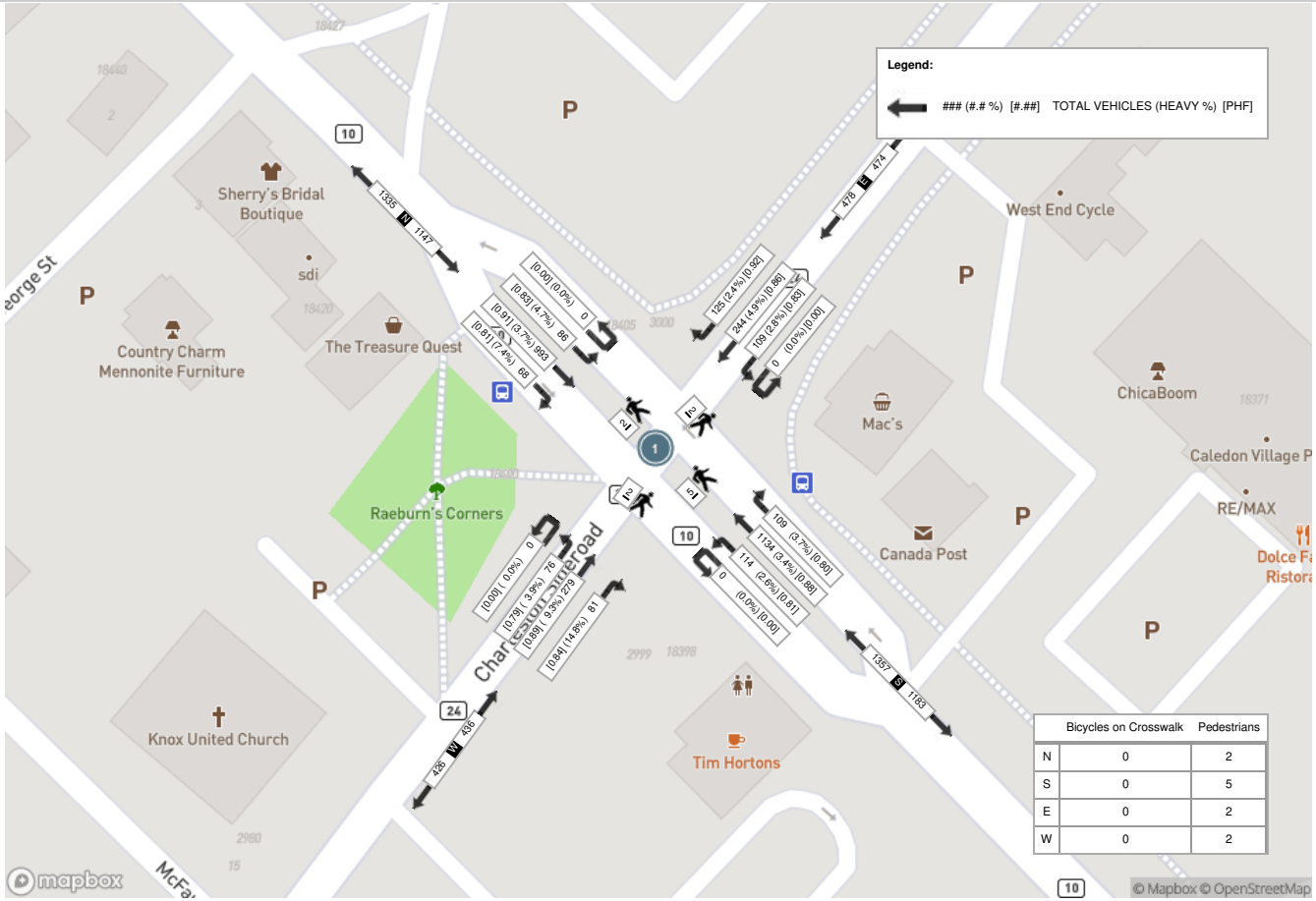
TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 07:15 AM - 08:15 AM **Weather: Overcast Clouds (17.79 °C)**

	Bicycles on Crosswalk	Pedestrians
N	0	5
S	0	4
E	0	2
W	0	2

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 04:30 PM - 05:30 PM **Weather: Light Rain (21.56 °C)**



Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & MISSISSAUGA RD
Date: Thu, Jun 22, 2023 Deployment Lead: Walter Fugaj

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Turning Movement Count (3 . CHARLESTON SIDEROAD & MISSISSAUGA RD) CustID: 02413835 MioID:

Start Time	N Approach MISSISSAUGA RD						E Approach CHARLESTON SIDEROAD						S Approach MISSISSAUGA RD						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)	Int. Total (1 hr)
	Left N:E	Thru N:S	Right N:W	UTurn N:N	Peds N:	Approach Total	Left E:S	Thru E:W	Right E:N	UTurn E:E	Peds E:	Approach Total	Left S:W	Thru S:N	Right S:E	UTurn S:S	Peds S:	Approach Total	Left W:N	Thru W:E	Right W:S	UTurn W:W	Peds W:	Approach Total		
06:00:00	3	0	0	0	0	3	2	33	3	0	0	38	0	1	0	0	0	1	0	52	0	0	0	52	94	
06:15:00	1	3	1	0	0	5	4	36	0	0	0	40	0	0	4	0	0	4	0	65	0	0	0	65	114	
06:30:00	2	2	2	0	0	6	1	43	5	0	0	49	0	1	5	0	0	6	2	66	0	0	0	68	129	
06:45:00	1	2	3	0	0	6	0	69	1	0	0	70	2	0	5	0	0	7	4	78	1	0	0	83	166	503
07:00:00	2	4	6	0	0	12	2	46	2	0	0	50	0	0	2	0	0	2	2	74	0	0	0	76	140	549
07:15:00	2	1	3	0	0	6	3	46	0	0	0	49	0	1	2	0	0	3	2	64	0	0	0	66	124	559
07:30:00	2	4	2	0	0	8	3	79	4	0	0	86	0	1	4	0	0	5	0	80	0	0	0	80	179	609
07:45:00	1	1	3	0	0	5	6	72	6	0	0	84	0	2	3	0	0	5	6	83	1	0	0	90	184	627
08:00:00	6	1	3	0	0	10	9	80	3	0	0	92	1	0	1	0	0	2	4	87	0	0	0	91	195	682
08:15:00	5	5	3	0	0	13	8	77	2	0	0	87	0	1	2	0	0	3	3	104	1	0	0	108	211	769
08:30:00	3	1	2	0	0	6	10	83	4	0	0	97	1	2	7	0	0	10	3	84	0	0	0	87	200	790
08:45:00	2	1	0	0	0	3	1	46	2	0	0	49	1	2	1	0	0	4	2	103	1	0	0	106	162	768
09:00:00	2	0	4	0	0	6	3	69	7	0	0	79	0	3	6	0	0	9	3	68	0	0	0	71	165	738
09:15:00	4	0	2	0	0	6	1	54	2	0	0	57	0	0	3	0	0	3	4	98	1	0	0	103	169	696
09:30:00	3	1	2	0	0	6	3	66	4	0	0	73	0	3	4	0	0	7	1	92	1	0	0	94	180	676
09:45:00	2	0	1	0	0	3	1	63	4	0	0	68	2	1	1	0	0	4	5	84	1	0	0	90	165	679
BREAK																										
14:00:00	1	2	7	0	0	10	2	69	0	0	0	71	0	2	8	0	0	10	5	76	0	0	0	81	172	
14:15:00	3	0	7	0	0	10	6	81	2	0	0	89	2	3	1	0	0	6	2	81	0	0	0	83	188	
14:30:00	5	1	4	0	0	10	8	70	0	0	0	78	1	1	6	0	0	8	1	81	1	0	0	83	179	
14:45:00	6	0	7	0	0	13	0	100	4	0	0	104	0	1	3	0	0	4	6	81	0	0	0	87	208	747
15:00:00	7	1	5	0	0	13	4	99	3	0	0	106	4	3	8	0	0	15	2	75	2	0	0	79	213	788
15:15:00	4	1	6	0	0	11	4	86	4	0	0	94	4	0	5	0	0	9	2	92	1	0	0	95	209	809
15:30:00	6	2	8	0	0	16	1	96	5	0	0	102	2	2	6	0	0	10	3	94	2	0	0	99	227	857
15:45:00	3	1	4	0	0	8	7	85	3	0	0	95	0	5	7	0	0	12	2	100	1	0	0	103	218	867
16:00:00	1	1	3	0	0	5	2	111	2	0	0	115	0	6	9	0	0	15	5	109	0	0	0	114	249	903
16:15:00	5	3	1	0	0	9	2	112	3	0	0	117	2	0	10	0	0	12	8	95	3	0	0	106	244	938
16:30:00	3	2	5	0	0	10	3	120	3	0	0	126	3	2	8	0	0	13	2	91	2	0	0	95	244	955
16:45:00	9	1	1	0	0	11	2	107	3	0	0	112	0	2	4	0	0	6	7	117	0	0	0	124	253	990
17:00:00	7	0	4	0	0	11	2	100	2	0	0	104	0	6	2	0	0	8	3	128	4	0	0	135	258	999
17:15:00	2	1	4	0	0	7	5	124	4	0	0	133	0	4	7	0	0	11	2	117	2	0	0	121	272	1027
17:30:00	2	0	8	0	0	10	3	107	2	0	0	112	0	2	3	0	0	5	6	86	1	0	0	93	220	1003
17:45:00	0	1	0	0	0	1	5	89	1	0	0	95	2	3	5	0	0	10	3	76	0	0	0	79	185	935
Grand Total	131	55	192	0	0	378	181	3697	123	0	0	4001	40	81	209	0	0	330	152	4090	39	0	0	4281	**8990**	-
Approach%	34.7%	14.6%	50.8%	0%		-	4.5%	92.4%	3.1%	0%		-	12.1%	24.5%	63.3%	0%		-	3.6%	95.5%	0.9%	0%		-	**-**	-
Totals %	1.5%	0.6%	2.1%	0%		4.2%	2%	41.1%	1.4%	0%		44.5%	0.4%	0.9%	2.3%	0%		3.7%	1.7%	45.5%	0.4%	0%		47.6%	**-**	-
Heavy	20	1	54	0		-	61	639	17	0		-	2	0	62	0		-	13	618	7	0		-	**-**	-
Heavy %	15.3%	1.8%	28.1%	0%		-	33.7%	17.3%	13.8%	0%		-	5%	0%	29.7%	0%		-	8.6%	15.1%	17.9%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 07:45 AM - 08:45 AM Weather: Clear Sky (14.12 °C)

Start Time	N Approach MISSISSAUGA RD						E Approach CHARLESTON SIDEROAD						S Approach MISSISSAUGA RD						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)
	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	
07:45:00	1	1	3	0	0	5	6	72	6	0	0	84	0	2	3	0	0	5	6	83	1	0	0	90	184
08:00:00	6	1	3	0	0	10	9	80	3	0	0	92	1	0	1	0	0	2	4	87	0	0	0	91	195
08:15:00	5	5	3	0	0	13	8	77	2	0	0	87	0	1	2	0	0	3	3	104	1	0	0	108	211
08:30:00	3	1	2	0	0	6	10	83	4	0	0	97	1	2	7	0	0	10	3	84	0	0	0	87	200
Grand Total	15	8	11	0	0	34	33	312	15	0	0	360	2	5	13	0	0	20	16	358	2	0	0	376	**790**
Approach%	44.1%	23.5%	32.4%	0%		-	9.2%	86.7%	4.2%	0%		-	10%	25%	65%	0%		-	4.3%	95.2%	0.5%	0%		-	**-**
Totals %	1.9%	1%	1.4%	0%		4.3%	4.2%	39.5%	1.9%	0%		45.6%	0.3%	0.6%	1.6%	0%		2.5%	2%	45.3%	0.3%	0%		47.6%	**-**
PHF	0.63	0.4	0.92	0		0.65	0.83	0.94	0.63	0		0.93	0.5	0.63	0.46	0		0.5	0.67	0.86	0.5	0		0.87	**-**
Heavy	1	0	1	0		2	8	71	0	0		79	0	0	4	0		4	4	52	2	0		58	**-**
Heavy %	6.7%	0%	9.1%	0%		5.9%	24.2%	22.8%	0%	0%		21.9%	0%	0%	30.8%	0%		20%	25%	14.5%	100%	0%		15.4%	**-**
Lights	14	8	9	0		31	25	241	15	0		281	2	5	9	0		16	12	306	0	0		318	**-**
Lights %	93.3%	100%	81.8%	0%		91.2%	75.8%	77.2%	100%	0%		78.1%	100%	100%	69.2%	0%		80%	75%	85.5%	0%	0%		84.6%	**-**
Single-Unit Trucks	1	0	0	0		1	1	10	0	0		11	0	0	0	0		0	1	6	0	0		7	**-**
Single-Unit Trucks %	6.7%	0%	0%	0%		2.9%	3%	3.2%	0%	0%		3.1%	0%	0%	0%	0%		0%	6.3%	1.7%	0%	0%		1.9%	**-**
Buses	0	0	0	0		0	1	3	0	0		4	0	0	0	0		0	2	1	2	0		5	**-**
Buses %	0%	0%	0%	0%		0%	3%	1%	0%	0%		1.1%	0%	0%	0%	0%		0%	12.5%	0.3%	100%	0%		1.3%	**-**
Articulated Trucks	0	0	0	0		0	0	19	0	0		19	0	0	0	0		0	0	14	0	0		14	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	6.1%	0%	0%		5.3%	0%	0%	0%	0%		0%	0%	3.9%	0%	0%		3.7%	**-**
Aggregate Trucks	0	0	1	0		1	6	39	0	0		45	0	0	4	0		4	1	31	0	0		32	**-**
Aggregate Trucks %	0%	0%	9.1%	0%		2.9%	18.2%	12.5%	0%	0%		12.5%	0%	0%	30.8%	0%		20%	6.3%	8.7%	0%	0%		8.5%	**-**
Bicycles on Road	0	0	1	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	9.1%	0%		2.9%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**

Spectrum

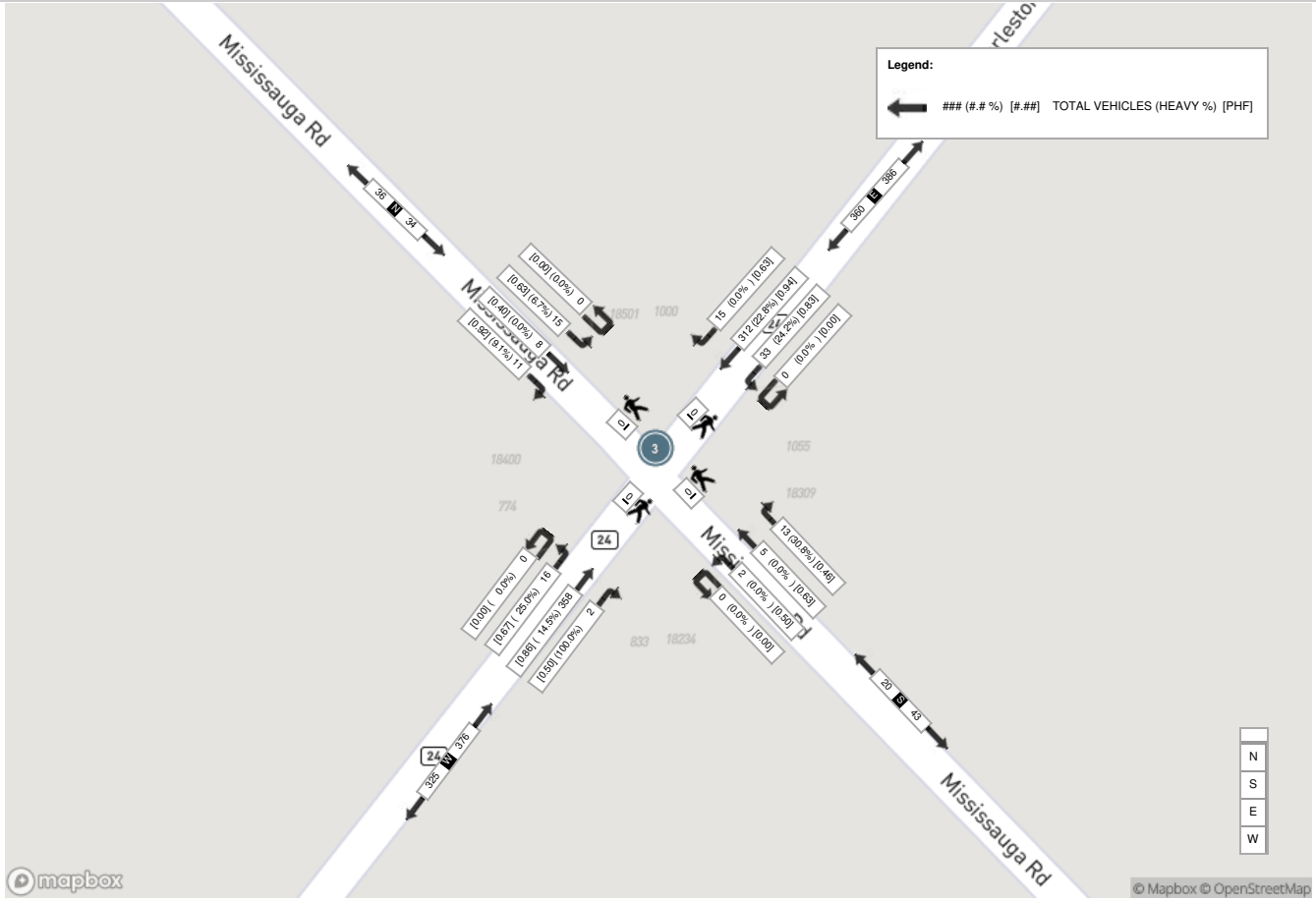
Turning Movement Count
Location Name: CHARLESTON SIDEROAD & MISSISSAUGA RD
Date: Thu, Jun 22, 2023 Deployment Lead: Walter Fugaj

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

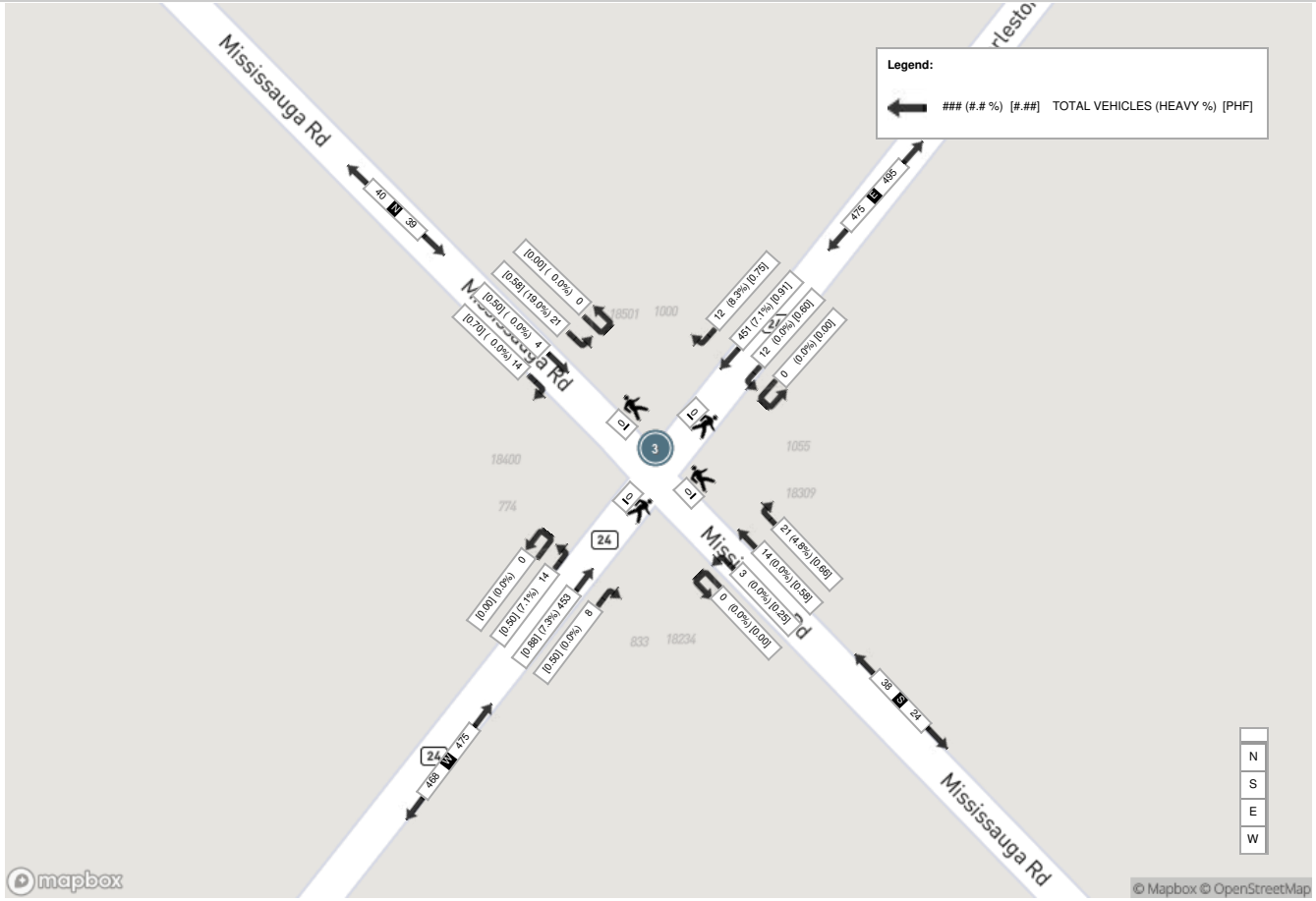
Peak Hour: 04:30 PM - 05:30 PM Weather: Broken Clouds (23.66 °C)

Start Time	N Approach MISSISSAUGA RD						E Approach CHARLESTON SIDEROAD						S Approach MISSISSAUGA RD						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)
	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	
16:30:00	3	2	5	0	0	10	3	120	3	0	0	126	3	2	8	0	0	13	2	91	2	0	0	95	244
16:45:00	9	1	1	0	0	11	2	107	3	0	0	112	0	2	4	0	0	6	7	117	0	0	0	124	253
17:00:00	7	0	4	0	0	11	2	100	2	0	0	104	0	6	2	0	0	8	3	128	4	0	0	135	258
17:15:00	2	1	4	0	0	7	5	124	4	0	0	133	0	4	7	0	0	11	2	117	2	0	0	121	272
Grand Total	21	4	14	0	0	39	12	451	12	0	0	475	3	14	21	0	0	38	14	453	8	0	0	475	**1027**
Approach%	53.8%	10.3%	35.9%	0%		-	2.5%	94.9%	2.5%	0%		-	7.9%	36.8%	55.3%	0%		-	2.9%	95.4%	1.7%	0%		-	**-**
Totals %	2%	0.4%	1.4%	0%		3.8%	1.2%	43.9%	1.2%	0%		46.3%	0.3%	1.4%	2%	0%		3.7%	1.4%	44.1%	0.8%	0%		46.3%	**-**
PHF	0.58	0.5	0.7	0		0.89	0.6	0.91	0.75	0		0.89	0.25	0.58	0.66	0		0.73	0.5	0.88	0.5	0		0.88	**-**
Heavy	4	0	0	0		4	0	32	1	0		33	0	0	1	0		1	1	33	0	0		34	**-**
Heavy %	19%	0%	0%	0%		10.3%	0%	7.1%	8.3%	0%		6.9%	0%	0%	4.8%	0%		2.6%	7.1%	7.3%	0%	0%		7.2%	**-**
Lights	17	4	14	0		35	12	419	11	0		442	3	14	20	0		37	13	420	8	0		441	**-**
Lights %	81%	100%	100%	0%		89.7%	100%	92.9%	91.7%	0%		93.1%	100%	100%	95.2%	0%		97.4%	92.9%	92.7%	100%	0%		92.8%	**-**
Single-Unit Trucks	2	0	0	0		2	0	16	1	0		17	0	0	0	0		0	0	7	0	0		7	**-**
Single-Unit Trucks %	9.5%	0%	0%	0%		5.1%	0%	3.5%	8.3%	0%		3.6%	0%	0%	0%	0%		0%	0%	1.5%	0%	0%		1.5%	**-**
Buses	1	0	0	0		1	0	1	0	0		1	0	0	0	0		0	1	1	0	0		2	**-**
Buses %	4.8%	0%	0%	0%		2.6%	0%	0.2%	0%	0%		0.2%	0%	0%	0%	0%		0%	7.1%	0.2%	0%	0%		0.4%	**-**
Articulated Trucks	0	0	0	0		0	0	12	0	0		12	0	0	0	0		0	0	13	0	0		13	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	2.7%	0%	0%		2.5%	0%	0%	0%	0%		0%	0%	2.9%	0%	0%		2.7%	**-**
Aggregate Trucks	1	0	0	0		1	0	3	0	0		3	0	0	1	0		1	0	12	0	0		12	**-**
Aggregate Trucks %	4.8%	0%	0%	0%		2.6%	0%	0.7%	0%	0%		0.6%	0%	0%	4.8%	0%		2.6%	0%	2.6%	0%	0%		2.5%	**-**
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%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**

Peak Hour: 07:45 AM - 08:45 AM **Weather: Clear Sky (14.12 °C)**



Peak Hour: 04:30 PM - 05:30 PM **Weather: Broken Clouds (23.66 °C)**



Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & MISSISSAUGA RD
Date: Fri, Jun 23, 2023 Deployment Lead: Walter Fugaj

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Turning Movement Count (3 . CHARLESTON SIDEROAD & MISSISSAUGA RD) CustID: 02413835 MioID:

Start Time	N Approach MISSISSAUGA RD						E Approach CHARLESTON SIDEROAD						S Approach MISSISSAUGA RD						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)	Int. Total (1 hr)
	Left N:E	Thru N:S	Right N:W	UTurn N:N	Peds N:	Approach Total	Left E:S	Thru E:W	Right E:N	UTurn E:E	Peds E:	Approach Total	Left S:W	Thru S:N	Right S:E	UTurn S:S	Peds S:	Approach Total	Left W:N	Thru W:E	Right W:S	UTurn W:W	Peds W:	Approach Total		
06:00:00	1	1	2	0	0	4	2	36	1	0	0	39	0	0	1	0	0	1	1	49	0	0	0	50	94	
06:15:00	0	1	4	0	0	5	6	43	1	0	0	50	2	0	5	0	0	7	0	72	1	0	0	73	135	
06:30:00	2	2	5	0	0	9	0	52	1	0	0	53	0	1	2	0	0	3	1	60	1	0	0	62	127	
06:45:00	0	1	6	0	0	7	5	61	5	0	0	71	0	0	4	0	0	4	3	65	2	0	0	70	152	508
07:00:00	4	1	12	0	0	17	1	33	1	0	0	35	2	1	3	0	0	6	3	78	1	0	0	82	140	554
07:15:00	0	1	5	0	0	6	2	51	3	0	0	56	1	0	2	0	0	3	4	65	1	0	0	70	135	554
07:30:00	2	1	9	0	0	12	1	53	0	0	0	54	1	1	5	0	0	7	1	74	1	0	0	76	149	576
07:45:00	1	0	5	0	0	6	3	73	4	0	0	80	0	1	4	0	0	5	2	93	2	0	0	97	188	612
08:00:00	2	1	7	0	0	10	3	70	6	0	0	79	2	3	4	0	0	9	5	93	1	0	0	99	197	669
08:15:00	2	1	5	0	0	8	2	68	2	0	0	72	0	0	6	0	0	6	2	91	2	0	0	95	181	715
08:30:00	1	0	1	0	0	2	4	70	2	0	0	76	0	1	1	0	0	2	4	85	1	0	0	90	170	736
08:45:00	1	0	4	0	0	5	10	71	1	0	0	82	0	2	5	0	0	7	0	89	2	0	0	91	185	733
09:00:00	2	2	0	0	0	4	4	49	2	0	0	55	0	0	3	0	0	3	0	90	1	0	0	91	153	689
09:15:00	4	0	1	0	0	5	3	63	1	0	0	67	0	2	5	0	0	7	1	75	0	0	0	76	155	663
09:30:00	1	1	1	0	0	3	1	59	7	0	0	67	1	2	4	0	0	7	6	102	1	0	0	109	186	679
09:45:00	2	0	2	0	0	4	3	64	3	0	0	70	0	0	5	0	0	5	3	80	1	1	0	85	164	658
BREAK																										
14:00:00	4	1	3	0	0	8	7	99	6	0	0	112	0	2	3	0	0	5	3	95	0	0	0	98	223	
14:15:00	1	0	2	0	0	3	6	102	1	0	0	109	0	1	4	0	0	5	4	109	2	0	0	115	232	
14:30:00	3	4	5	0	0	12	0	94	2	0	0	96	1	5	6	0	0	12	5	106	1	0	0	112	232	
14:45:00	0	0	3	0	0	3	4	99	1	0	0	104	1	2	5	0	0	8	4	116	2	0	0	122	237	924
15:00:00	1	1	4	0	0	6	3	89	0	0	0	92	0	0	8	0	0	8	0	118	3	0	0	121	227	928
15:15:00	4	3	3	0	0	10	7	103	1	0	0	111	0	3	3	0	0	6	4	111	0	0	0	115	242	938
15:30:00	2	0	6	0	0	8	1	104	0	0	0	105	0	2	8	0	0	10	5	126	0	0	0	131	254	960
15:45:00	6	2	6	0	0	14	1	98	2	0	0	101	1	3	7	0	0	11	3	135	0	0	0	138	264	987
16:00:00	2	2	5	0	0	9	3	105	3	0	0	111	1	2	3	0	0	6	4	121	2	0	0	127	253	1013
16:15:00	0	0	4	0	0	4	4	113	1	0	0	118	0	1	6	0	0	7	5	124	1	0	0	130	259	1030
16:30:00	2	2	2	0	0	6	7	91	3	0	0	101	1	4	4	0	0	9	2	138	0	0	0	140	256	1032
16:45:00	0	2	4	0	0	6	1	97	2	0	0	100	0	3	4	0	0	7	3	101	0	0	0	104	217	985
17:00:00	3	0	3	0	0	6	3	78	3	1	0	85	0	5	6	0	0	11	2	124	3	0	0	129	231	963
17:15:00	1	1	2	0	0	4	2	90	2	0	0	94	0	0	1	0	0	1	4	119	0	0	0	123	222	926
17:30:00	0	3	3	0	0	6	1	83	3	0	0	87	1	1	6	0	0	8	2	104	0	0	0	106	207	877
17:45:00	1	1	1	0	0	3	1	85	3	0	0	89	1	3	2	0	0	6	2	82	0	0	0	84	182	842
Grand Total	94	51	157	0	0	302	166	3714	108	1	0	3989	40	91	200	0	0	331	130	4587	56	1	0	4774	**9396**	-
Approach%	31.1%	16.9%	52%	0%		-	4.2%	93.1%	2.7%	0%		-	12.1%	27.5%	60.4%	0%		-	2.7%	96.1%	1.2%	0%		-	-	-
Totals %	1%	0.5%	1.7%	0%		3.2%	1.8%	39.5%	1.1%	0%		42.5%	0.4%	1%	2.1%	0%		3.5%	1.4%	48.8%	0.6%	0%		50.8%	-	-
Heavy	10	3	39	0		-	56	674	11	0		-	10	2	49	0		-	7	692	10	0		-	-	-
Heavy %	10.6%	5.9%	24.8%	0%		-	33.7%	18.1%	10.2%	0%		-	25%	2.2%	24.5%	0%		-	5.4%	15.1%	17.9%	0%		-	-	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-

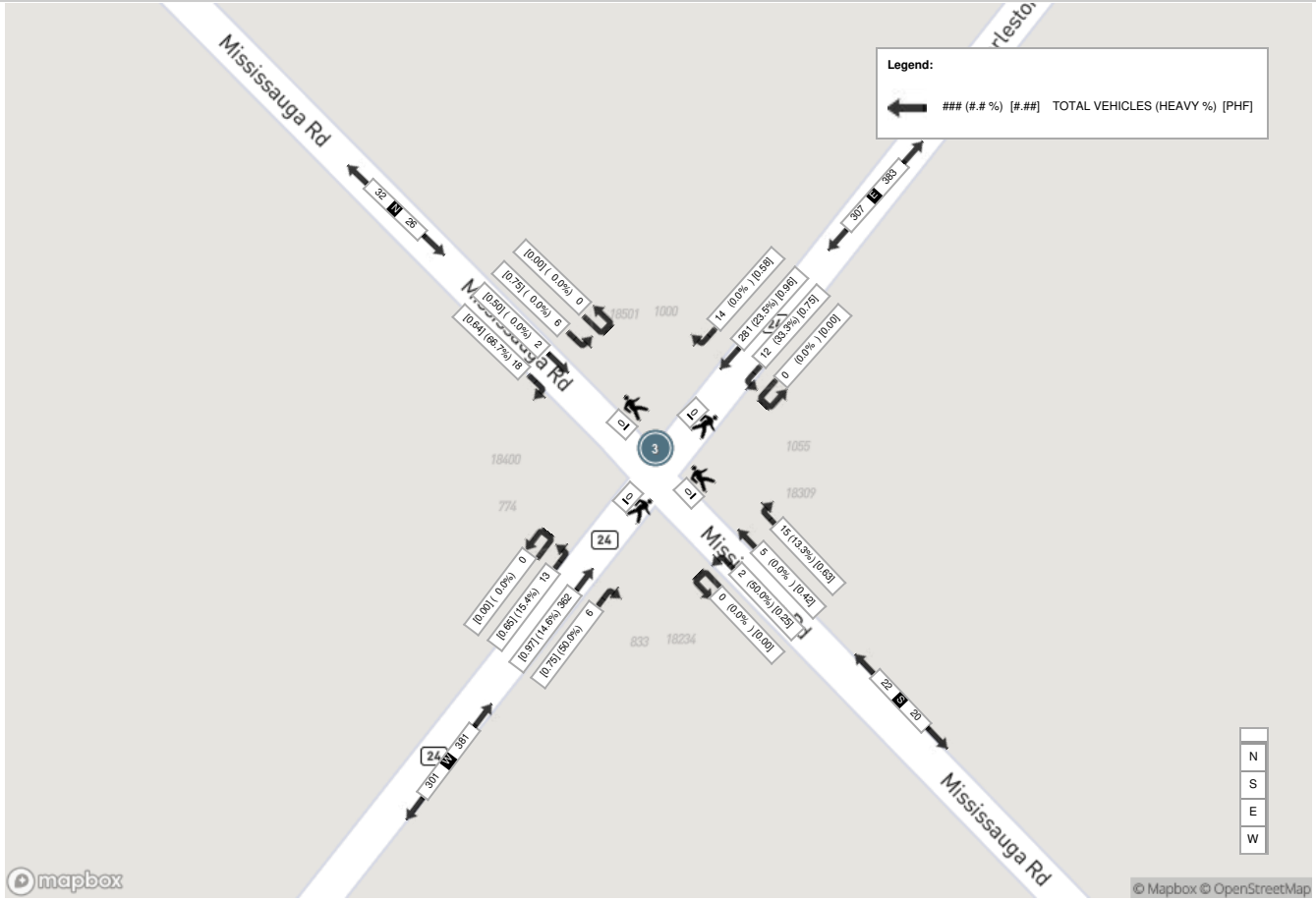
Peak Hour: 07:45 AM - 08:45 AM Weather: Overcast Clouds (17.79 °C)

Start Time	N Approach MISSISSAUGA RD						E Approach CHARLESTON SIDEROAD						S Approach MISSISSAUGA RD						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)
	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	
07:45:00	1	0	5	0	0	6	3	73	4	0	0	80	0	1	4	0	0	5	2	93	2	0	0	97	188
08:00:00	2	1	7	0	0	10	3	70	6	0	0	79	2	3	4	0	0	9	5	93	1	0	0	99	197
08:15:00	2	1	5	0	0	8	2	68	2	0	0	72	0	0	6	0	0	6	2	91	2	0	0	95	181
08:30:00	1	0	1	0	0	2	4	70	2	0	0	76	0	1	1	0	0	2	4	85	1	0	0	90	170
Grand Total	6	2	18	0	0	26	12	281	14	0	0	307	2	5	15	0	0	22	13	362	6	0	0	381	**736**
Approach%	23.1%	7.7%	69.2%	0%		-	3.9%	91.5%	4.6%	0%		-	9.1%	22.7%	68.2%	0%		-	3.4%	95%	1.6%	0%		-	**-**
Totals %	0.8%	0.3%	2.4%	0%		3.5%	1.6%	38.2%	1.9%	0%		41.7%	0.3%	0.7%	2%	0%		3%	1.8%	49.2%	0.8%	0%		51.8%	**-**
PHF	0.75	0.5	0.64	0		0.65	0.75	0.96	0.58	0		0.96	0.25	0.42	0.63	0		0.61	0.65	0.97	0.75	0		0.96	**-**
Heavy	0	0	12	0		12	4	66	0	0		70	1	0	2	0		3	2	53	3	0		58	**-**
Heavy %	0%	0%	66.7%	0%		46.2%	33.3%	23.5%	0%	0%		22.8%	50%	0%	13.3%	0%		13.6%	15.4%	14.6%	50%	0%		15.2%	**-**
Lights	6	2	6	0		14	8	215	14	0		237	1	5	13	0		19	11	309	3	0		323	**-**
Lights %	100%	100%	33.3%	0%		53.8%	66.7%	76.5%	100%	0%		77.2%	50%	100%	86.7%	0%		86.4%	84.6%	85.4%	50%	0%		84.8%	**-**
Single-Unit Trucks	0	0	0	0		0	0	13	0	0		13	0	0	0	0		0	0	6	0	0		6	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	4.6%	0%	0%		4.2%	0%	0%	0%	0%		0%	0%	1.7%	0%	0%		1.6%	**-**
Buses	0	0	0	0		0	0	4	0	0		4	0	0	0	0		0	2	2	2	0		6	**-**
Buses %	0%	0%	0%	0%		0%	0%	1.4%	0%	0%		1.3%	0%	0%	0%	0%		0%	15.4%	0.6%	33.3%	0%		1.6%	**-**
Articulated Trucks	0	0	0	0		0	0	22	0	0		22	0	0	0	0		0	0	14	0	0		14	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	7.8%	0%	0%		7.2%	0%	0%	0%	0%		0%	0%	3.9%	0%	0%		3.7%	**-**
Aggregate Trucks	0	0	12	0		12	4	27	0	0		31	1	0	2	0		3	0	31	1	0		32	**-**
Aggregate Trucks %	0%	0%	66.7%	0%		46.2%	33.3%	9.6%	0%	0%		10.1%	50%	0%	13.3%	0%		13.6%	0%	8.6%	16.7%	0%		8.4%	**-**
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%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**

Peak Hour: 03:45 PM - 04:45 PM **Weather: Light Rain (21.56 °C)**

Start Time	N Approach MISSISSAUGA RD						E Approach CHARLESTON SIDEROAD						S Approach MISSISSAUGA RD						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)
	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	
15:45:00	6	2	6	0	0	14	1	98	2	0	0	101	1	3	7	0	0	11	3	135	0	0	0	138	264
16:00:00	2	2	5	0	0	9	3	105	3	0	0	111	1	2	3	0	0	6	4	121	2	0	0	127	253
16:15:00	0	0	4	0	0	4	4	113	1	0	0	118	0	1	6	0	0	7	5	124	1	0	0	130	259
16:30:00	2	2	2	0	0	6	7	91	3	0	0	101	1	4	4	0	0	9	2	138	0	0	0	140	256
Grand Total	10	6	17	0	0	33	15	407	9	0	0	431	3	10	20	0	0	33	14	518	3	0	0	535	**1032**
Approach%	30.3%	18.2%	51.5%	0%		-	3.5%	94.4%	2.1%	0%		-	9.1%	30.3%	60.6%	0%		-	2.6%	96.8%	0.6%	0%		-	**-**
Totals %	1%	0.6%	1.6%	0%		3.2%	1.5%	39.4%	0.9%	0%		41.8%	0.3%	1%	1.9%	0%		3.2%	1.4%	50.2%	0.3%	0%		51.8%	**-**
PHF	0.42	0.75	0.71	0		0.59	0.54	0.9	0.75	0		0.91	0.75	0.63	0.71	0		0.75	0.7	0.94	0.38	0		0.96	**-**
Heavy	1	0	2	0		3	0	35	0	0		35	1	0	2	0		3	1	41	0	0		42	**-**
Heavy %	10%	0%	11.8%	0%		9.1%	0%	8.6%	0%	0%		8.1%	33.3%	0%	10%	0%		9.1%	7.1%	7.9%	0%	0%		7.9%	**-**
Lights	9	6	15	0		30	15	372	9	0		396	2	10	18	0		30	13	477	3	0		493	**-**
Lights %	90%	100%	88.2%	0%		90.9%	100%	91.4%	100%	0%		91.9%	66.7%	100%	90%	0%		90.9%	92.9%	92.1%	100%	0%		92.1%	**-**
Single-Unit Trucks	0	0	0	0		0	0	3	0	0		3	0	0	0	0		0	0	4	0	0		4	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0.7%	0%	0%		0.7%	0%	0%	0%	0%		0%	0%	0.8%	0%	0%		0.7%	**-**
Buses	0	0	1	0		1	0	3	0	0		3	1	0	0	0		1	1	3	0	0		4	**-**
Buses %	0%	0%	5.9%	0%		3%	0%	0.7%	0%	0%		0.7%	33.3%	0%	0%	0%		3%	7.1%	0.6%	0%	0%		0.7%	**-**
Articulated Trucks	0	0	0	0		0	0	11	0	0		11	0	0	0	0		0	0	12	0	0		12	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	2.7%	0%	0%		2.6%	0%	0%	0%	0%		0%	0%	2.3%	0%	0%		2.2%	**-**
Aggregate Trucks	1	0	1	0		2	0	18	0	0		18	0	0	2	0		2	0	22	0	0		22	**-**
Aggregate Trucks %	10%	0%	5.9%	0%		6.1%	0%	4.4%	0%	0%		4.2%	0%	0%	10%	0%		6.1%	0%	4.2%	0%	0%		4.1%	**-**
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%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**

Peak Hour: 07:45 AM - 08:45 AM **Weather: Overcast Clouds (17.79 °C)**

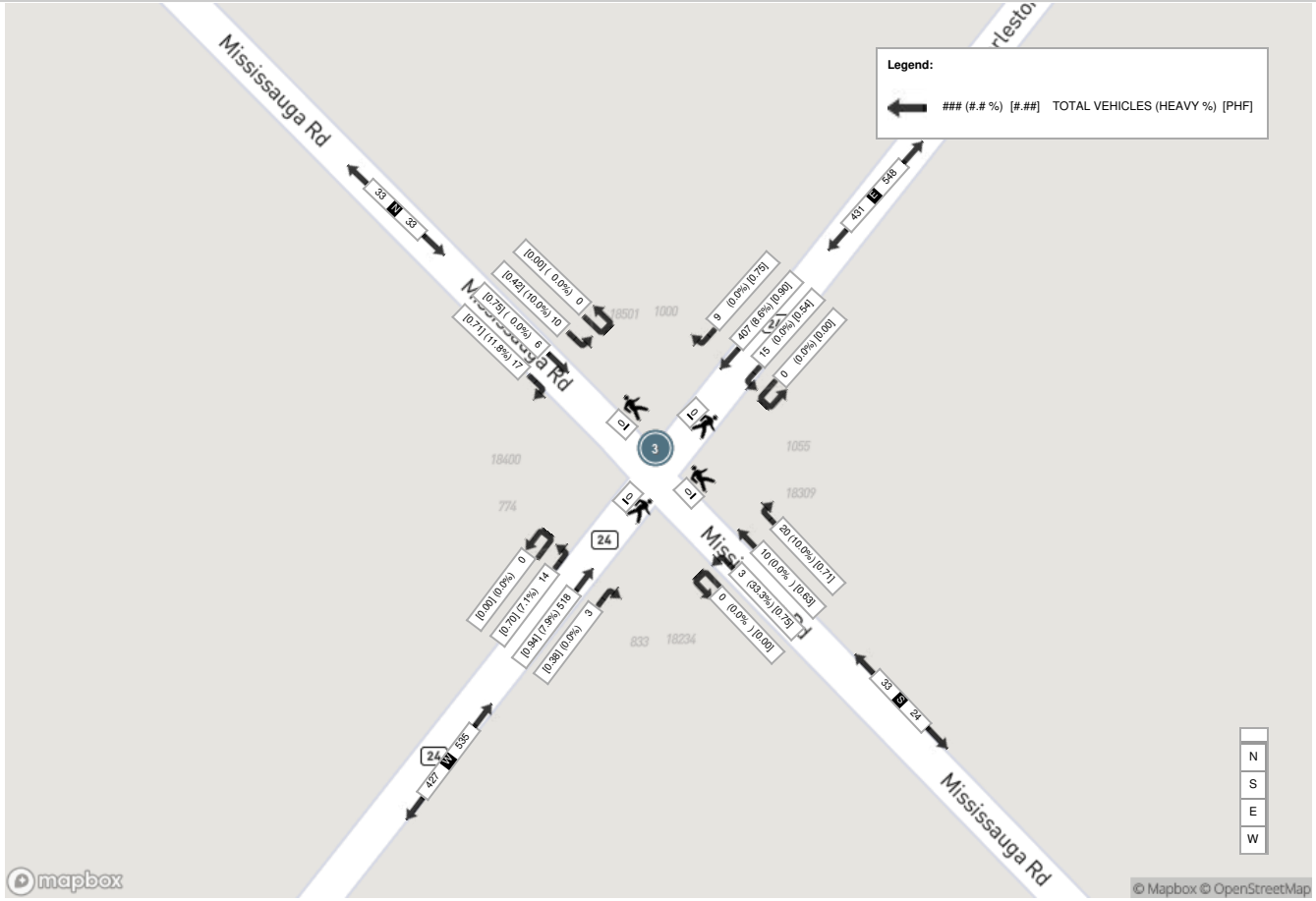


Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & MISSISSAUGA RD
Date: Fri, Jun 23, 2023 Deployment Lead: Walter Fugaj

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 03:45 PM - 04:45 PM **Weather: Light Rain (21.56 °C)**



Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & MISSISSAUGA RD
Date: Sat, Jun 24, 2023 Deployment Lead: Walter Fugaj

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Turning Movement Count (3 . CHARLESTON SIDEROAD & MISSISSAUGA RD) CustID: 02413835 MioID:

Start Time	N Approach MISSISSAUGA RD						E Approach CHARLESTON SIDEROAD						S Approach MISSISSAUGA RD						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)	Int. Total (1 hr)
	Left N:E	Thru N:S	Right N:W	UTurn N:N	Peds N:	Approach Total	Left E:S	Thru E:W	Right E:N	UTurn E:E	Peds E:	Approach Total	Left S:W	Thru S:N	Right S:E	UTurn S:S	Peds S:	Approach Total	Left W:N	Thru W:E	Right W:S	UTurn W:W	Peds W:	Approach Total		
06:00:00	0	0	1	0	0	1	0	6	1	0	0	7	0	0	0	0	0	0	0	17	0	0	0	17	25	
06:15:00	0	0	1	0	0	1	0	9	0	0	0	9	0	0	1	0	0	1	1	28	0	0	0	29	40	
06:30:00	0	0	2	0	0	2	1	12	0	0	0	13	0	0	2	0	0	2	1	14	0	0	0	15	32	
06:45:00	0	0	0	0	0	0	0	21	1	0	0	22	0	0	0	0	0	0	2	29	0	0	0	31	53	150
07:00:00	0	0	0	0	0	0	2	19	1	0	0	22	1	1	0	0	0	2	0	26	0	0	0	26	50	175
07:15:00	1	1	2	0	0	4	1	24	3	0	0	28	0	0	1	0	0	1	2	40	0	0	0	42	75	210
07:30:00	1	0	0	0	0	1	0	23	1	0	0	24	0	0	2	0	0	2	1	26	0	0	0	27	54	232
07:45:00	0	0	1	0	0	1	2	26	3	0	0	31	0	1	2	0	0	3	0	41	0	0	0	41	76	255
08:00:00	0	0	0	0	0	0	0	29	0	0	0	29	1	0	3	0	0	4	2	53	0	0	0	55	88	293
08:15:00	0	0	0	0	0	0	0	33	0	0	0	33	0	0	2	0	0	2	0	67	0	0	0	67	102	320
08:30:00	0	0	0	0	0	0	0	29	2	0	0	31	0	0	6	0	0	6	2	67	0	0	0	69	106	372
08:45:00	1	0	0	0	0	1	1	42	4	0	0	47	1	2	4	0	0	7	1	88	0	0	0	89	144	440
09:00:00	0	0	2	0	0	2	1	42	6	0	0	49	0	1	1	0	0	2	1	63	0	0	0	64	117	469
09:15:00	1	1	2	0	0	4	3	55	2	0	0	60	0	0	3	0	0	3	4	73	1	0	0	78	145	512
09:30:00	4	0	3	0	0	7	1	38	4	0	0	43	0	3	1	0	0	4	0	77	0	0	0	77	131	537
09:45:00	1	0	1	0	0	2	2	58	3	0	0	63	0	2	4	0	0	6	2	85	0	0	0	87	158	551
BREAK																										
14:00:00	1	2	5	0	0	8	3	83	4	0	0	90	3	3	2	0	0	8	3	84	2	0	0	89	195	
14:15:00	5	0	5	0	0	10	0	98	1	0	0	99	1	1	5	0	0	7	3	102	2	0	0	107	223	
14:30:00	6	1	4	0	0	11	2	70	2	0	0	74	0	2	2	0	0	4	0	75	1	0	0	76	165	
14:45:00	4	0	3	0	0	7	2	83	1	0	0	86	3	2	1	0	0	6	2	78	3	1	0	84	183	766
15:00:00	6	1	2	0	0	9	3	64	2	0	0	69	1	0	4	0	0	5	3	83	1	0	0	87	170	741
15:15:00	4	2	3	0	0	9	1	86	1	0	0	88	2	1	5	0	0	8	4	87	2	0	0	93	198	716
15:30:00	9	3	7	0	0	19	2	87	2	0	0	91	0	1	3	0	0	4	2	84	2	0	0	88	202	753
15:45:00	6	3	3	0	0	12	1	66	0	0	0	67	2	1	4	0	0	7	0	71	0	0	0	71	157	727
16:00:00	7	2	0	0	0	9	1	96	4	0	0	101	1	1	4	0	0	6	1	66	0	0	0	67	183	740
16:15:00	8	0	1	0	0	9	3	83	2	0	0	88	0	0	2	0	0	2	1	76	0	0	0	77	176	718
16:30:00	3	3	4	0	0	10	0	72	1	0	0	73	0	3	0	1	0	4	4	82	0	0	0	86	173	689
16:45:00	3	1	2	0	0	6	0	66	3	0	0	69	3	0	2	0	0	5	4	71	2	0	0	77	157	689
17:00:00	1	1	2	0	0	4	7	76	1	0	0	84	1	2	5	0	0	8	5	68	1	0	0	74	170	676
17:15:00	1	2	4	0	0	7	2	75	0	0	0	77	0	2	2	0	0	4	2	68	1	0	0	71	159	659
17:30:00	0	0	4	0	0	4	1	55	2	0	0	58	0	2	3	0	0	5	2	56	1	0	0	59	126	612
17:45:00	3	2	1	0	0	6	4	62	3	0	0	69	1	2	3	0	0	6	1	46	0	0	0	47	128	583
Grand Total	113	46	97	0	0	256	95	2920	136	0	1	3151	40	56	122	1	0	219	92	3374	36	1	1	3503	**7129**	-
Approach%	44.1%	18%	37.9%	0%		-	3%	92.7%	4.3%	0%		-	18.3%	25.6%	55.7%	0.5%		-	2.6%	96.3%	1%	0%		-	**-**	-
Totals %	1.6%	0.6%	1.4%	0%		3.6%	1.3%	41%	1.9%	0%		44.2%	0.6%	0.8%	1.7%	0%		3.1%	1.3%	47.3%	0.5%	0%		49.1%	**-**	-
Heavy	6	0	2	0		-	1	81	3	0		-	1	1	1	0		-	5	73	0	0		-	**-**	-
Heavy %	5.3%	0%	2.1%	0%		-	1.1%	2.8%	2.2%	0%		-	2.5%	1.8%	0.8%	0%		-	5.4%	2.2%	0%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 09:00 AM - 10:00 AM Weather: Light Rain (17.81 °C)

Start Time	N Approach MISSISSAUGA RD						E Approach CHARLESTON SIDEROAD						S Approach MISSISSAUGA RD						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)
	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	
09:00:00	0	0	2	0	0	2	1	42	6	0	0	49	0	1	1	0	0	2	1	63	0	0	0	64	117
09:15:00	1	1	2	0	0	4	3	55	2	0	0	60	0	0	3	0	0	3	4	73	1	0	0	78	145
09:30:00	4	0	3	0	0	7	1	38	4	0	0	43	0	3	1	0	0	4	0	77	0	0	0	77	131
09:45:00	1	0	1	0	0	2	2	58	3	0	0	63	0	2	4	0	0	6	2	85	0	0	0	87	158
Grand Total	6	1	8	0	0	15	7	193	15	0	0	215	0	6	9	0	0	15	7	298	1	0	0	306	**551**
Approach%	40%	6.7%	53.3%	0%		-	3.3%	89.8%	7%	0%		-	0%	40%	60%	0%		-	2.3%	97.4%	0.3%	0%		-	**-**
Totals %	1.1%	0.2%	1.5%	0%		2.7%	1.3%	35%	2.7%	0%		39%	0%	1.1%	1.6%	0%		2.7%	1.3%	54.1%	0.2%	0%		55.5%	**-**
PHF	0.38	0.25	0.67	0		0.54	0.58	0.83	0.63	0		0.85	0	0.5	0.56	0		0.63	0.44	0.88	0.25	0		0.88	**-**
Heavy	1	0	0	0		1	0	5	2	0		7	0	0	0	0		0	1	8	0	0		9	**-**
Heavy %	16.7%	0%	0%	0%		6.7%	0%	2.6%	13.3%	0%		3.3%	0%	0%	0%	0%		0%	14.3%	2.7%	0%	0%		2.9%	**-**
Lights	5	1	8	0		14	7	188	13	0		208	0	5	9	0		14	6	290	1	0		297	**-**
Lights %	83.3%	100%	100%	0%		93.3%	100%	97.4%	86.7%	0%		96.7%	0%	83.3%	100%	0%		93.3%	85.7%	97.3%	100%	0%		97.1%	**-**
Single-Unit Trucks	1	0	0	0		1	0	2	1	0		3	0	0	0	0		0	1	2	0	0		3	**-**
Single-Unit Trucks %	16.7%	0%	0%	0%		6.7%	0%	1%	6.7%	0%		1.4%	0%	0%	0%	0%		0%	14.3%	0.7%	0%	0%		1%	**-**
Buses	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	**-**
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.3%	**-**
Articulated Trucks	0	0	0	0		0	0	3	0	0		3	0	0	0	0		0	0	5	0	0		5	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	1.6%	0%	0%		1.4%	0%	0%	0%	0%		0%	0%	1.7%	0%	0%		1.6%	**-**
Aggregate Trucks	0	0	0	0		0	0	0	1	0		1	0	0	0	0		0	0	0	0	0		0	**-**
Aggregate Trucks %	0%	0%	0%	0%		0%	0%	0%	6.7%	0%		0.5%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	16.7%	0%	0%		6.7%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & MISSISSAUGA RD
Date: Sat, Jun 24, 2023 Deployment Lead: Walter Fugaj

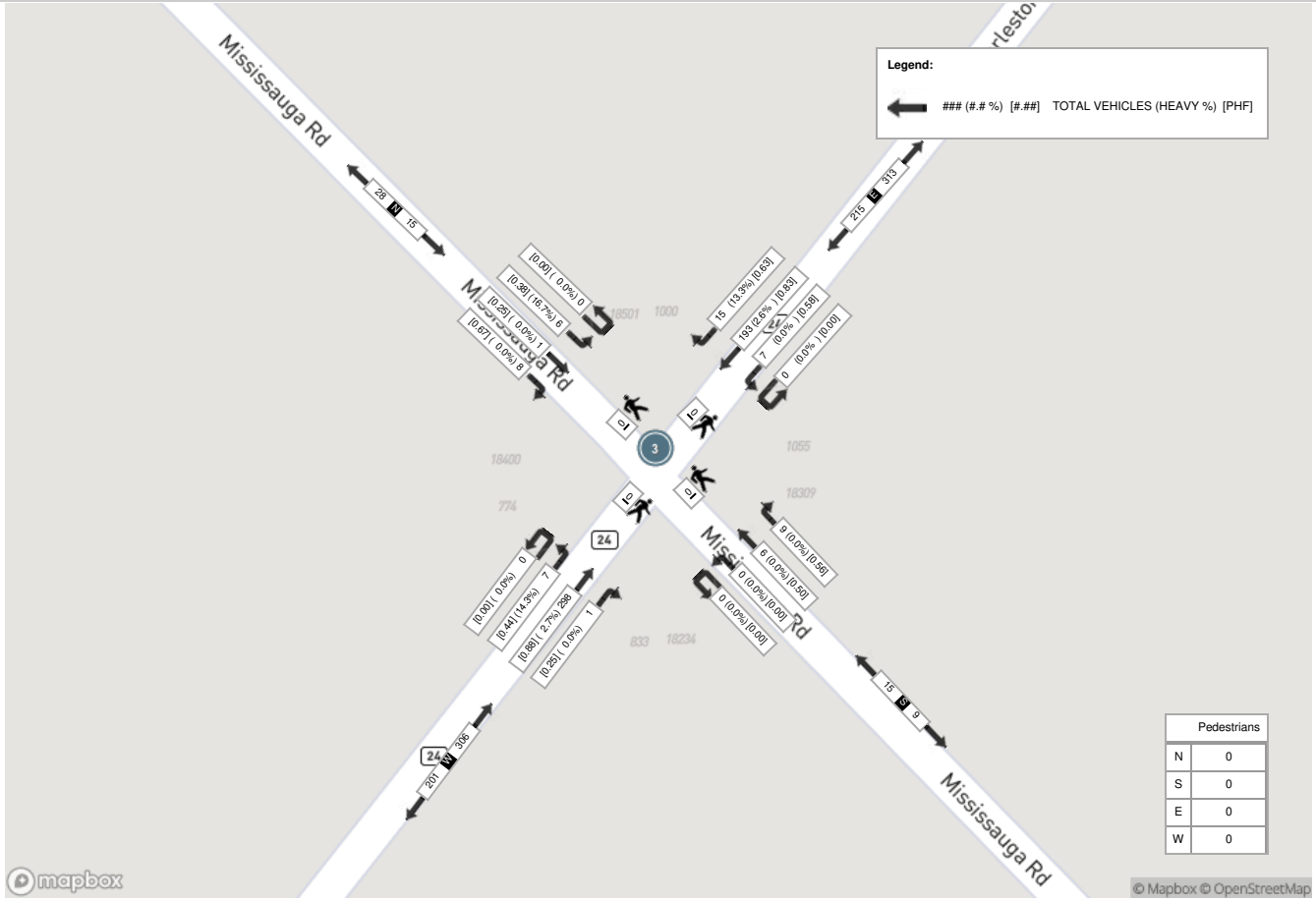
TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 02:00 PM - 03:00 PM Weather: Moderate Rain (22.45 °C)

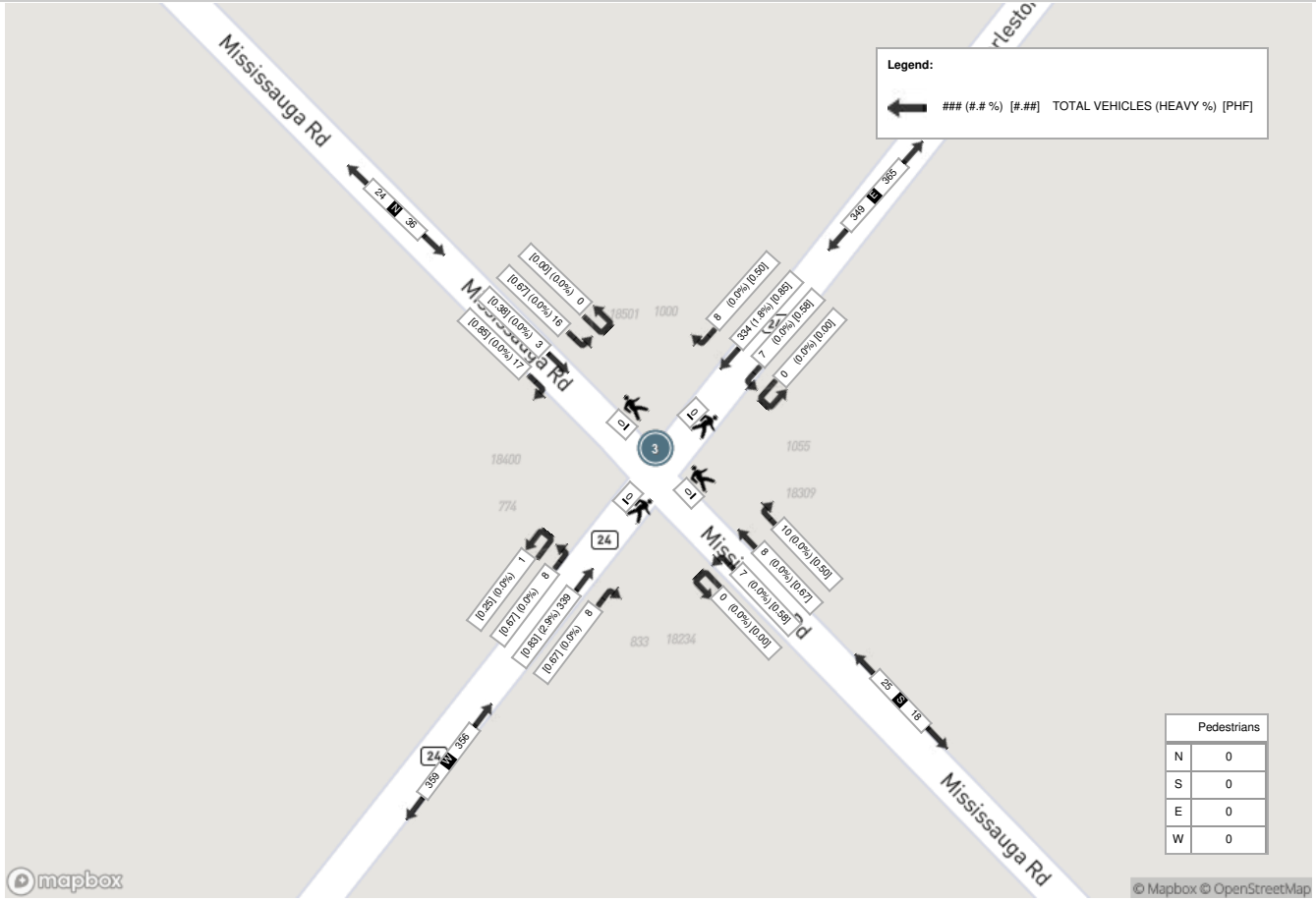
Start Time	N Approach MISSISSAUGA RD						E Approach CHARLESTON SIDEROAD						S Approach MISSISSAUGA RD						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)
	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	
14:00:00	1	2	5	0	0	8	3	83	4	0	0	90	3	3	2	0	0	8	3	84	2	0	0	89	195
14:15:00	5	0	5	0	0	10	0	98	1	0	0	99	1	1	5	0	0	7	3	102	2	0	0	107	223
14:30:00	6	1	4	0	0	11	2	70	2	0	0	74	0	2	2	0	0	4	0	75	1	0	0	76	165
14:45:00	4	0	3	0	0	7	2	83	1	0	0	86	3	2	1	0	0	6	2	78	3	1	0	84	183
Grand Total	16	3	17	0	0	36	7	334	8	0	0	349	7	8	10	0	0	25	8	339	8	1	0	356	**766**
Approach%	44.4%	8.3%	47.2%	0%		-	2%	95.7%	2.3%	0%		-	28%	32%	40%	0%		-	2.2%	95.2%	2.2%	0.3%		-	**-**
Totals %	2.1%	0.4%	2.2%	0%		4.7%	0.9%	43.6%	1%	0%		45.6%	0.9%	1%	1.3%	0%		3.3%	1%	44.3%	1%	0.1%		46.5%	**-**
PHF	0.67	0.38	0.85	0		0.82	0.58	0.85	0.5	0		0.88	0.58	0.67	0.5	0		0.78	0.67	0.83	0.67	0.25		0.83	**-**
Heavy	0	0	0	0		0	0	6	0	0		6	0	0	0	0		0	0	10	0	0		10	**-**
Heavy %	0%	0%	0%	0%		0%	0%	1.8%	0%	0%		1.7%	0%	0%	0%	0%		0%	0%	2.9%	0%	0%		2.8%	**-**
Lights	16	3	17	0		36	7	328	8	0		343	7	8	10	0		25	8	329	8	1		346	**-**
Lights %	100%	100%	100%	0%		100%	100%	98.2%	100%	0%		98.3%	100%	100%	100%	0%		100%	100%	97.1%	100%	100%		97.2%	**-**
Single-Unit Trucks	0	0	0	0		0	0	4	0	0		4	0	0	0	0		0	0	3	0	0		3	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	1.2%	0%	0%		1.1%	0%	0%	0%	0%		0%	0%	0.9%	0%	0%		0.8%	**-**
Buses	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	**-**
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.3%	**-**
Articulated Trucks	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	0	5	0	0		5	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.3%	0%	0%	0%	0%		0%	0%	1.5%	0%	0%		1.4%	**-**
Aggregate Trucks	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	0	1	0	0		1	**-**
Aggregate Trucks %	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.3%	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.3%	**-**
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%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 09:00 AM - 10:00 AM Weather: Light Rain (17.81 °C)



Peak Hour: 02:00 PM - 03:00 PM **Weather: Moderate Rain (22.45 °C)**



Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & REGIONAL ROAD 136 (MAIN ST) / CATARACT RD
Date: Thu, Jun 22, 2023 Deployment Lead: Walter Fugaj

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Turning Movement Count (2 . CHARLESTON SIDEROAD & REGIONAL ROAD 136 (MAIN ST) / CATARACT RD) CustID: 02412429 MioID:

Start Time	N Approach MAIN ST						E Approach CHARLESTON SIDE RD						S Approach CATARACT RD						W Approach CHARLESTON SIDE RD						Int. Total (15 min)	Int. Total (1 hr)
	Left N:E	Thru N:S	Right N:W	UTurn N:N	Peds N:	Approach Total	Left E:S	Thru E:W	Right E:N	UTurn E:E	Peds E:	Approach Total	Left S:W	Thru S:N	Right S:E	UTurn S:S	Peds S:	Approach Total	Left W:N	Thru W:E	Right W:S	UTurn W:W	Peds W:	Approach Total		
06:00:00	16	0	4	0	0	20	1	28	3	0	0	32	0	0	1	0	0	1	5	51	0	0	0	56	109	
06:15:00	18	0	8	0	0	26	0	35	7	0	0	42	0	0	1	0	0	1	7	67	0	0	0	74	143	
06:30:00	9	0	4	0	0	13	1	42	6	0	0	49	1	0	1	0	0	2	6	62	1	0	0	69	133	
06:45:00	13	2	4	0	0	19	2	71	13	0	0	86	0	0	1	0	0	1	8	80	1	0	0	89	195	580
07:00:00	20	3	4	0	0	27	0	42	9	0	0	51	0	1	0	0	0	1	4	73	0	0	0	77	156	627
07:15:00	20	0	7	0	0	27	0	44	9	0	0	53	0	1	0	0	0	1	7	60	1	0	0	68	149	633
07:30:00	12	3	9	0	0	24	0	74	12	0	0	86	0	1	2	0	0	3	9	78	0	0	0	87	200	700
07:45:00	11	2	9	0	0	22	0	81	10	0	0	91	0	0	3	0	0	3	10	77	0	0	0	87	203	708
08:00:00	13	3	6	0	0	22	3	86	11	0	0	100	0	3	3	0	0	6	11	79	3	0	0	93	221	773
08:15:00	12	3	12	0	0	27	0	77	8	0	0	85	3	1	3	0	0	7	5	93	1	0	0	99	218	842
08:30:00	16	1	17	0	0	34	3	69	14	0	0	86	3	2	2	0	0	7	12	79	2	0	0	93	220	862
08:45:00	11	4	6	0	0	21	0	42	18	0	0	60	1	1	2	0	0	4	11	99	2	0	0	112	197	856
09:00:00	6	3	4	0	0	13	0	76	18	0	0	94	2	8	2	0	0	12	8	73	1	0	0	82	201	836
09:15:00	8	2	4	0	0	14	0	53	20	0	0	73	1	1	3	1	0	6	7	81	0	0	0	88	181	799
09:30:00	7	1	10	0	0	18	0	59	19	0	0	78	0	1	1	0	0	2	12	97	3	0	0	112	210	789
09:45:00	4	3	5	0	0	12	2	56	16	0	0	74	2	3	3	0	0	8	8	75	3	0	0	86	180	772
BREAK																										
14:00:00	23	1	14	0	0	38	2	56	13	0	0	71	1	2	3	0	0	6	7	70	2	0	0	79	194	
14:15:00	11	2	17	0	0	30	0	71	10	0	0	81	3	0	2	0	0	5	11	79	3	0	0	93	209	
14:30:00	25	4	11	0	0	40	3	60	12	0	0	75	4	3	1	0	0	8	10	74	3	0	0	87	210	
14:45:00	18	4	15	0	0	37	2	90	10	0	0	102	3	9	0	0	0	12	9	72	11	0	0	92	243	856
15:00:00	17	3	14	0	0	34	1	90	16	0	0	107	4	4	4	0	0	12	12	68	3	0	0	83	236	898
15:15:00	30	4	12	0	0	46	3	75	16	0	0	94	2	5	2	0	0	9	15	90	4	0	0	109	258	947
15:30:00	17	3	8	0	0	28	1	97	27	0	0	125	2	4	3	0	0	9	15	77	2	0	0	94	256	993
15:45:00	18	4	8	0	0	30	0	80	11	0	0	91	6	6	1	0	0	13	20	94	2	0	0	116	250	1000
16:00:00	9	2	10	0	0	21	4	101	15	0	0	120	3	3	2	0	0	8	14	105	2	0	0	121	270	1034
16:15:00	10	6	14	0	0	30	2	110	22	0	0	134	2	3	1	0	0	6	14	94	4	0	0	112	282	1058
16:30:00	18	3	21	0	0	42	2	101	27	0	0	130	2	3	3	0	0	8	20	76	3	0	0	99	279	1081
16:45:00	15	5	9	0	0	29	1	95	21	0	0	117	0	3	0	0	0	3	19	105	5	0	0	129	278	1109
17:00:00	13	6	10	0	0	29	0	91	24	0	0	115	5	3	2	0	0	10	17	115	2	0	0	134	288	1127
17:15:00	16	3	18	0	0	37	1	111	13	0	0	125	5	2	4	0	0	11	17	115	1	0	0	133	306	1151
17:30:00	11	3	13	0	0	27	0	90	16	0	0	106	3	6	2	0	0	11	11	76	4	0	0	91	235	1107
17:45:00	8	5	12	0	0	25	2	78	18	0	0	98	4	4	0	0	0	8	15	60	6	0	0	81	212	1041
Grand Total	610	131	477	0	1	1218	67	3434	679	0	0	4180	84	126	86	1	0	297	547	3769	115	0	0	4431	**10126**	-
Approach%	50.1%	10.8%	39.2%	0%		-	1.6%	82.2%	16.2%	0%		-	28.3%	42.4%	29%	0.3%		-	12.3%	85.1%	2.6%	0%		-	**-**	-
Totals %	6%	1.3%	4.7%	0%		12%	0.7%	33.9%	6.7%	0%		41.3%	0.8%	1.2%	0.8%	0%		2.9%	5.4%	37.2%	1.1%	0%		43.8%	**-**	-
Heavy	30	3	39	0		-	1	676	29	0		-	3	4	5	0		-	33	666	4	0		-	**-**	-
Heavy %	4.9%	2.3%	8.2%	0%		-	1.5%	19.7%	4.3%	0%		-	3.6%	3.2%	5.8%	0%		-	6%	17.7%	3.5%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 07:45 AM - 08:45 AM Weather: Clear Sky (14.12 °C)

Start Time	N Approach MAIN ST						E Approach CHARLESTON SIDE RD						S Approach CATARACT RD						W Approach CHARLESTON SIDE RD						Int. Total (15 min)
	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	
07:45:00	11	2	9	0	0	22	0	81	10	0	0	91	0	0	3	0	0	3	10	77	0	0	0	87	203
08:00:00	13	3	6	0	0	22	3	86	11	0	0	100	0	3	3	0	0	6	11	79	3	0	0	93	221
08:15:00	12	3	12	0	0	27	0	77	8	0	0	85	3	1	3	0	0	7	5	93	1	0	0	99	218
08:30:00	16	1	17	0	0	34	3	69	14	0	0	86	3	2	2	0	0	7	12	79	2	0	0	93	220
Grand Total	52	9	44	0	0	105	6	313	43	0	0	362	6	6	11	0	0	23	38	328	6	0	0	372	**862**
Approach%	49.5%	8.6%	41.9%	0%		-	1.7%	86.5%	11.9%	0%		-	26.1%	26.1%	47.8%	0%		-	10.2%	88.2%	1.6%	0%		-	**-**
Totals %	6%	1%	5.1%	0%		12.2%	0.7%	36.3%	5%	0%		42%	0.7%	0.7%	1.3%	0%		2.7%	4.4%	38.1%	0.7%	0%		43.2%	**-**
PHF	0.81	0.75	0.65	0		0.77	0.5	0.91	0.77	0		0.91	0.5	0.5	0.92	0		0.82	0.79	0.88	0.5	0		0.94	**-**
Heavy	5	0	1	0		6	0	79	5	0		84	0	1	1	0		2	0	50	0	0		50	**-**
Heavy %	9.6%	0%	2.3%	0%		5.7%	0%	25.2%	11.6%	0%		23.2%	0%	16.7%	9.1%	0%		8.7%	0%	15.2%	0%	0%		13.4%	**-**
Lights	47	9	43	0		99	6	234	38	0		278	6	5	10	0		21	38	278	6	0		322	**-**
Lights %	90.4%	100%	97.7%	0%		94.3%	100%	74.8%	88.4%	0%		76.8%	100%	83.3%	90.9%	0%		91.3%	100%	84.8%	100%	0%		86.6%	**-**
Single-Unit Trucks	3	0	0	0		3	0	7	3	0		10	0	1	0	0		1	0	4	0	0		4	**-**
Single-Unit Trucks %	5.8%	0%	0%	0%		2.9%	0%	2.2%	7%	0%		2.8%	0%	16.7%	0%	0%		4.3%	0%	1.2%	0%	0%		1.1%	**-**
Buses	2	0	1	0		3	0	3	1	0		4	0	0	1	0		1	0	1	0	0		1	**-**
Buses %	3.8%	0%	2.3%	0%		2.9%	0%	1%	2.3%	0%		1.1%	0%	0%	9.1%	0%		4.3%	0%	0.3%	0%	0%		0.3%	**-**
Articulated Trucks	0	0	0	0		0	0	21	0	0		21	0	0	0	0		0	0	14	0	0		14	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	6.7%	0%	0%		5.8%	0%	0%	0%	0%		0%	0%	4.3%	0%	0%		3.8%	**-**
Aggregate Trucks	0	0	0	0		0	0	48	1	0		49	0	0	0	0		0	0	31	0	0		31	**-**
Aggregate Trucks %	0%	0%	0%	0%		0%	0%	15.3%	2.3%	0%		13.5%	0%	0%	0%	0%		0%	0%	9.5%	0%	0%		8.3%	**-**
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%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

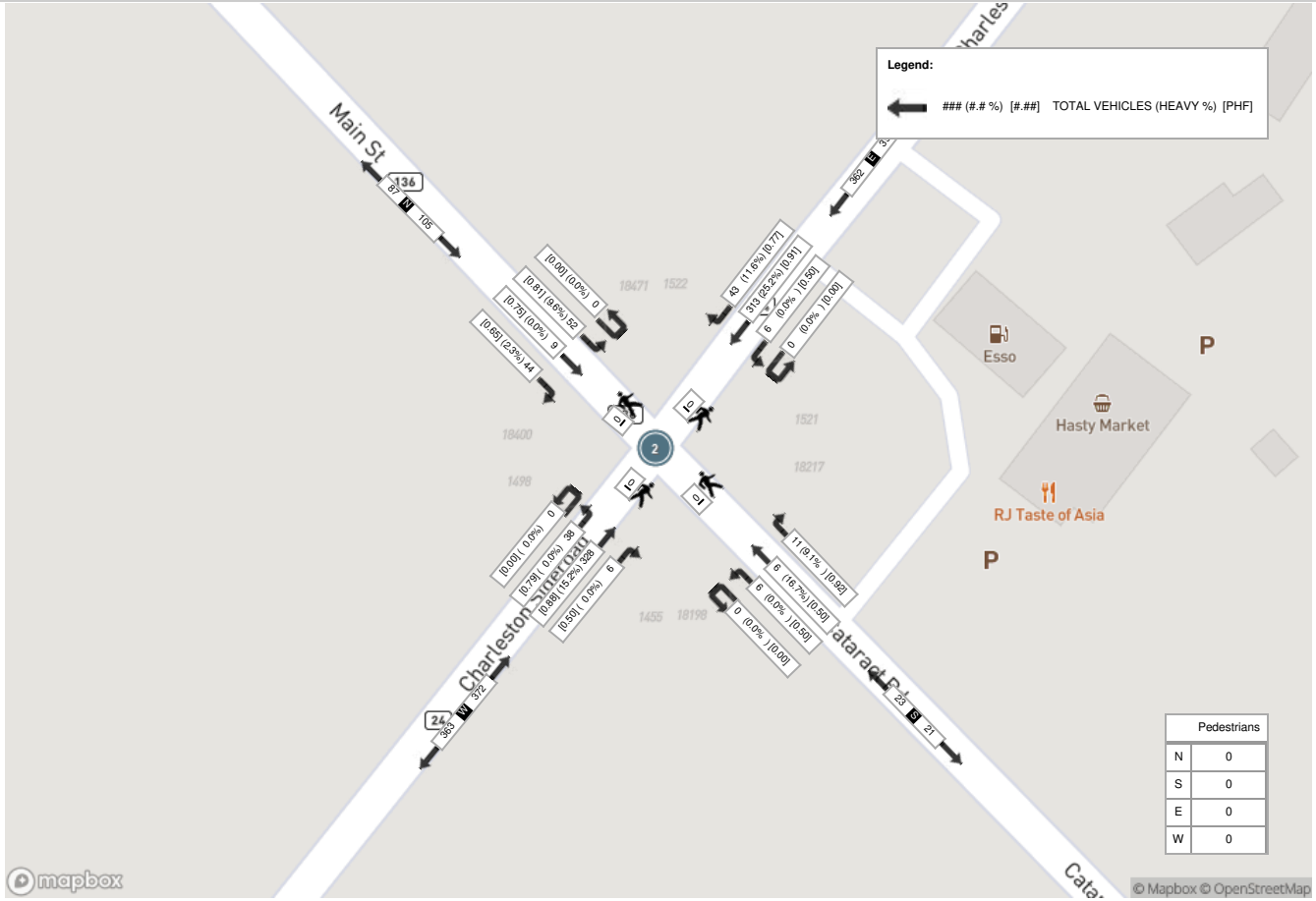
TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 04:30 PM - 05:30 PM Weather: Broken Clouds (23.66 °C)

Start Time	N Approach MAIN ST						E Approach CHARLESTON SIDE RD						S Approach CATARACT RD						W Approach CHARLESTON SIDE RD						Int. Total (15 min)
	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	
16:30:00	18	3	21	0	0	42	2	101	27	0	0	130	2	3	3	0	0	8	20	76	3	0	0	99	279
16:45:00	15	5	9	0	0	29	1	95	21	0	0	117	0	3	0	0	0	3	19	105	5	0	0	129	278
17:00:00	13	6	10	0	0	29	0	91	24	0	0	115	5	3	2	0	0	10	17	115	2	0	0	134	288
17:15:00	16	3	18	0	0	37	1	111	13	0	0	125	5	2	4	0	0	11	17	115	1	0	0	133	306
Grand Total	62	17	58	0	0	137	4	398	85	0	0	487	12	11	9	0	0	32	73	411	11	0	0	495	**1151**
Approach%	45.3%	12.4%	42.3%	0%		-	0.8%	81.7%	17.5%	0%		-	37.5%	34.4%	28.1%	0%		-	14.7%	83%	2.2%	0%		-	**-**
Totals %	5.4%	1.5%	5%	0%		11.9%	0.3%	34.6%	7.4%	0%		42.3%	1%	1%	0.8%	0%		2.8%	6.3%	35.7%	1%	0%		43%	**-**
PHF	0.86	0.71	0.69	0		0.82	0.5	0.9	0.79	0		0.94	0.6	0.92	0.56	0		0.73	0.91	0.89	0.55	0		0.92	**-**
Heavy	1	0	1	0		2	0	33	1	0		34	0	0	0	0		0	2	37	0	0		39	**-**
Heavy %	1.6%	0%	1.7%	0%		1.5%	0%	8.3%	1.2%	0%		7%	0%	0%	0%	0%		0%	2.7%	9%	0%	0%		7.9%	**-**
Lights	61	17	57	0		135	4	365	84	0		453	12	11	9	0		32	71	374	11	0		456	**-**
Lights %	98.4%	100%	98.3%	0%		98.5%	100%	91.7%	98.8%	0%		93%	100%	100%	100%	0%		100%	97.3%	91%	100%	0%		92.1%	**-**
Single-Unit Trucks	0	0	0	0		0	0	13	0	0		13	0	0	0	0		0	1	8	0	0		9	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	3.3%	0%	0%		2.7%	0%	0%	0%	0%		0%	1.4%	1.9%	0%	0%		1.8%	**-**
Buses	1	0	0	0		1	0	1	1	0		2	0	0	0	0		0	1	1	0	0		2	**-**
Buses %	1.6%	0%	0%	0%		0.7%	0%	0.3%	1.2%	0%		0.4%	0%	0%	0%	0%		0%	1.4%	0.2%	0%	0%		0.4%	**-**
Articulated Trucks	0	0	0	0		0	0	15	0	0		15	0	0	0	0		0	0	13	0	0		13	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	3.8%	0%	0%		3.1%	0%	0%	0%	0%		0%	0%	3.2%	0%	0%		2.6%	**-**
Aggregate Trucks	0	0	1	0		1	0	4	0	0		4	0	0	0	0		0	0	15	0	0		15	**-**
Aggregate Trucks %	0%	0%	1.7%	0%		0.7%	0%	1%	0%	0%		0.8%	0%	0%	0%	0%		0%	0%	3.6%	0%	0%		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%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

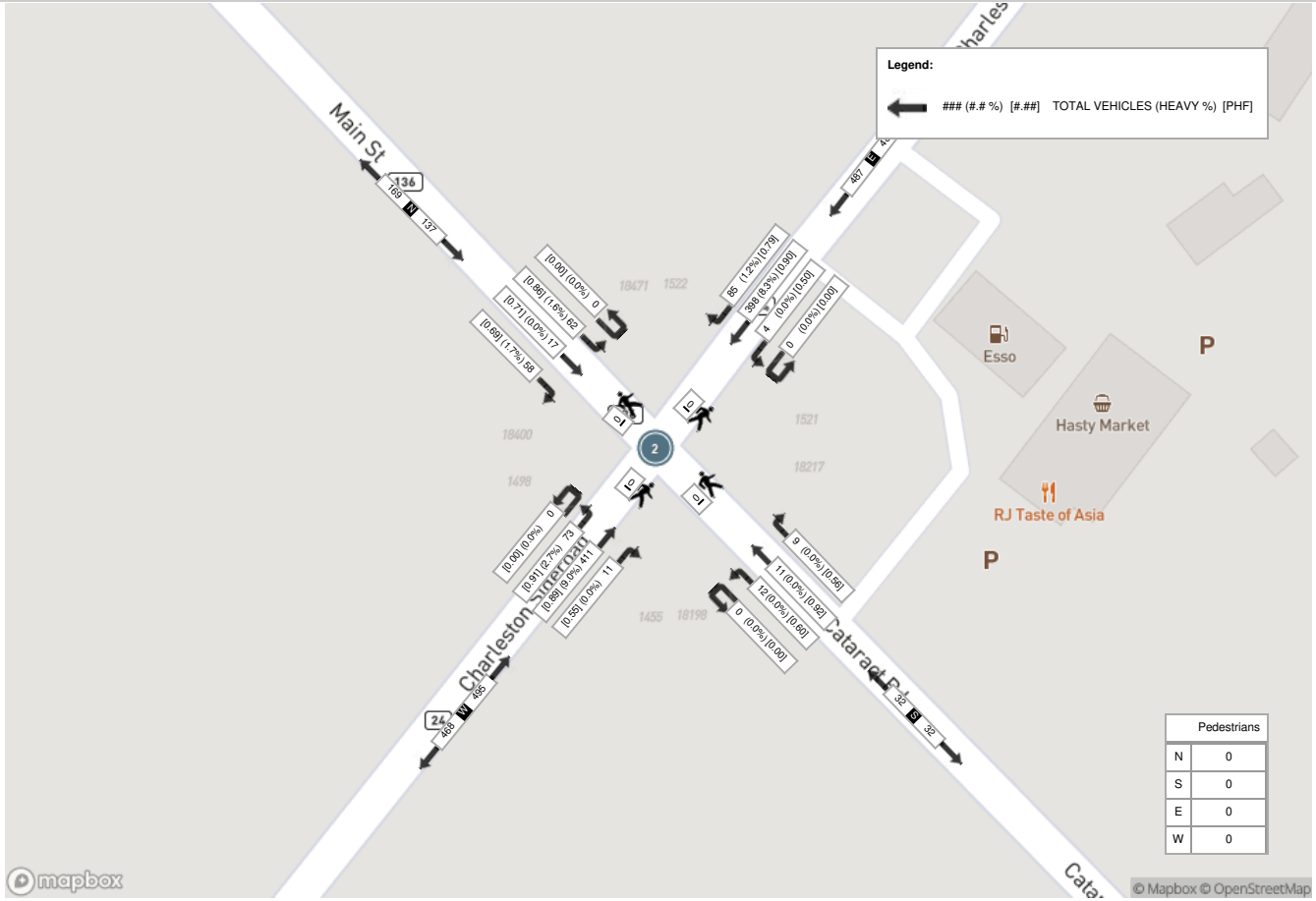
TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 07:45 AM - 08:45 AM **Weather: Clear Sky (14.12 °C)**



TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 04:30 PM - 05:30 PM **Weather: Broken Clouds (23.66 °C)**



Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & REGIONAL ROAD 136 (MAIN ST) / CATARACT RD
Date: Fri, Jun 23, 2023 Deployment Lead: Walter Fugaj

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Turning Movement Count (2 . CHARLESTON SIDEROAD & REGIONAL ROAD 136 (MAIN ST) / CATARACT RD) CustID: 02412429 MioID:

Start Time	N Approach MAIN ST						E Approach CHARLESTON SIDE RD						S Approach CATARACT RD						W Approach CHARLESTON SIDE RD						Int. Total (15 min)	Int. Total (1 hr)
	Left N:E	Thru N:S	Right N:W	UTurn N:N	Peds N:	Approach Total	Left E:S	Thru E:W	Right E:N	UTurn E:E	Peds E:	Approach Total	Left S:W	Thru S:N	Right S:E	UTurn S:S	Peds S:	Approach Total	Left W:N	Thru W:E	Right W:S	UTurn W:W	Peds W:	Approach Total		
06:00:00	10	0	3	0	0	13	0	37	5	0	0	42	0	0	0	0	0	0	0	48	0	0	0	48	103	
06:15:00	10	0	9	0	0	19	0	41	9	0	0	50	0	0	1	0	0	1	7	65	2	0	0	74	144	
06:30:00	12	0	5	0	0	17	1	50	10	0	0	61	1	1	1	0	0	3	6	57	2	0	0	65	146	
06:45:00	10	2	7	0	0	19	0	60	11	0	0	71	0	2	1	0	0	3	7	69	0	0	0	76	169	562
07:00:00	17	0	4	0	0	21	0	34	11	0	0	45	0	0	0	0	0	0	6	72	0	0	0	78	144	603
07:15:00	19	2	10	0	0	31	0	38	15	0	0	53	2	1	2	0	0	5	11	58	0	0	0	69	158	617
07:30:00	9	0	13	0	0	22	2	49	10	0	0	61	2	2	1	0	0	5	3	76	4	0	0	83	171	642
07:45:00	9	0	10	0	0	19	0	63	15	0	0	78	0	2	2	0	0	4	10	90	0	0	0	100	201	674
08:00:00	16	2	6	0	0	24	1	78	8	0	0	87	0	2	1	0	0	3	11	78	1	0	0	90	204	734
08:15:00	19	4	7	0	0	30	1	68	14	0	0	83	2	1	0	0	0	3	13	86	5	0	0	104	220	796
08:30:00	13	1	11	0	0	25	2	60	15	0	0	77	1	1	0	0	0	2	16	68	1	0	0	85	189	814
08:45:00	9	2	10	0	0	21	0	71	15	0	0	86	0	3	1	0	0	4	10	84	3	0	0	97	208	821
09:00:00	3	1	7	0	0	11	1	46	16	0	0	63	0	1	1	0	0	2	9	80	2	0	0	91	167	784
09:15:00	3	0	12	0	0	15	2	57	23	0	0	82	0	0	2	0	0	2	8	81	0	0	0	89	188	752
09:30:00	4	2	5	0	0	11	0	54	16	0	0	70	3	2	2	0	0	7	14	85	1	0	0	100	188	751
09:45:00	7	1	10	0	0	18	1	61	19	0	0	81	1	2	1	0	0	4	7	86	1	0	0	94	197	740
BREAK																										
14:00:00	16	3	10	0	0	29	2	87	14	0	0	103	1	9	2	0	0	12	13	88	2	0	0	103	247	
14:15:00	18	6	15	0	0	39	1	95	9	0	0	105	2	4	2	0	0	8	15	88	6	0	0	109	261	
14:30:00	21	3	10	0	0	34	2	91	15	0	0	108	3	5	3	0	0	11	14	102	6	0	0	122	275	
14:45:00	16	1	12	0	0	29	0	87	14	0	0	101	3	0	2	0	0	5	16	100	5	0	0	121	256	1039
15:00:00	18	2	16	0	0	36	2	76	15	0	0	93	1	2	2	0	0	5	12	115	0	0	0	127	261	1053
15:15:00	24	7	19	0	0	50	1	89	13	0	0	103	2	6	2	0	0	10	13	103	0	0	0	116	279	1071
15:30:00	21	2	9	0	0	32	3	90	15	0	0	108	3	4	1	0	0	8	23	110	0	0	0	133	281	1077
15:45:00	13	2	6	0	0	21	4	92	15	0	0	111	4	1	0	0	0	5	24	118	4	0	0	146	283	1104
16:00:00	15	2	16	0	0	33	7	92	18	0	0	117	3	3	0	0	0	6	16	108	5	0	0	129	285	1128
16:15:00	17	2	23	0	0	42	3	90	10	0	0	103	2	7	2	0	0	11	16	112	4	0	0	132	288	1137
16:30:00	17	2	19	0	0	38	1	79	20	0	0	100	2	5	2	0	0	9	21	113	3	0	0	137	284	1140
16:45:00	12	2	10	0	0	24	0	91	18	0	0	109	1	6	2	0	0	9	15	97	5	0	0	117	259	1116
17:00:00	16	3	7	0	0	26	2	73	16	0	0	91	2	0	0	0	0	2	19	109	2	0	0	130	249	1080
17:15:00	15	6	14	0	0	35	1	78	18	0	0	97	2	3	3	0	0	8	13	101	8	0	0	122	262	1054
17:30:00	17	4	12	0	0	33	0	74	8	0	0	82	3	2	0	0	0	5	10	101	3	0	0	114	234	1004
17:45:00	15	0	10	0	0	25	2	76	14	0	0	92	2	3	3	0	0	8	9	69	4	0	0	82	207	952
Grand Total	612	111	534	0	0	1257	60	3397	675	0	0	4132	68	127	66	1	0	262	605	4149	125	0	0	4879	**10530**	-
Approach%	48.7%	8.8%	42.5%	0%		-	1.5%	82.2%	16.3%	0%		-	26%	48.5%	25.2%	0.4%		-	12.4%	85%	2.6%	0%		-	**-**	-
Totals %	5.8%	1.1%	5.1%	0%		11.9%	0.6%	32.3%	6.4%	0%		39.2%	0.6%	1.2%	0.6%	0%		2.5%	5.7%	39.4%	1.2%	0%		46.3%	**-**	-
Heavy	24	0	87	0		-	4	653	24	0		-	2	2	5	0		-	87	661	5	0		-	**-**	-
Heavy %	3.9%	0%	16.3%	0%		-	6.7%	19.2%	3.6%	0%		-	2.9%	1.6%	7.6%	0%		-	14.4%	15.9%	4%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 08:00 AM - 09:00 AM Weather: Overcast Clouds (17.79 °C)

Start Time	N Approach MAIN ST						E Approach CHARLESTON SIDE RD						S Approach CATARACT RD						W Approach CHARLESTON SIDE RD						Int. Total (15 min)
	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	
08:00:00	16	2	6	0	0	24	1	78	8	0	0	87	0	2	1	0	0	3	11	78	1	0	0	90	204
08:15:00	19	4	7	0	0	30	1	68	14	0	0	83	2	1	0	0	0	3	13	86	5	0	0	104	220
08:30:00	13	1	11	0	0	25	2	60	15	0	0	77	1	1	0	0	0	2	16	68	1	0	0	85	189
08:45:00	9	2	10	0	0	21	0	71	15	0	0	86	0	3	1	0	0	4	10	84	3	0	0	97	208
Grand Total	57	9	34	0	0	100	4	277	52	0	0	333	3	7	2	0	0	12	50	316	10	0	0	376	**821**
Approach%	57%	9%	34%	0%		-	1.2%	83.2%	15.6%	0%		-	25%	58.3%	16.7%	0%		-	13.3%	84%	2.7%	0%		-	-
Totals %	6.9%	1.1%	4.1%	0%		12.2%	0.5%	33.7%	6.3%	0%		40.6%	0.4%	0.9%	0.2%	0%		1.5%	6.1%	38.5%	1.2%	0%		45.8%	-
PHF	0.75	0.56	0.77	0		0.83	0.5	0.89	0.87	0		0.96	0.38	0.58	0.5	0		0.75	0.78	0.92	0.5	0		0.9	-
Heavy	2	0	6	0		8	1	74	1	0		76	0	0	0	0		0	9	57	1	0		67	-
Heavy %	3.5%	0%	17.6%	0%		8%	25%	26.7%	1.9%	0%		22.8%	0%	0%	0%	0%		0%	18%	18%	10%	0%		17.8%	-
Lights	55	9	28	0		92	3	203	51	0		257	3	7	2	0		12	41	259	9	0		309	-
Lights %	96.5%	100%	82.4%	0%		92%	75%	73.3%	98.1%	0%		77.2%	100%	100%	100%	0%		100%	82%	82%	90%	0%		82.2%	-
Single-Unit Trucks	0	0	1	0		1	1	13	0	0		14	0	0	0	0		0	1	6	1	0		8	-
Single-Unit Trucks %	0%	0%	2.9%	0%		1%	25%	4.7%	0%	0%		4.2%	0%	0%	0%	0%		0%	2%	1.9%	10%	0%		2.1%	-
Buses	2	0	0	0		2	0	4	0	0		4	0	0	0	0		0	0	5	0	0		5	-
Buses %	3.5%	0%	0%	0%		2%	0%	1.4%	0%	0%		1.2%	0%	0%	0%	0%		0%	0%	1.6%	0%	0%		1.3%	-
Articulated Trucks	0	0	0	0		0	0	19	1	0		20	0	0	0	0		0	0	15	0	0		15	-
Articulated Trucks %	0%	0%	0%	0%		0%	0%	6.9%	1.9%	0%		6%	0%	0%	0%	0%		0%	0%	4.7%	0%	0%		4%	-
Aggregate Trucks	0	0	5	0		5	0	38	0	0		38	0	0	0	0		0	8	31	0	0		39	-
Aggregate Trucks %	0%	0%	14.7%	0%		5%	0%	13.7%	0%	0%		11.4%	0%	0%	0%	0%		0%	16%	9.8%	0%	0%		10.4%	-
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%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-

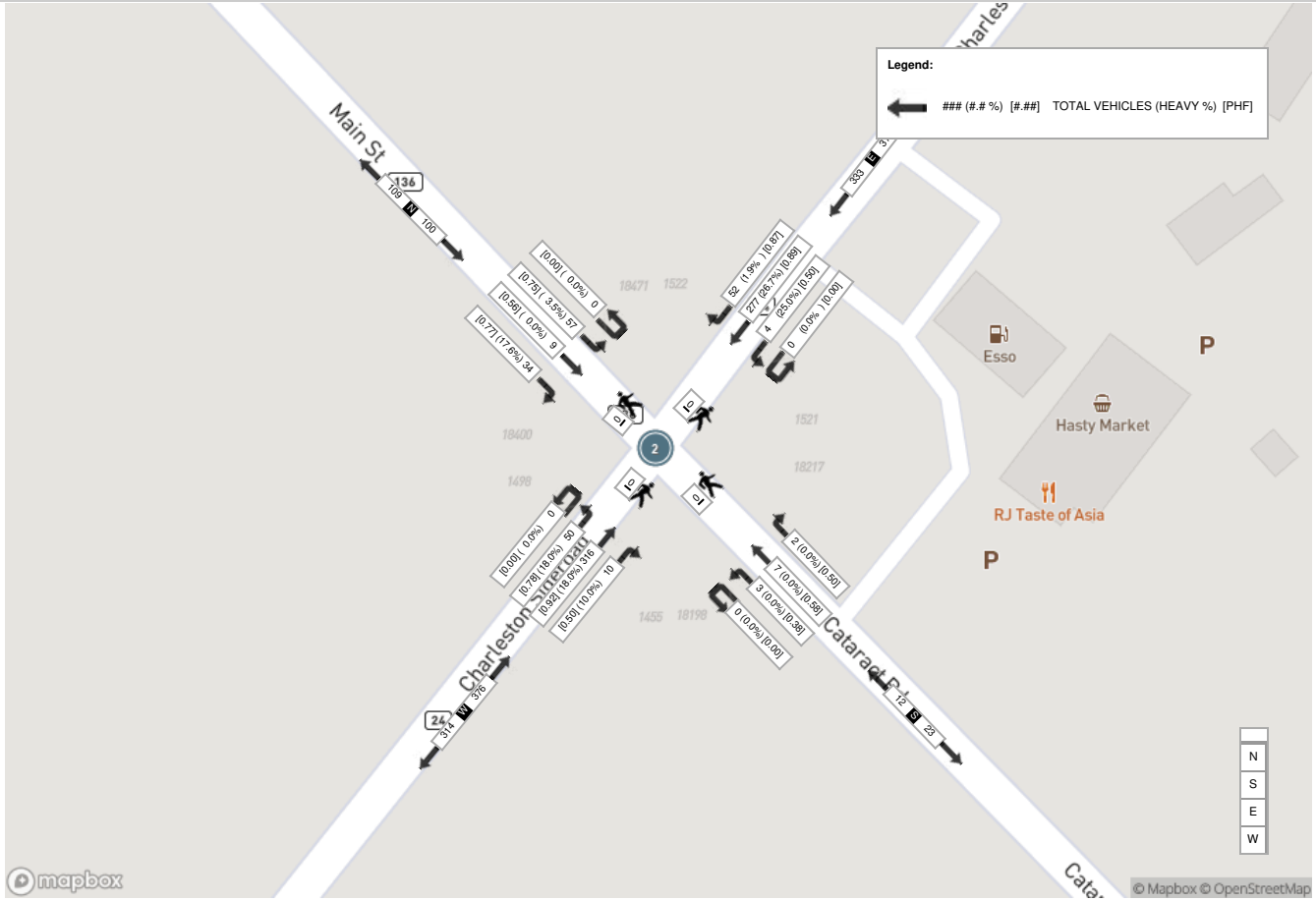
TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 03:45 PM - 04:45 PM Weather: Light Rain (21.56 °C)

Start Time	N Approach MAIN ST						E Approach CHARLESTON SIDE RD						S Approach CATARACT RD						W Approach CHARLESTON SIDE RD						Int. Total (15 min)
	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	
15:45:00	13	2	6	0	0	21	4	92	15	0	0	111	4	1	0	0	0	5	24	118	4	0	0	146	283
16:00:00	15	2	16	0	0	33	7	92	18	0	0	117	3	3	0	0	0	6	16	108	5	0	0	129	285
16:15:00	17	2	23	0	0	42	3	90	10	0	0	103	2	7	2	0	0	11	16	112	4	0	0	132	288
16:30:00	17	2	19	0	0	38	1	79	20	0	0	100	2	5	2	0	0	9	21	113	3	0	0	137	284
Grand Total	62	8	64	0	0	134	15	353	63	0	0	431	11	16	4	0	0	31	77	451	16	0	0	544	**1140**
Approach%	46.3%	6%	47.8%	0%		-	3.5%	81.9%	14.6%	0%		-	35.5%	51.6%	12.9%	0%		-	14.2%	82.9%	2.9%	0%		-	**-**
Totals %	5.4%	0.7%	5.6%	0%		11.8%	1.3%	31%	5.5%	0%		37.8%	1%	1.4%	0.4%	0%		2.7%	6.8%	39.6%	1.4%	0%		47.7%	**-**
PHF	0.91	1	0.7	0		0.8	0.54	0.96	0.79	0		0.92	0.69	0.57	0.5	0		0.7	0.8	0.96	0.8	0		0.93	**-**
Heavy	1	0	0	0		1	0	35	4	0		39	0	0	0	0		0	5	44	0	0		49	**-**
Heavy %	1.6%	0%	0%	0%		0.7%	0%	9.9%	6.3%	0%		9%	0%	0%	0%	0%		0%	6.5%	9.8%	0%	0%		9%	**-**
Lights	61	8	64	0		133	15	318	59	0		392	11	16	4	0		31	72	407	16	0		495	**-**
Lights %	98.4%	100%	100%	0%		99.3%	100%	90.1%	93.7%	0%		91%	100%	100%	100%	0%		100%	93.5%	90.2%	100%	0%		91%	**-**
Single-Unit Trucks	0	0	0	0		0	0	3	0	0		3	0	0	0	0		0	0	4	0	0		4	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0.8%	0%	0%		0.7%	0%	0%	0%	0%		0%	0%	0.9%	0%	0%		0.7%	**-**
Buses	1	0	0	0		1	0	3	4	0		7	0	0	0	0		0	3	0	0	0		3	**-**
Buses %	1.6%	0%	0%	0%		0.7%	0%	0.8%	6.3%	0%		1.6%	0%	0%	0%	0%		0%	3.9%	0%	0%	0%		0.6%	**-**
Articulated Trucks	0	0	0	0		0	0	11	0	0		11	0	0	0	0		0	1	12	0	0		13	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	3.1%	0%	0%		2.6%	0%	0%	0%	0%		0%	1.3%	2.7%	0%	0%		2.4%	**-**
Aggregate Trucks	0	0	0	0		0	0	18	0	0		18	0	0	0	0		0	1	28	0	0		29	**-**
Aggregate Trucks %	0%	0%	0%	0%		0%	0%	5.1%	0%	0%		4.2%	0%	0%	0%	0%		0%	1.3%	6.2%	0%	0%		5.3%	**-**
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%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**

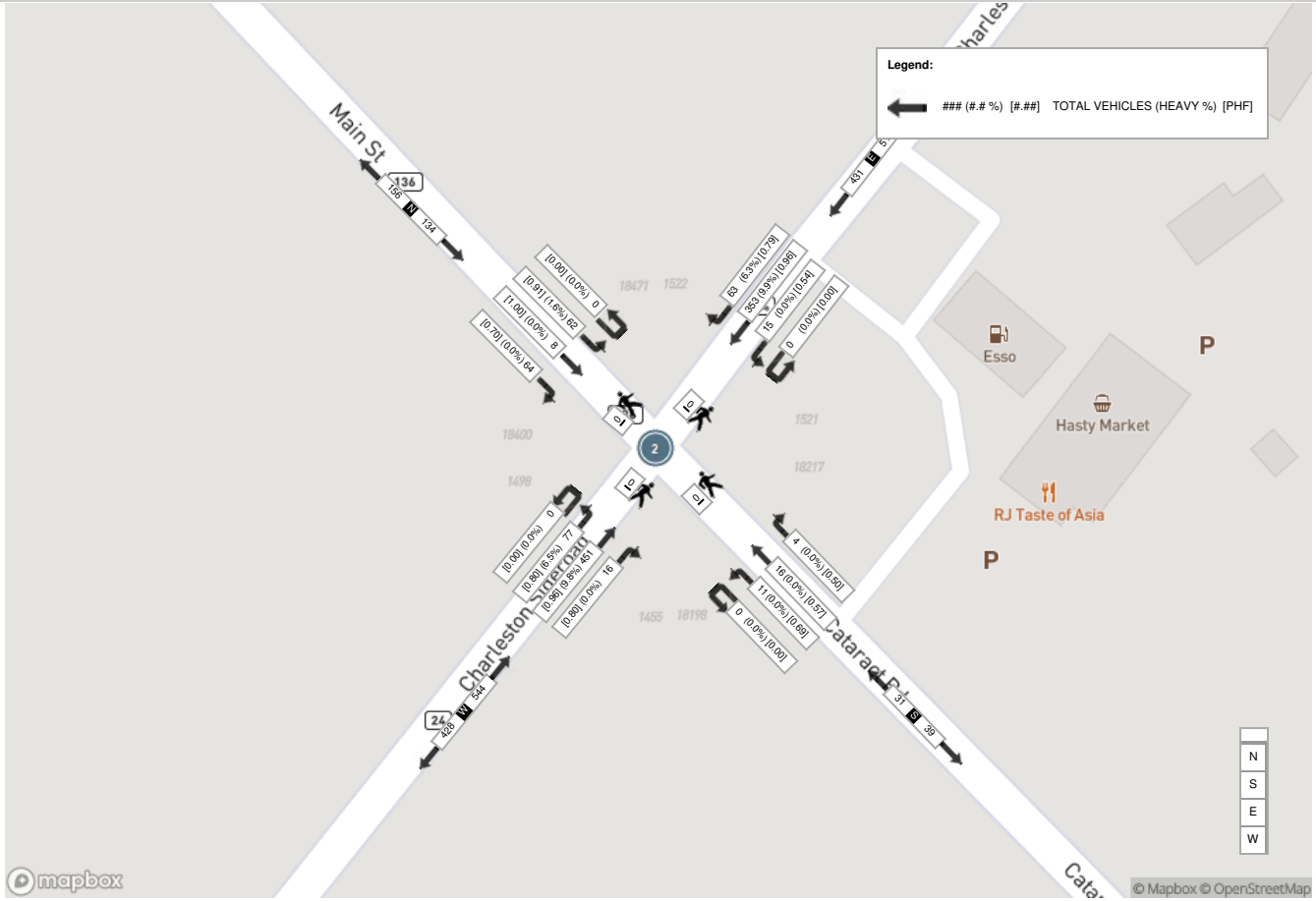
TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 08:00 AM - 09:00 AM Weather: Overcast Clouds (17.79 °C)



TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 03:45 PM - 04:45 PM **Weather: Light Rain (21.56 °C)**



Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & REGIONAL ROAD 136 (MAIN ST) / CATARACT RD
Date: Sat, Jun 24, 2023 Deployment Lead: Walter Fugaj

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Turning Movement Count (2 . CHARLESTON SIDEROAD & REGIONAL ROAD 136 (MAIN ST) / CATARACT RD) CustID: 02412429 MioID:

Start Time	N Approach MAIN ST						E Approach CHARLESTON SIDE RD						S Approach CATARACT RD						W Approach CHARLESTON SIDE RD						Int. Total (15 min)	Int. Total (1 hr)
	Left N:E	Thru N:S	Right N:W	UTurn N:N	Peds N:	Approach Total	Left E:S	Thru E:W	Right E:N	UTurn E:E	Peds E:	Approach Total	Left S:W	Thru S:N	Right S:E	UTurn S:S	Peds S:	Approach Total	Left W:N	Thru W:E	Right W:S	UTurn W:W	Peds W:	Approach Total		
06:00:00	3	0	0	0	0	3	0	7	2	0	0	9	0	0	1	0	0	1	1	14	0	0	0	15	28	
06:15:00	8	0	0	0	0	8	0	9	1	0	0	10	0	1	1	0	0	2	3	27	0	0	0	30	50	
06:30:00	2	0	1	0	0	3	0	15	10	0	0	25	0	0	0	0	0	0	3	12	0	0	0	15	43	
06:45:00	3	0	0	0	0	3	0	18	6	0	0	24	0	0	0	0	0	0	3	27	0	0	0	30	57	178
07:00:00	3	0	2	0	0	5	0	20	11	0	0	31	0	0	1	0	0	1	2	22	0	0	0	24	61	211
07:15:00	0	0	1	0	0	1	0	28	8	0	0	36	0	1	0	0	0	1	1	41	0	0	0	42	80	241
07:30:00	3	0	1	0	0	4	0	22	4	0	0	26	0	0	1	0	0	1	2	26	0	0	0	28	59	257
07:45:00	3	0	1	0	0	4	2	30	9	0	0	41	0	0	2	0	0	2	4	39	0	0	0	43	90	290
08:00:00	2	0	2	0	0	4	0	26	8	0	0	34	1	0	1	0	0	2	1	53	1	0	0	55	95	324
08:15:00	9	0	3	0	0	12	0	29	12	0	0	41	2	0	0	0	0	2	5	64	2	0	0	71	126	370
08:30:00	5	1	3	0	0	9	0	28	8	0	0	36	0	1	1	0	1	2	5	65	1	0	0	71	118	429
08:45:00	4	0	5	0	0	9	1	40	12	0	0	53	1	3	1	0	0	5	13	81	1	0	0	95	162	501
09:00:00	8	1	3	0	0	12	0	48	11	0	0	59	1	0	2	0	0	3	5	58	0	0	0	63	137	543
09:15:00	3	1	1	0	0	5	1	57	15	1	0	74	1	1	1	0	0	3	11	62	1	0	0	74	156	573
09:30:00	9	2	2	0	0	13	0	40	9	0	0	49	1	2	2	0	0	5	7	71	5	0	0	83	150	605
09:45:00	4	0	9	0	0	13	2	50	11	0	0	63	2	0	2	0	0	4	10	76	3	0	0	89	169	612
BREAK																										
14:00:00	20	3	6	0	0	29	2	83	10	0	0	95	0	1	5	0	0	6	5	80	3	0	0	88	218	
14:15:00	7	6	10	0	0	23	0	91	11	0	0	102	0	1	3	0	0	4	11	94	3	0	0	108	237	
14:30:00	14	0	3	0	0	17	3	64	7	0	0	74	1	2	1	0	0	4	11	76	1	0	0	88	183	
14:45:00	12	5	13	0	0	30	1	76	7	0	0	84	1	1	0	0	0	2	10	65	2	0	0	77	193	831
15:00:00	18	1	8	0	0	27	3	58	15	0	0	76	0	2	3	0	0	5	14	78	1	0	0	93	201	814
15:15:00	11	0	10	0	0	21	1	83	12	0	0	96	0	2	0	0	0	2	9	81	2	0	0	92	211	788
15:30:00	14	5	9	0	0	28	1	71	17	0	0	89	2	2	2	0	0	6	16	88	3	0	0	107	230	835
15:45:00	11	1	11	0	0	23	6	70	9	0	0	85	3	0	0	0	0	3	6	72	3	0	0	81	192	834
16:00:00	9	0	5	0	0	14	6	82	13	0	0	101	1	1	3	0	0	5	7	70	1	0	0	78	198	831
16:15:00	9	4	6	0	0	19	2	88	7	0	0	97	0	0	0	0	0	0	12	71	3	0	0	86	202	822
16:30:00	28	4	4	0	0	36	4	69	16	0	0	89	4	3	4	0	0	11	12	61	4	0	0	77	213	805
16:45:00	12	1	9	0	0	22	1	55	15	0	0	71	2	3	1	0	0	6	11	74	1	0	0	86	185	798
17:00:00	14	2	6	0	0	22	3	79	6	0	0	88	2	1	2	0	0	5	11	59	3	0	0	73	188	788
17:15:00	16	0	7	0	0	23	1	66	8	0	0	75	1	2	1	0	0	4	4	66	2	0	0	72	174	760
17:30:00	12	1	5	0	0	18	0	48	8	0	0	56	2	0	1	0	0	3	8	52	1	0	0	61	138	685
17:45:00	10	0	5	0	0	15	1	63	14	0	0	78	2	1	3	0	0	6	5	47	0	0	0	52	151	651
Grand Total	441	70	295	0	0	806	65	2805	503	1	1	3374	59	65	69	0	1	193	384	3140	82	0	1	3606	**7979**	-
Approach%	54.7%	8.7%	36.6%	0%		-	1.9%	83.1%	14.9%	0%		-	30.6%	33.7%	35.8%	0%		-	10.6%	87.1%	2.3%	0%		-	-	-
Totals %	5.5%	0.9%	3.7%	0%		10.1%	0.8%	35.2%	6.3%	0%		42.3%	0.7%	0.8%	0.9%	0%		2.4%	4.8%	39.4%	1%	0%		45.2%	-	-
Heavy	3	0	3	0		-	1	85	4	1		-	1	1	0	0		-	5	78	2	0		-	-	-
Heavy %	0.7%	0%	1%	0%		-	1.5%	3%	0.8%	100%		-	1.7%	1.5%	0%	0%		-	1.3%	2.5%	2.4%	0%		-	-	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 09:00 AM - 10:00 AM Weather: Light Rain (17.81 °C)

Start Time	N Approach MAIN ST						E Approach CHARLESTON SIDE RD						S Approach CATARACT RD						W Approach CHARLESTON SIDE RD						Int. Total (15 min)
	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	
09:00:00	8	1	3	0	0	12	0	48	11	0	0	59	1	0	2	0	0	3	5	58	0	0	0	63	137
09:15:00	3	1	1	0	0	5	1	57	15	1	0	74	1	1	1	0	0	3	11	62	1	0	0	74	156
09:30:00	9	2	2	0	0	13	0	40	9	0	0	49	1	2	2	0	0	5	7	71	5	0	0	83	150
09:45:00	4	0	9	0	0	13	2	50	11	0	0	63	2	0	2	0	0	4	10	76	3	0	0	89	169
Grand Total	24	4	15	0	0	43	3	195	46	1	0	245	5	3	7	0	0	15	33	267	9	0	0	309	**612**
Approach%	55.8%	9.3%	34.9%	0%		-	1.2%	79.6%	18.8%	0.4%		-	33.3%	20%	46.7%	0%		-	10.7%	86.4%	2.9%	0%		-	**-**
Totals %	3.9%	0.7%	2.5%	0%		7%	0.5%	31.9%	7.5%	0.2%		40%	0.8%	0.5%	1.1%	0%		2.5%	5.4%	43.6%	1.5%	0%		50.5%	**-**
PHF	0.67	0.5	0.42	0		0.83	0.38	0.86	0.77	0.25		0.83	0.63	0.38	0.88	0		0.75	0.75	0.88	0.45	0		0.87	**-**
Heavy	0	0	0	0		0	0	7	1	1		9	0	0	0	0		0	2	7	0	0		9	**-**
Heavy %	0%	0%	0%	0%		0%	0%	3.6%	2.2%	100%		3.7%	0%	0%	0%	0%		0%	6.1%	2.6%	0%	0%		2.9%	**-**
Lights	24	2	15	0		41	3	188	45	0		236	5	3	7	0		15	31	260	9	0		300	**-**
Lights %	100%	50%	100%	0%		95.3%	100%	96.4%	97.8%	0%		96.3%	100%	100%	100%	0%		100%	93.9%	97.4%	100%	0%		97.1%	**-**
Single-Unit Trucks	0	0	0	0		0	0	3	1	0		4	0	0	0	0		0	0	3	0	0		3	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	1.5%	2.2%	0%		1.6%	0%	0%	0%	0%		0%	0%	1.1%	0%	0%		1%	**-**
Buses	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	**-**
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.4%	0%	0%		0.3%	**-**
Articulated Trucks	0	0	0	0		0	0	3	0	1		4	0	0	0	0		0	2	3	0	0		5	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	1.5%	0%	100%		1.6%	0%	0%	0%	0%		0%	6.1%	1.1%	0%	0%		1.6%	**-**
Aggregate Trucks	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	**-**
Aggregate Trucks %	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.4%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	0	2	0	0		2	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	0%	50%	0%	0%		4.7%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & REGIONAL ROAD 136 (MAIN ST) / CATARACT RD
Date: Sat, Jun 24, 2023 Deployment Lead: Walter Fugaj

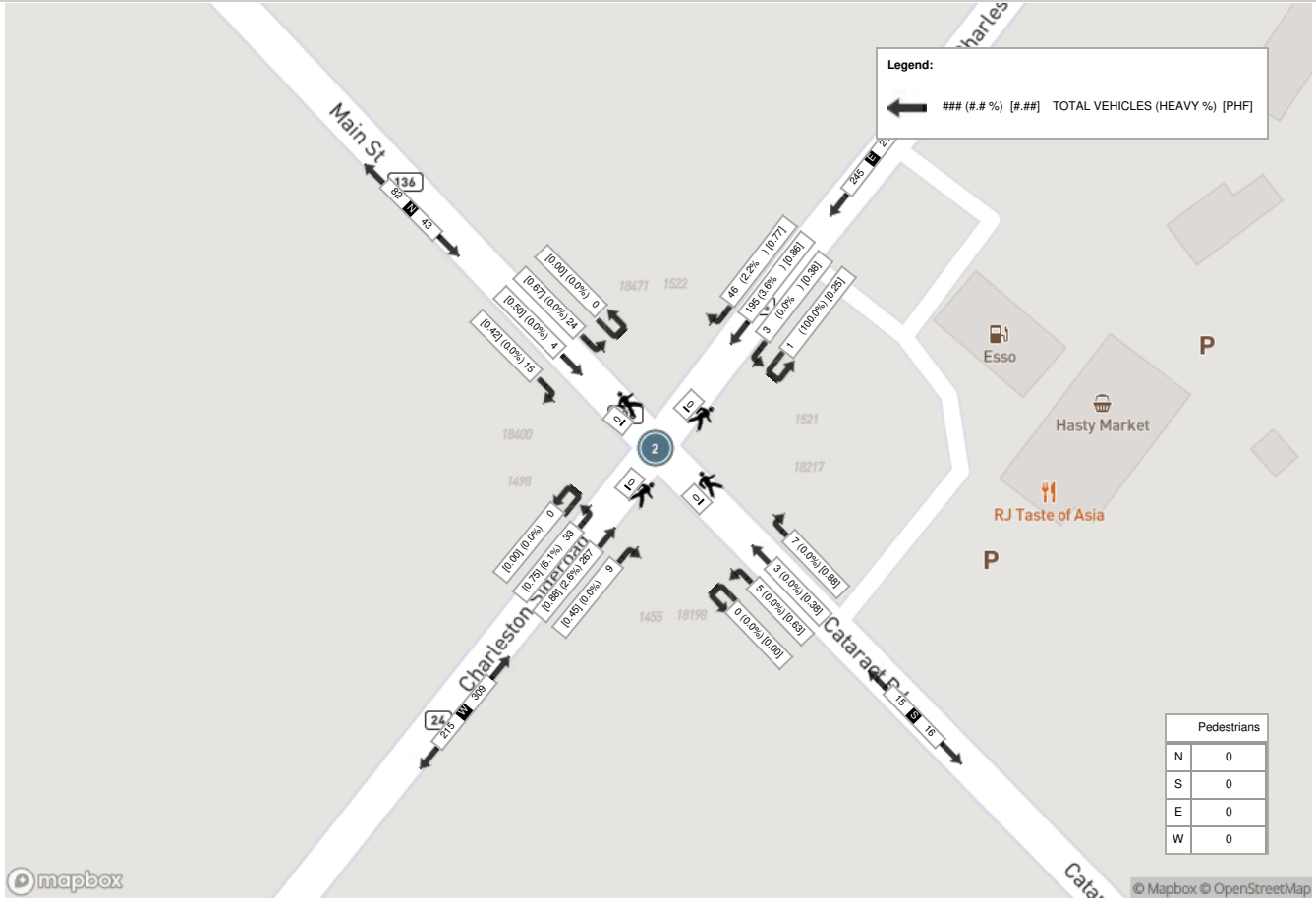
TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 02:45 PM - 03:45 PM Weather: Moderate Rain (22.45 °C)

Start Time	N Approach MAIN ST						E Approach CHARLESTON SIDE RD						S Approach CATARACT RD						W Approach CHARLESTON SIDE RD						Int. Total (15 min)
	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	
14:45:00	12	5	13	0	0	30	1	76	7	0	0	84	1	1	0	0	0	2	10	65	2	0	0	77	193
15:00:00	18	1	8	0	0	27	3	58	15	0	0	76	0	2	3	0	0	5	14	78	1	0	0	93	201
15:15:00	11	0	10	0	0	21	1	83	12	0	0	96	0	2	0	0	0	2	9	81	2	0	0	92	211
15:30:00	14	5	9	0	0	28	1	71	17	0	0	89	2	2	2	0	0	6	16	88	3	0	0	107	230
Grand Total	55	11	40	0	0	106	6	288	51	0	0	345	3	7	5	0	0	15	49	312	8	0	0	369	**835**
Approach%	51.9%	10.4%	37.7%	0%		-	1.7%	83.5%	14.8%	0%		-	20%	46.7%	33.3%	0%		-	13.3%	84.6%	2.2%	0%		-	**-**
Totals %	6.6%	1.3%	4.8%	0%		12.7%	0.7%	34.5%	6.1%	0%		41.3%	0.4%	0.8%	0.6%	0%		1.8%	5.9%	37.4%	1%	0%		44.2%	**-**
PHF	0.76	0.55	0.77	0		0.88	0.5	0.87	0.75	0		0.9	0.38	0.88	0.42	0		0.63	0.77	0.89	0.67	0		0.86	**-**
Heavy	1	0	1	0		2	0	2	0	0		2	0	0	0	0		0	0	6	1	0		7	**-**
Heavy %	1.8%	0%	2.5%	0%		1.9%	0%	0.7%	0%	0%		0.6%	0%	0%	0%	0%		0%	0%	1.9%	12.5%	0%		1.9%	**-**
Lights	54	11	39	0		104	6	286	51	0		343	3	5	5	0		13	49	306	7	0		362	**-**
Lights %	98.2%	100%	97.5%	0%		98.1%	100%	99.3%	100%	0%		99.4%	100%	71.4%	100%	0%		86.7%	100%	98.1%	87.5%	0%		98.1%	**-**
Single-Unit Trucks	1	0	0	0		1	0	1	0	0		1	0	0	0	0		0	0	3	1	0		4	**-**
Single-Unit Trucks %	1.8%	0%	0%	0%		0.9%	0%	0.3%	0%	0%		0.3%	0%	0%	0%	0%		0%	0%	1%	12.5%	0%		1.1%	**-**
Buses	0	0	1	0		1	0	0	0	0		0	0	0	0	0		0	0	2	0	0		2	**-**
Buses %	0%	0%	2.5%	0%		0.9%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.6%	0%	0%		0.5%	**-**
Articulated Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.3%	**-**
Aggregate Trucks	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	**-**
Aggregate Trucks %	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.3%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	2	0	0		2	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	28.6%	0%	0%		13.3%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

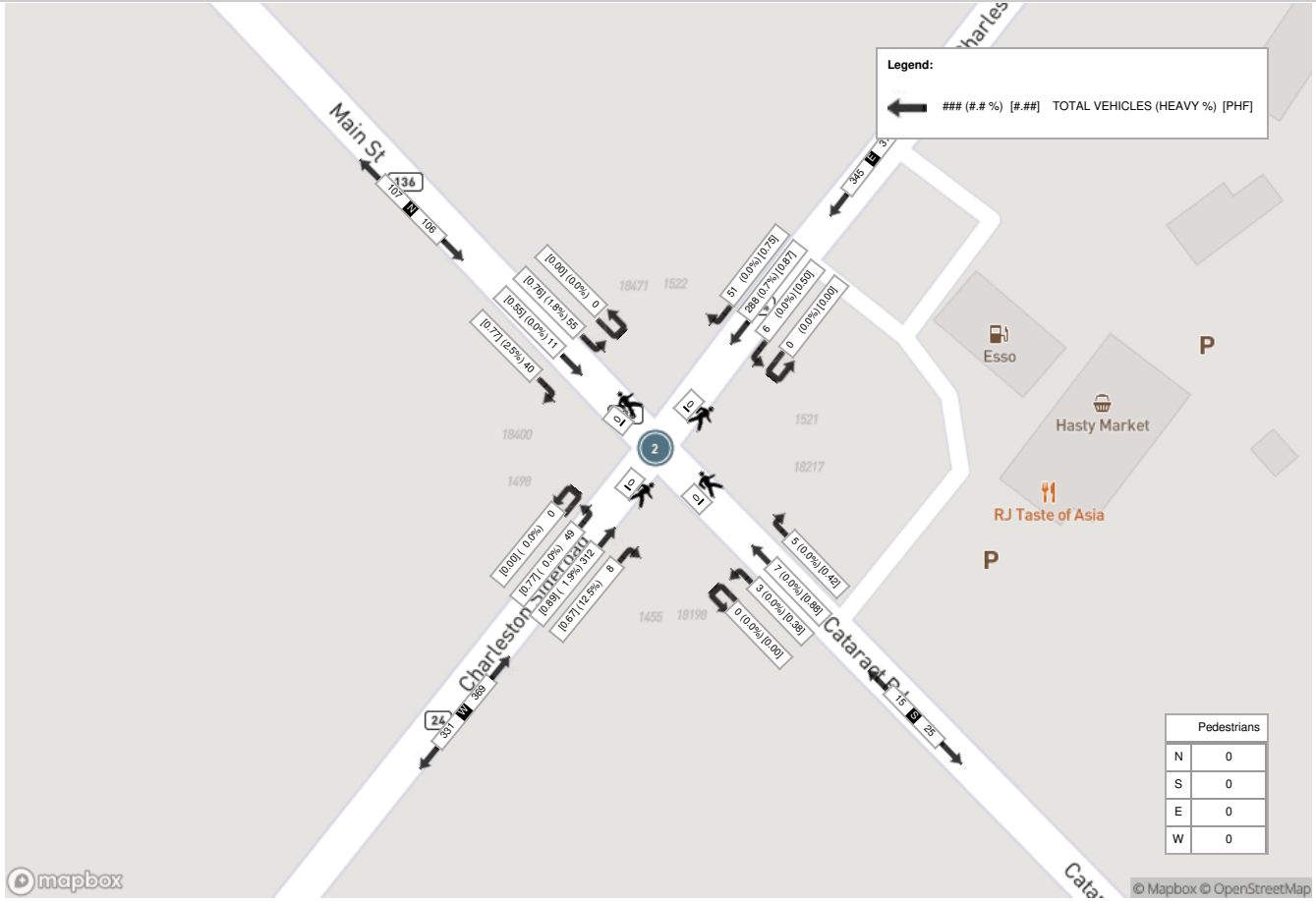
TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 09:00 AM - 10:00 AM **Weather: Light Rain (17.81 °C)**



TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 02:45 PM - 03:45 PM **Weather: Moderate Rain (22.45 °C)**



Ministry of Transportation
Ministere des Transports
Ontario

INTERSECTION LAYOUT SHEET

DATE 2018-05-15 DAY Tues REQUEST # 814 OBSERVER Y. Fouks

GRETCH CODE (LHRS) 0164700000 FILE # _____ TFR # _____

HWY 10 LOCATION RR24 - Charleston side road RAMPS _____

REG/MUN. Peel TOWN/CITY Caledon

COMMENTS _____

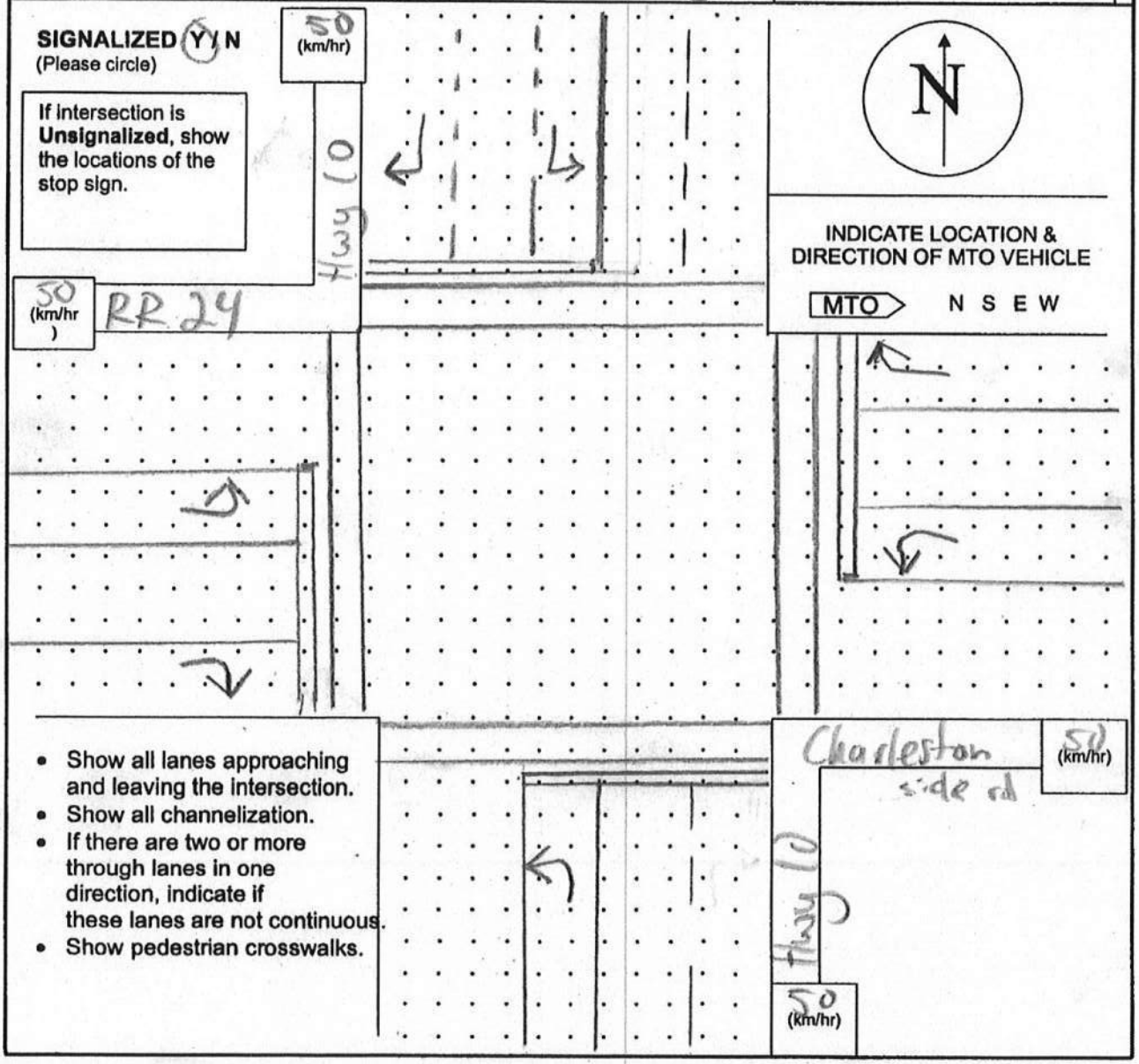
SEGMENT 1 - AM or PM (Please Circle) WEATHER Cloudy

DATASETS:

For office use only:
Edit File: _____
PM Peak: _____
Report: _____
Processed by: _____

SIGNALIZED (Y) / N
(Please circle)

If intersection is **Unsignalized**, show the locations of the stop sign.



- Show all lanes approaching and leaving the intersection.
- Show all channelization.
- If there are two or more through lanes in one direction, indicate if these lanes are not continuous.
- Show pedestrian crosswalks.

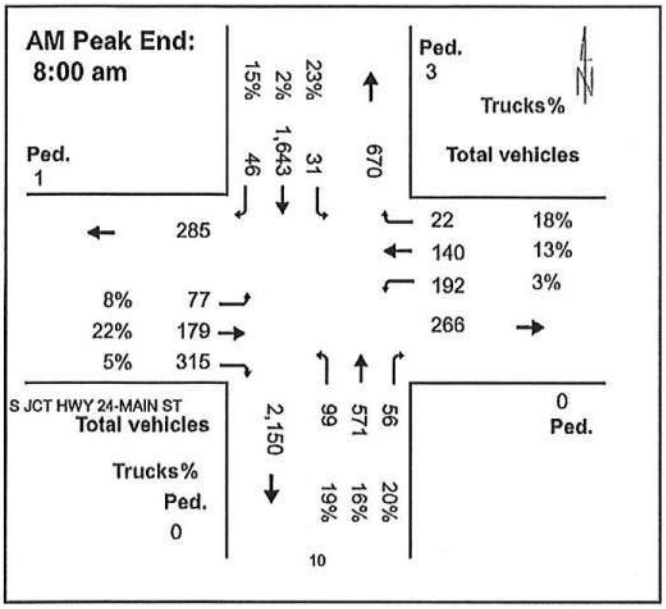
Text File #.....

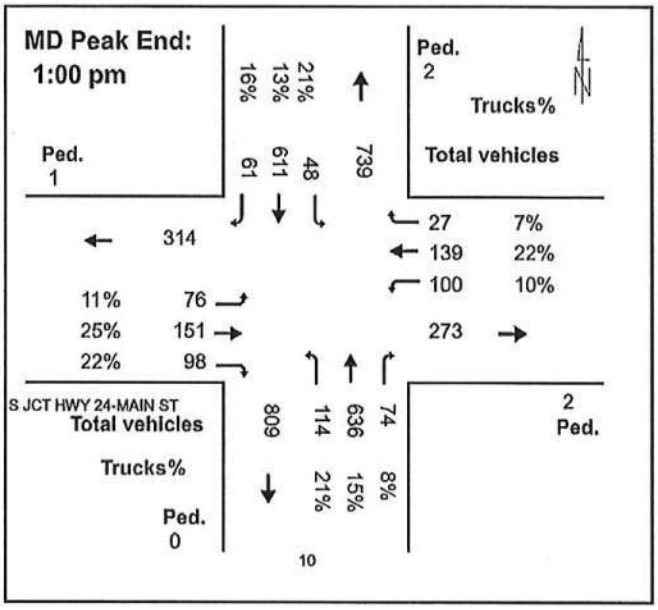
Ontario

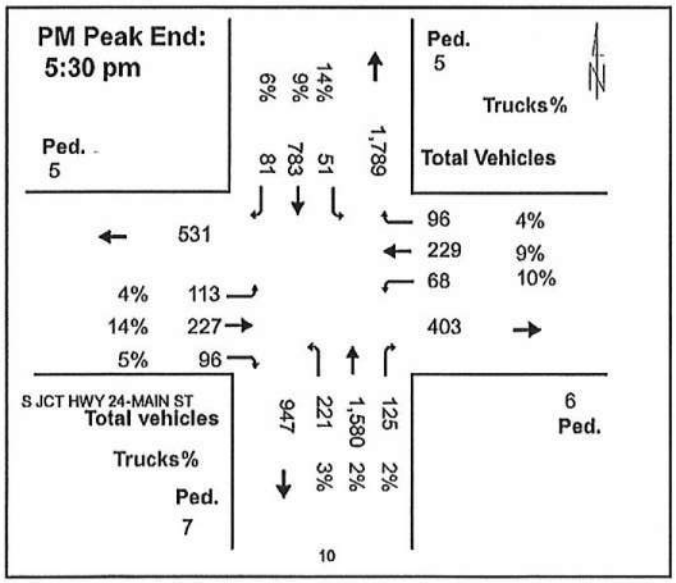
HWY 10 @ S JCT HWY 24-MAIN ST

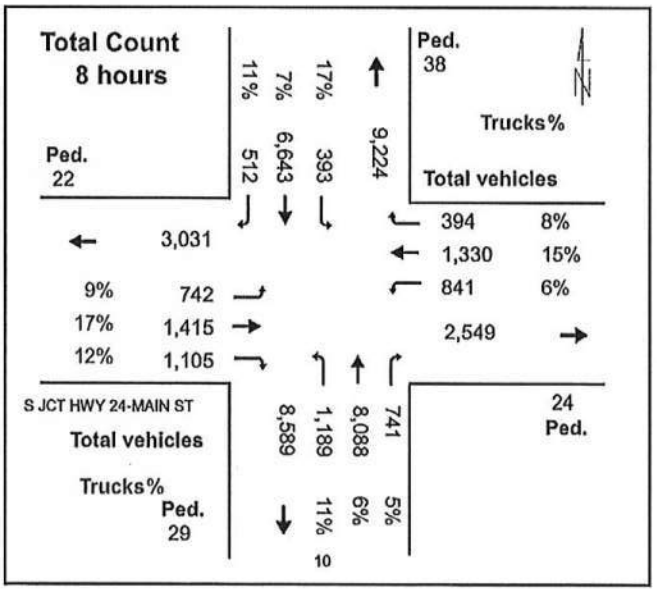
Central

Intersection ID:164700000 **Count Day: Wednesday** **Count Date: 16-May-2018**









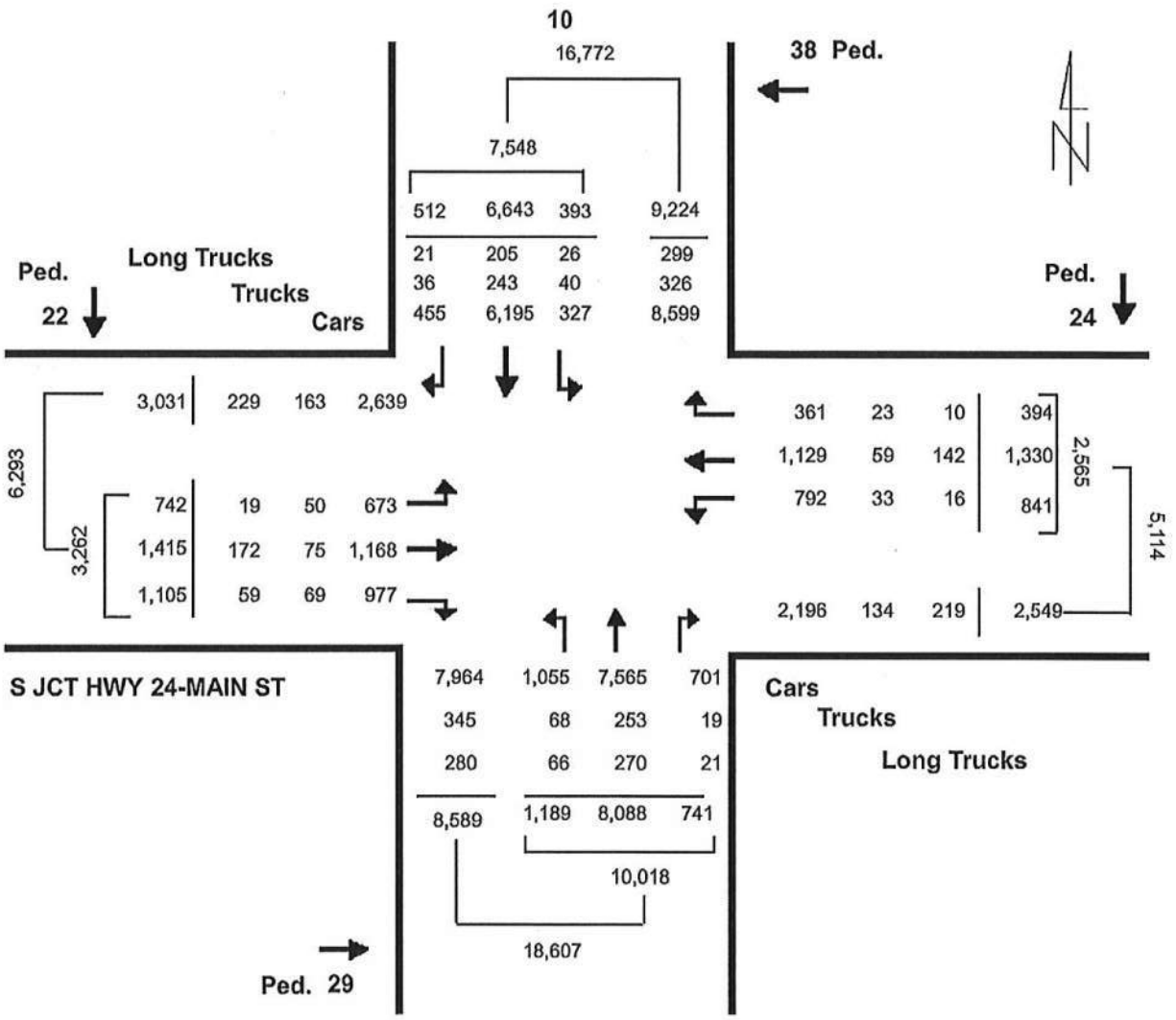
Traffic
Engineering
Software

COUNT TOTAL

HWY 10 @ S JCT HWY 24-MAIN ST

Central

Intersection ID:164700000 **Date: 16-May-2018**



15 MIN REPORT

Intersection ID:164700000 **HWY 10 @ S JCT HWY 24-MAIN ST** **Municipality: Central** **Date: 16-May-2018**

	NORTH APPROACH										EAST APPROACH										SOUTH APPROACH										WEST APPROACH										
Time	Cars			Trucks			Heavies			Ped	Cars			Trucks			Heavies			Ped	Cars			Trucks			Heavies			Ped	Cars			Trucks			Heavies			Ped	Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
Period1																																									
7:15	4	417	8	1	5	1	2	2	0	0	40	20	1	2	1	0	0	2	0	0	12	105	9	3	4	0	4	12	1	0	11	35	57	1	3	3	1	8	0	1	776
7:30	7	426	8	1	4	0	0	2	2	1	64	30	4	0	4	0	1	2	1	0	12	97	11	3	13	2	2	15	0	0	12	31	87	0	2	3	1	6	1	0	855
7:45	6	397	11	0	3	1	1	4	2	0	43	34	8	0	1	0	1	3	1	0	26	160	13	1	8	1	3	11	4	0	26	38	92	2	2	1	0	8	6	0	918
8:00	7	374	12	1	4	1	1	5	0	2	39	38	5	2	0	1	0	5	1	0	30	119	12	2	17	1	1	10	2	0	22	35	62	0	2	2	1	9	1	0	826
8:15	11	341	13	1	4	3	0	1	0	1	30	30	9	2	5	0	1	4	0	0	21	129	16	2	20	0	2	8	0	0	23	33	45	1	2	1	1	6	2	0	768
8:30	17	321	16	2	3	0	0	3	0	0	31	27	6	1	3	3	0	9	1	0	17	121	12	5	22	1	4	9	2	0	19	43	46	4	2	2	1	7	3	0	763
8:45	21	204	10	0	6	0	0	9	1	1	34	29	9	2	3	3	1	13	0	3	23	123	13	3	16	1	3	13	2	3	33	36	37	1	4	5	2	4	2	1	674
9:00	20	247	15	2	10	1	1	9	0	0	29	34	6	0	2	3	2	4	0	0	15	131	12	5	13	0	6	13	3	2	22	41	38	6	5	4	0	6	3	0	710
Period2																																									
11:15	9	138	11	1	8	2	1	4	2	4	15	23	11	4	2	4	1	3	0	0	18	115	20	2	8	0	6	12	0	2	15	20	13	2	1	2	0	9	4	1	493
11:30	9	128	13	5	5	1	2	5	0	0	19	19	13	3	3	1	2	4	0	0	15	111	13	8	10	1	2	20	0	0	23	36	28	1	3	7	1	9	6	0	526
11:45	6	148	18	4	15	1	1	8	0	2	17	29	4	3	3	0	0	5	0	0	19	118	11	6	7	0	5	12	3	0	14	36	19	1	1	2	1	2	3	0	524
12:00	9	115	11	5	12	1	1	7	1	4	18	28	8	0	1	0	0	6	1	2	22	127	13	1	5	0	6	9	0	0	17	31	18	2	3	5	3	6	5	0	503
12:15	10	148	7	0	14	3	1	13	1	0	19	32	4	3	3	0	1	4	1	2	18	129	15	4	18	1	5	12	1	0	21	25	18	1	4	3	1	5	3	0	550
12:30	4	120	14	4	11	1	1	9	0	0	18	22	5	1	1	0	1	6	0	0	20	123	21	2	9	1	4	16	0	0	18	31	20	3	1	3	0	6	2	1	499
12:45	12	148	13	0	8	0	0	9	0	0	18	30	6	0	0	0	1	9	0	0	32	134	21	3	7	3	1	14	0	0	15	28	18	1	5	3	0	5	2	0	546
13:00	12	113	17	4	14	3	0	4	2	2	35	24	10	2	0	0	1	8	1	0	20	156	11	1	9	0	4	9	0	0	14	30	20	1	3	1	1	8	5	0	545
Period3																																									
15:15	9	148	18	1	13	3	0	7	0	3	21	29	6	2	0	0	0	7	3	2	33	269	30	3	9	0	1	8	1	3	17	27	13	3	4	4	0	3	3	2	705
15:30	8	130	21	0	9	2	5	8	1	1	23	44	12	2	4	1	0	4	0	2	39	316	36	1	6	3	2	4	0	0	22	54	24	2	4	3	0	4	3	0	800
15:45	12	151	20	1	7	4	1	8	1	0	21	26	17	1	1	0	1	2	0	0	39	355	29	1	6	0	0	5	0	1	22	36	25	2	4	1	0	5	0	1	806
16:00	12	160	13	1	6	1	1	8	0	2	23	60	18	0	4	1	0	4	0	0	45	419	40	2	3	1	1	5	0	0	19	36	35	5	1	1	0	2	3	4	936
16:15	16	166	23	1	14	2	0	5	0	3	20	47	23	0	4	0	0	0	0	2	49	342	37	1	4	0	0	4	0	6	28	36	24	3	3	4	0	6	0	0	873
16:30	10	141	18	1	6	1	1	6	1	1	19	52	18	0	1	1	1	6	0	0	47	402	25	0	3	0	0	7	0	2	27	45	30	4	3	3	0	2	1	0	885
16:45	12	168	14	2	11	1	0	7	0	2	21	40	20	0	4	2	0	4	0	1	66	391	26	1	3	1	1	6	1	0	25	42	25	0	4	1	1	4	0	1	908
17:00	10	217	14	0	5	1	3	7	0	0	9	46	15	1	2	1	0	4	0	3	53	406	35	3	7	0	0	4	0	0	25	50	23	0	2	1	1	7	1	0	956
17:15	12	144	22	0	7	0	2	13	0	1	24	63	29	0	0	1	1	2	0	0	49	342	37	1	4	0	0	4	0	5	30	53	16	1	2	2	1	7	0	4	879
17:30	10	180	26	0	11	0	0	13	3	2	12	59	28	0	2	0	0	3	0	2	47	403	25	0	3	0	0	7	0	2	29	51	27	0	0	0	0	5	0	0	950
17:45	5	130	16	1	7	0	0	4	1	0	20	50	21	1	1	0	0	3	0	0	65	388	26	1	3	1	1	6	1	0	21	38	10	1	2	0	1	2	0	0	827
18:00	16	153	15	0	8	1	1	6	1	0	19	47	11	0	1	0	0	5	0	0	53	404	35	3	7	0	0	4	0	0	24	47	17	0	0	2	0	4	0	0	884
18:15	7	144	14	1	3	1	0	6	1	2	29	39	12	0	1	0	0	2	0	1	48	329	27	0	1	0	1	2	0	0	18	36	26	0	1	0	0	5	0	3	760
18:30	6	137	11	0	7	0	0	4	0	2	21	32	8	1	1	0	0	3	0	3	35	288	29	0	2	0	0	2	0	0	25	35	26	2	1	0	0	4	0	0	685
18:45	11	126	10	0	2	0	0	5	0	1	24	27	8	0	0	0	0	3	0	1	40	249	26	0	2	0	1	4	0	3	19	36	24	0	0	0	0	2	0	1	625
19:00	7	115	3	0	1	0	0	4	1	1	17	19	6	0	1	1	0	3	0	0	27	264	15	0	4	1	0	3	0	0	17	17	14	0	1	0	1	6	0	2	551

Bicycle Count Form

Location: Hwy 10 at Charleston Sideroad / RR 24 /Main St
Site ID: 164700000
Count Date: 05/16/2018

Time	APPROACH			
	North	East	South	West
07:00 to 07:15				
07:15 to 07:30				
07:30 to 07:45				
07:45 to 08:00				
08:00 to 08:15				
08:15 to 08:30				
08:30 to 08:45				
08:45 to 09:00				
09:00 to 09:15				
09:15 to 09:30				
09:30 to 09:45				
09:45 to 10:00				
10:00 to 10:15				
10:15 to 10:30				
10:30 to 10:45				
10:45 to 11:00				
11:00 to 11:15				
11:15 to 11:30				
11:30 to 11:45				
11:45 to 12:00				
12:00 to 12:15				
12:15 to 12:30				
12:30 to 12:45				
12:45 to 13:00				
13:00 to 13:15				
13:15 to 13:30				
13:30 to 13:45				
13:45 to 14:00				
14:00 to 14:15				
14:15 to 14:30				
14:30 to 14:45				
14:45 to 15:00				
15:00 to 15:15				
15:15 to 15:30				
15:30 to 15:45				
15:45 to 16:00				
16:00 to 16:15				
16:15 to 16:30				
16:30 to 16:45				
16:45 to 17:00				
17:00 to 17:15				
17:15 to 17:30				
17:30 to 17:45				
17:45 to 18:00				
18:00 to 18:15				
18:15 to 18:30				
18:30 to 18:45				
18:45 to 19:00				
19:00 to 19:15		**2**		
19:15 to 19:30				
19:30 to 19:45				
19:45 to 20:00				
20:00 to 20:15				
20:15 to 20:30				
20:30 to 20:45				
20:45 to 21:00				

Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & HWY 10 /HURONTARIO ST
Date: Thu, Nov 05, 2020 Deployment Lead: Theo Daglis

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Turning Movement Count (1 . CHARLESTON SIDEROAD & HWY 10 /HURONTARIO ST) CustID: 02408233 MioID:

Start Time	N Approach HURONTARIO ST						E Approach CHARLESTON SIDEROAD						S Approach HURONTARIO ST						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	8	338	3	0	0	349	2	14	36	0	0	52	11	70	17	0	0	98	48	21	3	0	0	72	571	
06:15:00	9	302	9	0	0	320	0	23	23	0	0	46	10	112	26	0	0	148	54	26	2	0	0	82	596	
06:30:00	5	286	11	0	0	302	1	24	35	0	0	60	8	125	24	0	0	157	31	37	13	0	0	81	600	
06:45:00	16	309	13	0	0	338	2	22	22	0	0	46	13	114	34	0	0	161	51	33	8	0	0	92	637	2404
07:00:00	6	334	11	0	0	351	0	23	34	0	0	57	15	135	26	0	0	176	44	23	21	0	0	88	672	2505
07:15:00	14	377	8	0	1	399	5	18	33	0	1	56	9	160	24	0	0	193	56	33	21	0	0	110	758	2667
07:30:00	6	349	5	0	0	360	6	40	36	0	1	82	11	181	28	0	0	220	39	31	14	0	0	84	746	2813
07:45:00	14	273	9	0	1	296	6	25	31	0	1	62	13	155	28	0	0	196	52	36	25	0	0	113	667	2843
08:00:00	7	231	10	0	2	248	7	34	31	0	1	72	16	173	35	0	0	224	35	28	13	0	0	76	620	2791
08:15:00	11	247	7	0	0	265	12	43	36	0	0	91	17	169	42	0	0	228	38	43	10	0	0	91	675	2708
08:30:00	10	217	18	0	0	245	8	37	29	0	0	74	15	159	29	0	0	203	49	37	16	0	0	102	624	2586
08:45:00	14	176	15	0	0	205	7	25	28	0	1	60	18	167	33	0	1	218	42	29	20	0	0	91	574	2493
09:00:00	16	211	22	0	1	249	8	27	21	0	0	56	26	147	38	0	0	211	29	45	17	0	1	91	607	2480
09:15:00	6	184	15	0	0	205	12	34	38	0	0	84	14	159	43	0	0	216	34	37	11	0	0	82	587	2392
09:30:00	9	158	11	0	0	178	4	35	28	0	0	67	24	159	24	0	0	207	38	29	16	0	0	83	535	2303
09:45:00	11	177	7	0	2	195	4	42	20	0	0	66	17	135	36	0	0	188	26	39	18	0	0	83	532	2261
10:00:00	13	173	10	0	2	196	5	28	27	0	2	60	16	154	53	0	0	223	33	41	22	0	0	96	575	2229
10:15:00	9	166	17	0	2	192	10	34	32	0	0	76	23	147	41	0	4	211	31	31	20	0	0	82	561	2203
10:30:00	9	162	6	0	1	177	9	29	19	0	0	57	18	158	42	0	1	218	25	28	16	0	0	69	521	2189
10:45:00	15	149	9	0	2	173	8	34	22	0	2	64	21	157	41	0	2	219	24	30	15	0	0	69	525	2182
11:00:00	14	142	13	0	1	169	8	43	14	0	0	65	31	141	47	1	1	220	36	34	25	0	0	95	549	2156
11:15:00	11	147	13	0	0	171	10	26	23	0	0	59	23	153	48	0	0	224	34	24	22	0	0	80	534	2129
11:30:00	12	142	7	0	0	161	4	22	18	0	0	44	16	178	29	0	0	223	35	29	20	0	0	84	512	2120
11:45:00	15	161	12	0	1	188	8	37	19	0	0	64	20	202	48	0	0	270	17	38	18	0	0	73	595	2190
12:00:00	16	146	13	0	1	175	16	24	30	0	0	70	29	192	46	0	0	267	29	30	19	0	0	78	590	2231
12:15:00	9	153	14	0	0	176	6	29	26	0	0	61	17	164	38	0	0	219	34	45	21	0	0	100	556	2253
12:30:00	10	143	21	0	2	174	8	37	29	0	0	74	23	163	36	0	1	222	36	42	17	0	0	95	565	2306
12:45:00	12	152	10	0	6	174	9	40	20	0	0	69	18	180	35	1	2	234	31	31	22	0	1	84	561	2272
13:00:00	11	168	16	0	0	195	12	26	18	0	0	56	20	186	43	0	2	249	23	38	13	0	1	74	574	2256
13:15:00	13	155	13	0	0	181	5	35	28	0	0	68	23	188	40	0	2	251	38	30	17	0	0	85	585	2285
13:30:00	15	161	12	0	0	188	12	37	21	0	0	70	28	187	52	0	0	267	36	40	13	0	0	89	614	2334
13:45:00	9	142	15	1	0	167	10	40	23	0	0	73	23	217	40	0	4	280	36	36	8	0	0	80	600	2373
14:00:00	15	183	20	0	0	218	7	28	18	0	0	53	19	182	40	0	1	241	41	49	13	0	0	103	615	2414
14:15:00	15	183	17	0	0	215	7	26	34	0	0	67	34	261	34	0	1	329	33	40	21	0	0	94	705	2534
14:30:00	8	197	14	0	0	219	11	41	22	0	0	74	26	237	44	0	4	307	32	41	24	0	1	97	697	2617
14:45:00	11	157	13	0	2	181	11	41	16	0	1	68	28	316	42	0	2	386	34	33	18	0	1	85	720	2737
15:00:00	13	168	18	0	0	199	7	36	19	0	0	62	35	291	54	0	0	380	37	48	14	0	0	99	740	2862
15:15:00	21	198	16	0	0	235	20	30	33	0	0	83	34	310	41	0	0	385	38	43	22	0	0	103	806	2963
15:30:00	14	151	15	0	0	180	11	44	26	0	0	81	43	374	42	0	0	459	27	47	23	0	0	97	817	3083
15:45:00	15	164	15	0	0	194	20	60	32	0	0	112	21	334	47	0	0	402	44	40	17	0	0	101	809	3172
16:00:00	17	195	18	0	0	230	24	43	32	0	0	99	35	373	52	0	0	460	31	44	19	0	0	94	883	3315
16:15:00	15	201	14	0	0	230	29	60	22	0	0	111	42	330	42	0	0	414	26	49	22	0	0	97	852	3361
16:30:00	19	231	12	0	0	262	18	49	24	0	0	91	47	348	39	0	0	434	41	40	19	0	0	100	887	3431
16:45:00	9	212	16	0	0	237	19	39	29	0	0	87	36	328	39	0	0	403	43	54	21	0	0	118	845	3467
17:00:00	19	192	18	0	0	229	23	46	28	0	0	97	30	331	34	0	1	395	27	60	30	0	1	117	838	3422

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

17:15:00	21	213	10	0	1	244	19	53	26	0	2	98	41	343	49	0	0	433	37	38	12	0	1	87	862	3432
17:30:00	17	207	15	0	1	239	19	37	25	0	1	81	41	325	48	0	1	414	19	49	16	0	0	84	818	3363
17:45:00	16	143	13	0	0	172	12	44	30	0	1	86	26	280	39	0	1	345	26	60	16	0	2	102	705	3223
Grand Total	600	9626	619	1	29	10846	481	1664	1266	0	14	3411	1124	10050	1852	2	31	13028	1700	1809	823	0	9	4332	**31617**	-
Approach%	5.5%	88.8%	5.7%	0%		-	14.1%	48.8%	37.1%	0%		-	8.6%	77.1%	14.2%	0%		-	39.2%	41.8%	19%	0%		-	**-**	-
Totals %	1.9%	30.4%	2%	0%		34.3%	1.5%	5.3%	4%	0%		10.8%	3.6%	31.8%	5.9%	0%		41.2%	5.4%	5.7%	2.6%	0%		13.7%	**-**	-
Heavy	56	790	85	0		-	67	277	88	0		-	152	974	504	0		-	420	347	47	0		-	**-**	-
Heavy %	9.3%	8.2%	13.7%	0%		-	13.9%	16.6%	7%	0%		-	13.5%	9.7%	27.2%	0%		-	24.7%	19.2%	5.7%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & HWY 10 /HURONTARIO ST
Date: Thu, Nov 05, 2020 Deployment Lead: Theo Daglis

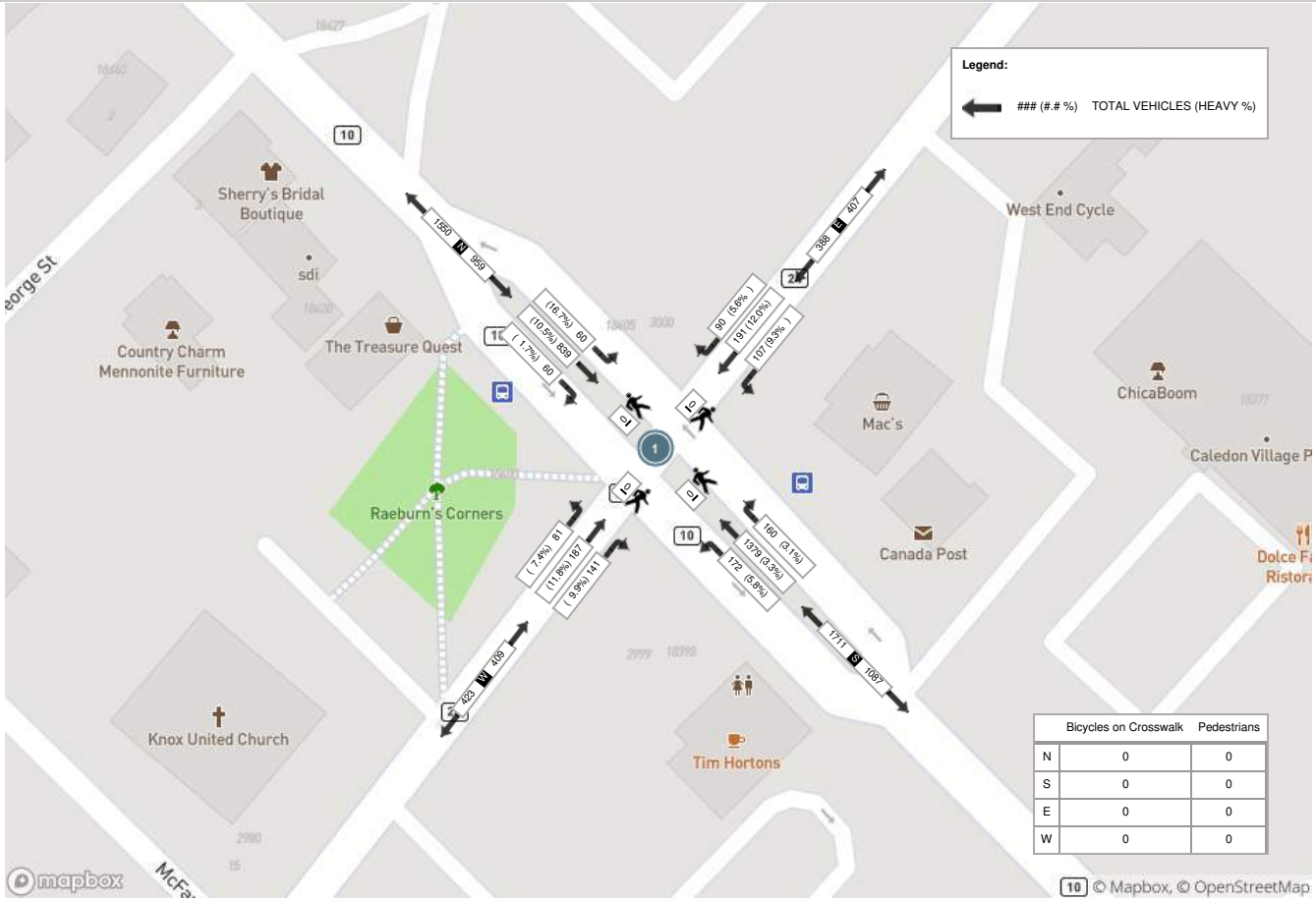
The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 04:00 PM - 05:00 PM Weather: Clear Sky (10.35 °C)

Start Time	N Approach HURONTARIO ST						E Approach CHARLESTON SIDEROAD						S Approach HURONTARIO ST						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:00:00	17	195	18	0	0	230	24	43	32	0	0	99	35	373	52	0	0	460	31	44	19	0	0	94	883
16:15:00	15	201	14	0	0	230	29	60	22	0	0	111	42	330	42	0	0	414	26	49	22	0	0	97	852
16:30:00	19	231	12	0	0	262	18	49	24	0	0	91	47	348	39	0	0	434	41	40	19	0	0	100	887
16:45:00	9	212	16	0	0	237	19	39	29	0	0	87	36	328	39	0	0	403	43	54	21	0	0	118	845
Grand Total	60	839	60	0	0	959	90	191	107	0	0	388	160	1379	172	0	0	1711	141	187	81	0	0	409	**3467**
Approach%	6.3%	87.5%	6.3%	0%		-	23.2%	49.2%	27.6%	0%		-	9.4%	80.6%	10.1%	0%		-	34.5%	45.7%	19.8%	0%		-	**-**
Totals %	1.7%	24.2%	1.7%	0%		27.7%	2.6%	5.5%	3.1%	0%		11.2%	4.6%	39.8%	5%	0%		49.4%	4.1%	5.4%	2.3%	0%		11.8%	**-**
PHF	0.79	0.91	0.83	0		0.92	0.78	0.8	0.84	0		0.87	0.85	0.92	0.83	0		0.93	0.82	0.87	0.92	0		0.87	**-**
Heavy	1	88	10	0		99	5	23	10	0		38	5	45	10	0		60	14	22	6	0		42	**-**
Heavy %	1.7%	10.5%	16.7%	0%		10.3%	5.6%	12%	9.3%	0%		9.8%	3.1%	3.3%	5.8%	0%		3.5%	9.9%	11.8%	7.4%	0%		10.3%	**-**
Lights	59	751	50	0		860	85	168	97	0		350	155	1334	162	0		1651	127	165	75	0		367	**-**
Lights %	98.3%	89.5%	83.3%	0%		89.7%	94.4%	88%	90.7%	0%		90.2%	96.9%	96.7%	94.2%	0%		96.5%	90.1%	88.2%	92.6%	0%		89.7%	**-**
Single-Unit Trucks	1	19	3	0		23	2	8	3	0		13	2	14	5	0		21	3	3	0	0		6	**-**
Single-Unit Trucks %	1.7%	2.3%	5%	0%		2.4%	2.2%	4.2%	2.8%	0%		3.4%	1.3%	1%	2.9%	0%		1.2%	2.1%	1.6%	0%	0%		1.5%	**-**
Buses	0	5	1	0		6	2	0	2	0		4	0	6	1	0		7	0	1	0	0		1	**-**
Buses %	0%	0.6%	1.7%	0%		0.6%	2.2%	0%	1.9%	0%		1%	0%	0.4%	0.6%	0%		0.4%	0%	0.5%	0%	0%		0.2%	**-**
Articulated Trucks	0	44	2	0		46	1	11	1	0		13	0	20	3	0		23	4	13	6	0		23	**-**
Articulated Trucks %	0%	5.2%	3.3%	0%		4.8%	1.1%	5.8%	0.9%	0%		3.4%	0%	1.5%	1.7%	0%		1.3%	2.8%	7%	7.4%	0%		5.6%	**-**
Aggregate Trucks	0	20	4	0		24	0	4	4	0		8	3	5	1	0		9	7	5	0	0		12	**-**
Aggregate Trucks %	0%	2.4%	6.7%	0%		2.5%	0%	2.1%	3.7%	0%		2.1%	1.9%	0.4%	0.6%	0%		0.5%	5%	2.7%	0%	0%		2.9%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 04:00 PM - 05:00 PM Weather: Clear Sky (10.35 °C)



Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & HWY 10 /HURONTARIO ST
Date: Sat, Nov 07, 2020 Deployment Lead: Theo Daglis

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Turning Movement Count (1 . CHARLESTON SIDEROAD & HWY 10 /HURONTARIO ST) CustID: 02408233 MioID:

Start Time	N Approach HURONTARIO ST						E Approach CHARLESTON SIDEROAD						S Approach HURONTARIO ST						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	0	82	5	0	0	87	2	8	12	0	0	22	5	38	7	0	0	50	4	12	5	0	0	21	180	
06:15:00	3	77	2	0	0	82	1	4	7	0	0	12	9	56	6	0	0	71	12	6	2	0	0	20	185	
06:30:00	5	81	0	0	0	86	1	2	6	0	0	9	7	68	15	0	0	90	5	12	4	0	0	21	206	
06:45:00	2	70	3	0	0	75	2	8	8	0	0	18	7	61	17	0	0	85	6	12	10	0	0	28	206	777
07:00:00	2	80	2	0	0	84	2	7	7	0	0	16	9	97	14	0	0	120	6	16	11	0	0	33	253	850
07:15:00	2	97	5	0	0	104	0	13	12	0	0	25	6	91	15	0	0	112	8	20	12	0	0	40	281	946
07:30:00	1	90	4	0	0	95	3	17	13	0	0	33	9	144	14	0	0	167	9	15	17	0	0	41	336	1076
07:45:00	9	76	4	0	1	89	1	9	17	0	0	27	17	145	26	0	1	188	8	25	10	0	1	43	347	1217
08:00:00	8	119	3	0	0	130	4	28	23	0	0	55	14	163	19	0	0	196	9	32	11	0	0	52	433	1397
08:15:00	6	114	3	0	0	123	4	17	13	0	0	34	26	148	25	0	1	199	14	39	8	0	1	61	417	1533
08:30:00	5	117	7	0	2	129	6	37	21	0	0	64	16	204	34	0	1	254	10	34	11	0	0	55	502	1699
08:45:00	6	138	9	0	1	153	9	20	25	0	1	54	22	212	31	0	1	265	14	45	21	0	1	80	552	1904
09:00:00	8	141	8	0	0	157	12	28	20	0	1	60	15	224	26	0	0	265	15	43	31	0	0	89	571	2042
09:15:00	8	142	7	0	1	157	7	33	16	0	0	56	17	254	29	1	3	301	12	43	20	0	2	75	589	2214
09:30:00	18	161	14	0	0	193	7	46	29	0	1	82	29	204	41	0	3	274	14	36	23	0	0	73	622	2334
09:45:00	10	173	4	0	1	187	6	37	17	0	1	60	25	269	36	0	1	330	21	56	24	0	0	101	678	2460
10:00:00	16	162	11	0	3	189	8	31	18	0	1	57	24	235	48	0	1	307	19	50	28	0	1	97	650	2539
10:15:00	11	191	7	0	1	209	5	48	24	0	1	77	28	349	37	0	1	414	24	45	33	0	0	102	802	2752
10:30:00	19	172	14	0	0	205	9	43	30	0	0	82	16	305	59	0	11	380	19	47	35	0	1	101	768	2898
10:45:00	11	174	12	0	2	197	10	39	31	0	1	80	32	285	45	0	0	362	16	51	50	0	0	117	756	2976
11:00:00	9	154	11	0	1	174	10	47	21	0	5	78	25	312	41	0	1	378	22	58	22	0	0	102	732	3058
11:15:00	13	189	16	0	3	218	11	35	19	0	0	65	28	276	40	0	4	344	22	51	28	0	2	101	728	2984
11:30:00	22	182	11	0	2	215	14	51	36	0	3	101	29	306	40	0	5	375	25	44	40	0	0	109	800	3016
11:45:00	14	171	23	0	0	208	11	49	28	0	0	88	37	310	53	0	4	400	28	57	34	0	2	119	815	3075
12:00:00	17	194	13	0	0	224	7	37	30	0	0	74	40	336	57	0	0	433	28	44	31	0	1	103	834	3177
12:15:00	17	214	22	0	0	253	8	48	25	0	4	81	28	292	47	0	3	367	21	49	30	0	0	100	801	3250
12:30:00	25	221	23	0	3	269	16	48	31	0	7	95	49	310	49	0	1	408	28	52	31	0	0	111	883	3333
12:45:00	32	210	16	0	0	258	5	50	39	0	0	94	30	328	33	0	0	391	28	39	33	0	0	100	843	3361
13:00:00	21	231	21	0	0	273	7	47	34	0	0	88	37	306	45	0	4	388	25	46	28	0	3	99	848	3375
13:15:00	18	230	18	1	0	267	12	48	24	0	0	84	25	271	36	0	1	332	28	49	31	0	0	108	791	3365
13:30:00	24	226	22	0	0	272	10	44	25	0	1	79	28	287	39	0	0	354	24	50	35	0	0	109	814	3296
13:45:00	25	266	9	0	2	300	13	44	26	0	2	83	44	254	49	0	8	347	35	53	23	0	0	111	841	3294
14:00:00	29	241	11	0	3	281	7	53	31	0	1	91	33	302	37	0	0	372	42	52	24	0	0	118	862	3308
14:15:00	23	265	19	1	4	308	11	53	33	0	1	97	31	260	40	0	3	331	32	55	35	0	1	122	858	3375
14:30:00	13	210	25	0	4	248	12	48	36	0	1	96	33	287	63	0	1	383	39	45	20	0	0	104	831	3392
14:45:00	27	218	22	0	2	267	13	41	30	0	2	84	33	291	40	0	2	364	42	46	32	0	0	120	835	3386
15:00:00	19	230	15	0	2	264	11	37	27	0	0	75	31	264	51	0	0	346	36	59	25	0	0	120	805	3329
15:15:00	19	248	15	0	1	282	11	56	46	0	0	113	23	240	36	0	2	299	46	42	20	0	2	108	802	3273
15:30:00	18	274	23	0	3	315	9	42	27	0	2	78	14	265	38	0	0	317	41	49	24	0	0	114	824	3266
15:45:00	28	257	18	0	0	303	8	52	44	0	0	104	19	231	38	0	0	288	52	43	23	0	0	118	813	3244
16:00:00	20	301	19	0	1	340	12	49	26	0	0	87	26	207	39	0	2	272	43	44	28	0	2	115	814	3253
16:15:00	24	302	25	1	0	352	10	53	42	0	0	105	15	211	37	0	0	263	33	56	25	0	0	114	834	3285
16:30:00	27	286	20	0	1	333	7	30	24	0	0	61	24	190	25	0	0	239	45	46	18	0	2	109	742	3203
16:45:00	13	300	24	0	2	337	8	51	34	0	0	93	33	179	42	0	4	254	55	59	21	0	0	135	819	3209
17:00:00	29	354	23	0	0	406	7	45	25	0	0	77	20	181	21	0	2	222	54	27	14	0	2	95	800	3195

17:15:00	19	347	18	2	0	386	7	36	43	0	0	86	25	160	27	0	2	212	36	56	13	0	2	105	789	3150
17:30:00	17	302	13	0	0	332	11	29	31	0	0	71	25	157	19	0	0	201	54	46	11	0	0	111	715	3123
17:45:00	22	294	21	0	1	337	7	31	25	0	1	63	21	175	18	1	2	215	33	35	13	0	0	81	696	3000
Grand Total	734	9374	640	5	47	10753	374	1729	1211	0	37	3314	1139	10740	1644	2	75	13525	1242	1991	1078	0	26	4311	**31903**	-
Approach%	6.8%	87.2%	6%	0%		-	11.3%	52.2%	36.5%	0%		-	8.4%	79.4%	12.2%	0%		-	28.8%	46.2%	25%	0%		-	**-**	-
Totals %	2.3%	29.4%	2%	0%		33.7%	1.2%	5.4%	3.8%	0%		10.4%	3.6%	33.7%	5.2%	0%		42.4%	3.9%	6.2%	3.4%	0%		13.5%	**-**	-
Heavy	17	350	14	0		-	10	68	22	0		-	26	345	31	0		-	22	83	12	0		-	**-**	-
Heavy %	2.3%	3.7%	2.2%	0%		-	2.7%	3.9%	1.8%	0%		-	2.3%	3.2%	1.9%	0%		-	1.8%	4.2%	1.1%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & HWY 10 /HURONTARIO ST
Date: Sat, Nov 07, 2020 Deployment Lead: Theo Daglis

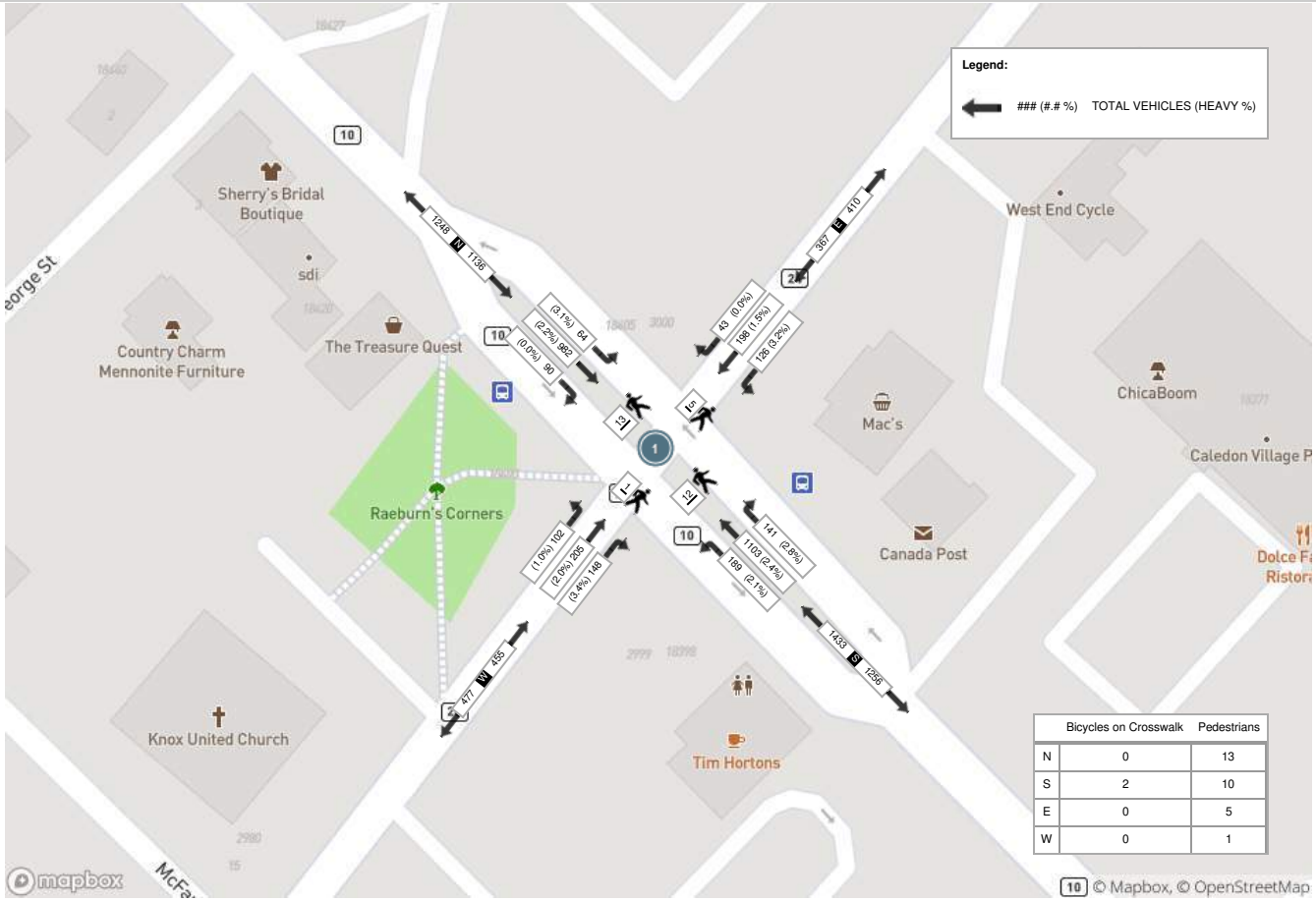
The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 01:45 PM - 02:45 PM Weather: Clear Sky (9.65 °C)

Start Time	N Approach HURONTARIO ST						E Approach CHARLESTON SIDEROAD						S Approach HURONTARIO ST						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
13:45:00	25	266	9	0	2	300	13	44	26	0	2	83	44	254	49	0	8	347	35	53	23	0	0	111	841
14:00:00	29	241	11	0	3	281	7	53	31	0	1	91	33	302	37	0	0	372	42	52	24	0	0	118	862
14:15:00	23	265	19	1	4	308	11	53	33	0	1	97	31	260	40	0	3	331	32	55	35	0	1	122	858
14:30:00	13	210	25	0	4	248	12	48	36	0	1	96	33	287	63	0	1	383	39	45	20	0	0	104	831
Grand Total	90	982	64	1	13	1137	43	198	126	0	5	367	141	1103	189	0	12	1433	148	205	102	0	1	455	**3392**
Approach%	7.9%	86.4%	5.6%	0.1%		-	11.7%	54%	34.3%	0%		-	9.8%	77%	13.2%	0%		-	32.5%	45.1%	22.4%	0%		-	**-**
Totals %	2.7%	29%	1.9%	0%		33.5%	1.3%	5.8%	3.7%	0%		10.8%	4.2%	32.5%	5.6%	0%		42.2%	4.4%	6%	3%	0%		13.4%	**-**
PHF	0.78	0.92	0.64	0.25		0.92	0.83	0.93	0.88	0		0.95	0.8	0.91	0.75	0		0.94	0.88	0.93	0.73	0		0.93	**-**
Heavy	0	22	2	0		24	0	3	4	0		7	4	26	4	0		34	5	4	1	0		10	**-**
Heavy %	0%	2.2%	3.1%	0%		2.1%	0%	1.5%	3.2%	0%		1.9%	2.8%	2.4%	2.1%	0%		2.4%	3.4%	2%	1%	0%		2.2%	**-**
Lights	90	960	62	1		1113	43	195	122	0		360	137	1077	185	0		1399	143	201	101	0		445	**-**
Lights %	100%	97.8%	96.9%	100%		97.9%	100%	98.5%	96.8%	0%		98.1%	97.2%	97.6%	97.9%	0%		97.6%	96.6%	98%	99%	0%		97.8%	**-**
Single-Unit Trucks	0	10	1	0		11	0	0	4	0		4	2	4	3	0		9	1	1	1	0		3	**-**
Single-Unit Trucks %	0%	1%	1.6%	0%		1%	0%	0%	3.2%	0%		1.1%	1.4%	0.4%	1.6%	0%		0.6%	0.7%	0.5%	1%	0%		0.7%	**-**
Articulated Trucks	0	6	0	0		6	0	3	0	0		3	1	8	0	0		9	0	3	0	0		3	**-**
Articulated Trucks %	0%	0.6%	0%	0%		0.5%	0%	1.5%	0%	0%		0.8%	0.7%	0.7%	0%	0%		0.6%	0%	1.5%	0%	0%		0.7%	**-**
Aggregate Trucks	0	6	1	0		7	0	0	0	0		0	1	14	1	0		16	4	0	0	0		4	**-**
Aggregate Trucks %	0%	0.6%	1.6%	0%		0.6%	0%	0%	0%	0%		0%	0.7%	1.3%	0.5%	0%		1.1%	2.7%	0%	0%	0%		0.9%	**-**
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%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	13	-	-	-	-	-	5	-	-	-	-	-	10	-	-	-	-	-	1	-	**-**
Pedestrians%	-	-	-	-	41.9%		-	-	-	-	16.1%		-	-	-	-	32.3%		-	-	-	-	3.2%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	6.5%		-	-	-	-	0%		**-**

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 01:45 PM - 02:45 PM Weather: Clear Sky (9.65 °C)



Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & MISSISSAUGA RD
Date: Thu, Nov 05, 2020 Deployment Lead: Theo Daglis

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Turning Movement Count (3 . CHARLESTON SIDEROAD & MISSISSAUGA RD) CustID: 02413835 MioID:

Start Time	N Approach MISSISSAUGA ROAD						E Approach CHARLESTON SIDEROAD						S Approach MISSISSAUGA ROAD						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	0	1	0	0	0	1	0	42	3	0	0	45	2	0	0	0	0	2	1	50	0	0	0	51	99	
06:15:00	1	3	1	0	0	5	1	40	8	0	0	49	5	0	0	0	0	5	0	62	0	0	0	62	121	
06:30:00	1	2	2	0	0	5	1	41	2	0	0	44	5	0	1	1	0	7	0	60	0	0	0	60	116	
06:45:00	2	1	1	0	0	4	0	48	8	0	0	56	4	0	1	0	0	5	3	56	3	0	0	62	127	463
07:00:00	1	4	4	0	0	9	0	51	5	0	0	56	4	1	0	0	0	5	1	68	0	0	0	69	139	503
07:15:00	0	3	3	0	0	6	0	43	4	0	0	47	3	1	2	0	0	6	3	68	1	0	0	72	131	513
07:30:00	2	2	1	0	0	5	3	61	4	0	0	68	7	1	0	0	0	8	2	66	2	0	0	70	151	548
07:45:00	1	2	0	0	0	3	0	54	6	0	0	60	6	0	1	0	0	7	3	68	2	0	0	73	143	564
08:00:00	3	3	6	0	0	12	1	51	6	0	0	58	4	0	3	0	0	7	1	72	1	0	0	74	151	576
08:15:00	3	2	2	0	0	7	8	55	6	0	0	69	4	1	1	0	0	6	0	76	0	0	0	76	158	603
08:30:00	3	1	0	0	0	4	0	56	7	0	0	63	6	0	2	0	0	8	1	78	0	0	0	79	154	606
08:45:00	3	1	2	0	0	6	1	59	6	0	0	66	6	0	2	0	0	8	2	69	1	0	0	72	152	615
09:00:00	1	1	1	0	0	3	1	55	7	0	0	63	10	0	2	0	0	12	3	58	2	0	0	63	141	605
09:15:00	4	0	0	0	0	4	0	45	5	0	0	50	6	2	0	0	0	8	1	66	0	0	0	67	129	576
09:30:00	2	0	4	0	0	6	1	41	9	0	0	51	8	1	1	0	0	10	1	61	2	0	0	64	131	553
09:45:00	2	2	2	0	0	6	1	51	1	0	0	53	4	0	1	0	0	5	1	53	0	0	0	54	118	519
10:00:00	5	2	0	0	0	7	0	52	7	0	0	59	5	0	1	0	0	6	1	86	3	0	0	90	162	540
10:15:00	1	1	1	0	0	3	1	44	8	0	0	53	7	1	1	0	0	9	0	61	1	0	0	62	127	538
10:30:00	3	1	0	0	0	4	2	51	5	0	0	58	6	3	1	0	0	10	3	44	1	0	0	48	120	527
10:45:00	2	2	0	0	0	4	1	68	8	0	0	77	7	0	1	1	0	9	1	58	2	0	0	61	151	560
11:00:00	2	0	3	0	0	5	3	59	6	0	0	68	5	0	3	0	0	8	1	52	0	0	0	53	134	532
11:15:00	1	2	0	0	0	3	0	61	7	0	0	68	6	5	2	0	0	13	2	70	3	0	0	75	159	564
11:30:00	1	0	1	0	0	2	0	39	2	0	0	41	7	2	1	0	0	10	4	66	2	0	0	72	125	569
11:45:00	0	0	0	0	0	0	1	72	4	0	0	77	6	1	2	0	0	9	2	47	1	0	0	50	136	554
12:00:00	2	2	1	0	0	5	0	45	5	0	0	50	5	3	4	0	0	12	0	65	2	0	0	67	134	554
12:15:00	2	2	1	0	0	5	1	56	8	0	0	65	8	2	1	0	0	11	7	63	1	0	0	71	152	547
12:30:00	5	0	4	0	0	9	1	52	4	0	0	57	8	2	2	0	0	12	2	55	2	0	0	59	137	559
12:45:00	1	2	1	0	0	4	3	66	10	0	0	79	9	1	1	0	0	11	0	49	2	0	0	51	145	568
13:00:00	2	2	1	0	0	5	2	57	5	0	0	64	6	1	4	0	0	11	3	80	3	1	0	87	167	601
13:15:00	8	0	1	0	0	9	0	57	4	0	0	61	10	1	0	0	0	11	4	58	2	0	0	64	145	594
13:30:00	2	2	0	0	0	4	3	69	6	0	0	78	7	2	0	1	0	10	1	49	2	0	0	52	144	601
13:45:00	0	1	0	0	0	1	0	78	4	1	0	83	8	1	1	0	0	10	2	57	5	0	0	64	158	614
14:00:00	4	5	1	0	0	10	2	61	6	0	0	69	5	3	0	0	0	8	1	82	2	0	0	85	172	619
14:15:00	1	1	3	0	0	5	4	61	6	0	0	71	8	2	1	1	0	12	1	63	3	0	0	67	155	629
14:30:00	2	5	0	0	0	7	1	66	10	0	0	77	8	1	2	0	0	11	1	65	1	0	0	67	162	647
14:45:00	1	0	2	0	0	3	3	64	6	0	0	73	7	4	1	0	0	12	2	68	2	0	0	72	160	649
15:00:00	0	0	1	0	0	1	2	82	5	0	0	89	6	3	3	0	0	12	0	73	3	0	0	76	178	655
15:15:00	1	4	2	0	0	7	1	70	6	0	0	77	13	2	5	1	0	21	0	72	5	0	0	77	182	682
15:30:00	12	0	1	0	0	13	4	86	6	0	0	96	5	2	1	0	0	8	2	68	2	0	0	72	189	709
15:45:00	2	0	1	0	0	3	2	85	0	0	0	87	5	4	2	0	0	11	1	78	4	0	0	83	184	733
16:00:00	0	1	1	0	0	2	0	90	2	0	0	92	6	5	5	0	0	16	1	74	4	0	0	79	189	744
16:15:00	1	2	3	0	0	6	2	109	2	0	0	113	6	3	0	0	0	9	0	84	2	0	0	86	214	776
16:30:00	4	2	9	0	0	15	2	101	2	0	0	105	4	3	1	0	0	8	1	78	4	0	0	83	211	798
16:45:00	3	2	0	0	0	5	5	85	2	0	0	92	7	4	3	0	0	14	1	87	2	0	0	90	201	815
17:00:00	1	0	1	0	0	2	0	78	1	0	0	79	4	3	1	0	0	8	1	71	0	0	0	72	161	787

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

17:15:00	0	0	1	0	0	1	2	106	1	0	0	109	2	1	2	0	0	5	1	93	4	0	0	98	213	786
17:30:00	1	2	0	0	0	3	2	85	3	0	0	90	8	5	1	0	0	14	1	82	2	0	0	85	192	767
17:45:00	3	1	1	0	0	5	2	75	1	0	0	78	2	3	2	0	0	7	1	72	5	0	0	78	168	734
Grand Total	102	72	70	0	0	244	70	3023	239	1	0	3333	290	80	72	5	0	447	71	3201	91	1	0	3364	**7388**	-
Approach%	41.8%	29.5%	28.7%	0%		-	2.1%	90.7%	7.2%	0%		-	64.9%	17.9%	16.1%	1.1%		-	2.1%	95.2%	2.7%	0%		-	**-**	-
Totals %	1.4%	1%	0.9%	0%		3.3%	0.9%	40.9%	3.2%	0%		45.1%	3.9%	1.1%	1%	0.1%		6.1%	1%	43.3%	1.2%	0%		45.5%	**-**	-
Heavy	4	1	7	0		-	6	538	143	0		-	159	1	14	1		-	15	505	4	0		-	**-**	-
Heavy %	3.9%	1.4%	10%	0%		-	8.6%	17.8%	59.8%	0%		-	54.8%	1.3%	19.4%	20%		-	21.1%	15.8%	4.4%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & MISSISSAUGA RD
Date: Thu, Nov 05, 2020 Deployment Lead: Theo Daglis

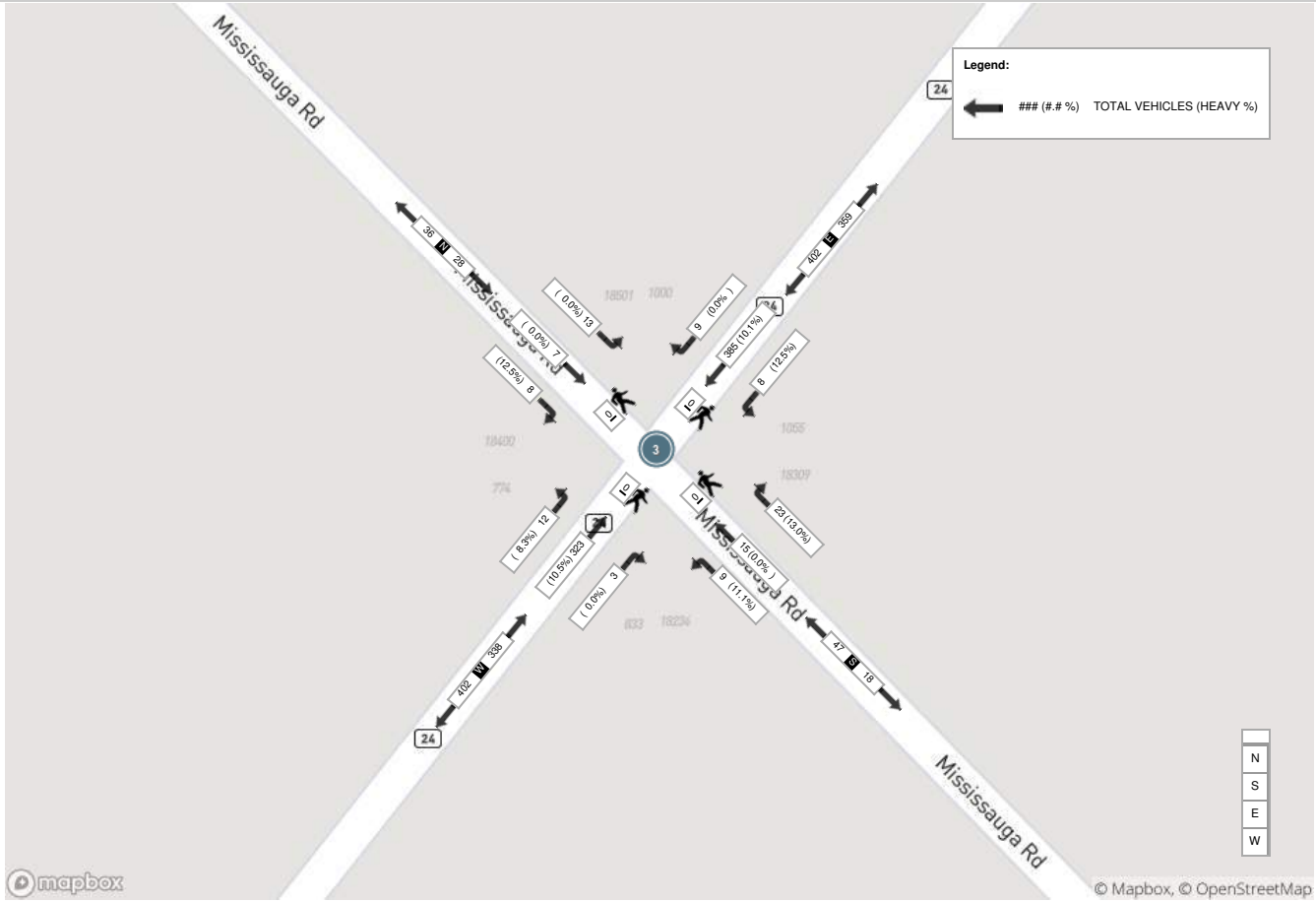
The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 04:00 PM - 05:00 PM Weather: Clear Sky (10.35 °C)

Start Time	N Approach MISSISSAUGA ROAD						E Approach CHARLESTON SIDEROAD						S Approach MISSISSAUGA ROAD						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:00:00	0	1	1	0	0	2	0	90	2	0	0	92	6	5	5	0	0	16	1	74	4	0	0	79	189
16:15:00	1	2	3	0	0	6	2	109	2	0	0	113	6	3	0	0	0	9	0	84	2	0	0	86	214
16:30:00	4	2	9	0	0	15	2	101	2	0	0	105	4	3	1	0	0	8	1	78	4	0	0	83	211
16:45:00	3	2	0	0	0	5	5	85	2	0	0	92	7	4	3	0	0	14	1	87	2	0	0	90	201
Grand Total	8	7	13	0	0	28	9	385	8	0	0	402	23	15	9	0	0	47	3	323	12	0	0	338	**815**
Approach%	28.6%	25%	46.4%	0%		-	2.2%	95.8%	2%	0%		-	48.9%	31.9%	19.1%	0%		-	0.9%	95.6%	3.6%	0%		-	-
Totals %	1%	0.9%	1.6%	0%		3.4%	1.1%	47.2%	1%	0%		49.3%	2.8%	1.8%	1.1%	0%		5.8%	0.4%	39.6%	1.5%	0%		41.5%	-
PHF	0.5	0.88	0.36	0		0.47	0.45	0.88	1	0		0.89	0.82	0.75	0.45	0		0.73	0.75	0.93	0.75	0		0.94	-
Heavy	1	0	0	0		1	0	39	1	0		40	3	0	1	0		4	0	34	1	0		35	-
Heavy %	12.5%	0%	0%	0%		3.6%	0%	10.1%	12.5%	0%		10%	13%	0%	11.1%	0%		8.5%	0%	10.5%	8.3%	0%		10.4%	-
Lights	7	7	13	0		27	9	346	7	0		362	20	15	8	0		43	3	289	11	0		303	-
Lights %	87.5%	100%	100%	0%		96.4%	100%	89.9%	87.5%	0%		90%	87%	100%	88.9%	0%		91.5%	100%	89.5%	91.7%	0%		89.6%	-
Single-Unit Trucks	0	0	0	0		0	0	12	1	0		13	1	0	0	0		1	0	4	0	0		4	-
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	3.1%	12.5%	0%		3.2%	4.3%	0%	0%	0%		2.1%	0%	1.2%	0%	0%		1.2%	-
Buses	1	0	0	0		1	0	3	0	0		3	0	0	1	0		1	0	0	1	0		1	-
Buses %	12.5%	0%	0%	0%		3.6%	0%	0.8%	0%	0%		0.7%	0%	0%	11.1%	0%		2.1%	0%	0%	8.3%	0%		0.3%	-
Articulated Trucks	0	0	0	0		0	0	17	0	0		17	0	0	0	0		0	0	22	0	0		22	-
Articulated Trucks %	0%	0%	0%	0%		0%	0%	4.4%	0%	0%		4.2%	0%	0%	0%	0%		0%	0%	6.8%	0%	0%		6.5%	-
Aggregate Trucks	0	0	0	0		0	0	7	0	0		7	2	0	0	0		2	0	8	0	0		8	-
Aggregate Trucks %	0%	0%	0%	0%		0%	0%	1.8%	0%	0%		1.7%	8.7%	0%	0%	0%		4.3%	0%	2.5%	0%	0%		2.4%	-
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%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 04:00 PM - 05:00 PM Weather: Clear Sky (10.35 °C)



Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & MISSISSAUGA RD
Date: Sat, Nov 07, 2020 Deployment Lead: Theo Daglis

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Turning Movement Count (3 . CHARLESTON SIDEROAD & MISSISSAUGA RD) CustID: 02413835 MioID:

Start Time	N Approach MISSISSAUGA ROAD						E Approach CHARLESTON SIDEROAD						S Approach MISSISSAUGA ROAD						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	0	0	0	0	0	0	0	9	0	0	0	9	0	0	0	0	0	0	0	20	0	0	0	20	29	
06:15:00	1	0	0	0	0	1	0	15	0	0	0	15	0	0	0	0	0	0	0	16	0	0	0	16	32	
06:30:00	1	0	1	0	0	2	0	13	0	0	0	13	0	0	0	0	0	0	0	18	1	0	0	19	34	
06:45:00	0	0	0	0	0	0	0	17	0	0	0	17	1	1	0	0	0	2	0	19	1	0	0	20	39	134
07:00:00	0	0	2	0	0	2	0	24	0	0	0	24	3	0	1	0	0	4	0	27	0	0	0	27	57	162
07:15:00	2	0	1	0	0	3	3	11	2	0	0	16	0	0	0	0	0	0	0	45	1	0	0	46	65	195
07:30:00	1	1	0	0	0	2	0	33	0	0	0	33	2	0	0	0	0	2	0	24	0	0	0	24	61	222
07:45:00	1	0	0	0	0	1	0	24	1	0	0	25	0	0	1	0	0	1	1	36	0	0	0	37	64	247
08:00:00	0	0	0	0	0	0	0	36	3	0	0	39	2	0	1	0	0	3	0	42	1	0	0	43	85	275
08:15:00	2	0	3	0	0	5	2	37	1	0	0	40	0	0	0	0	0	0	0	63	1	0	0	64	109	319
08:30:00	2	0	0	0	0	2	3	32	0	0	0	35	4	2	0	0	0	6	0	59	0	0	0	59	102	360
08:45:00	1	0	0	0	0	1	0	40	1	0	0	41	5	1	0	0	0	6	0	70	0	0	0	70	118	414
09:00:00	0	1	0	0	0	1	1	42	1	0	0	44	1	0	0	0	0	1	1	56	2	0	0	59	105	434
09:15:00	2	0	3	0	0	5	1	52	2	0	0	55	3	3	3	0	0	9	0	67	0	0	0	67	136	461
09:30:00	5	1	1	0	0	7	2	51	1	0	0	54	1	3	1	0	0	5	1	62	2	0	0	65	131	490
09:45:00	1	0	3	0	0	4	1	74	0	0	0	75	2	1	1	0	0	4	1	93	0	0	0	94	177	549
10:00:00	2	0	3	0	0	5	0	56	0	0	0	56	4	0	0	0	0	4	1	74	1	0	0	76	141	585
10:15:00	0	1	2	0	0	3	1	54	1	0	0	56	5	1	5	0	0	11	1	74	3	0	0	78	148	597
10:30:00	1	1	0	0	0	2	1	79	3	1	0	84	6	0	0	0	0	6	1	99	3	0	0	103	195	661
10:45:00	2	4	2	0	0	8	1	67	1	0	0	69	4	4	1	0	0	9	3	78	1	0	0	82	168	652
11:00:00	6	2	3	0	0	11	0	61	3	0	0	64	8	1	0	1	0	10	3	83	5	0	0	91	176	687
11:15:00	3	1	3	0	0	7	4	75	5	0	0	84	17	4	1	1	0	23	1	84	4	0	0	89	203	742
11:30:00	3	1	5	0	0	9	2	71	2	0	0	75	9	4	3	0	0	16	0	89	7	0	0	96	196	743
11:45:00	5	3	2	0	0	10	4	92	3	0	0	99	8	6	1	0	0	15	3	79	1	0	0	83	207	782
12:00:00	2	1	4	0	0	7	2	83	2	0	0	87	11	3	3	0	0	17	1	66	6	0	0	73	184	790
12:15:00	5	5	2	0	0	12	5	84	3	0	1	92	7	5	1	0	0	13	2	87	1	0	0	90	207	794
12:30:00	1	3	1	0	0	5	1	86	8	0	0	95	6	3	0	0	0	9	1	90	2	0	0	93	202	800
12:45:00	3	3	1	0	0	7	2	83	1	0	0	86	8	0	3	0	0	11	1	84	3	0	0	88	192	785
13:00:00	5	0	5	0	0	10	3	80	6	0	0	89	7	4	2	0	0	13	4	92	3	0	0	99	211	812
13:15:00	5	2	0	0	0	7	2	82	4	0	0	88	4	2	5	0	0	11	3	73	4	0	0	80	186	791
13:30:00	0	1	4	0	0	5	1	91	6	0	0	98	11	9	5	0	0	25	1	80	8	0	0	89	217	806
13:45:00	4	3	1	0	0	8	3	74	7	0	0	84	10	4	5	1	0	20	1	103	3	0	0	107	219	833
14:00:00	3	3	3	0	0	9	3	95	5	0	0	103	11	5	4	0	0	20	6	86	5	0	0	97	229	851
14:15:00	4	3	2	0	0	9	0	93	4	0	0	97	4	1	1	0	0	6	1	83	5	0	0	89	201	866
14:30:00	4	1	2	0	0	7	4	88	3	1	0	96	14	3	3	0	0	20	2	93	2	0	0	97	220	869
14:45:00	4	3	1	0	0	8	1	96	2	0	0	99	9	6	4	0	0	19	4	88	8	0	0	100	226	876
15:00:00	5	1	3	0	0	9	3	81	2	0	0	86	11	3	11	0	0	25	3	75	5	0	0	83	203	850
15:15:00	5	1	3	0	0	9	1	91	4	0	0	96	12	4	4	2	0	22	4	75	3	0	0	82	209	858
15:30:00	4	0	3	0	0	7	1	92	5	0	0	98	8	3	4	0	0	15	3	72	8	0	0	83	203	841
15:45:00	4	1	2	0	0	7	2	90	8	0	0	100	4	1	0	0	0	5	0	79	3	0	0	82	194	809
16:00:00	1	3	2	0	0	6	0	100	4	0	0	104	6	4	1	0	0	11	0	86	2	0	0	88	209	815
16:15:00	4	3	2	0	0	9	1	83	1	0	0	85	8	2	0	0	0	10	1	77	0	0	0	78	182	788
16:30:00	1	0	1	0	0	2	1	82	4	0	0	87	6	2	1	0	0	9	2	93	0	0	0	95	193	778
16:45:00	4	1	2	0	0	7	2	81	2	0	0	85	9	3	3	0	0	15	1	90	1	1	0	93	200	784
17:00:00	5	0	2	0	0	7	1	75	3	0	0	79	4	2	5	0	0	11	0	51	3	0	0	54	151	726

17:15:00	1	4	1	0	0	6	0	78	2	0	0	80	1	4	1	0	0	6	3	73	0	0	0	76	168	712
17:30:00	3	4	2	0	0	9	0	65	3	0	0	68	7	0	3	0	0	10	2	81	0	0	0	83	170	689
17:45:00	1	0	1	0	0	2	2	62	2	0	0	66	0	0	1	0	0	1	1	53	2	0	0	56	125	614
Grand Total	119	62	84	0	0	265	67	3080	121	2	1	3270	263	104	89	5	0	461	64	3307	111	1	0	3483	**7479**	-
Approach%	44.9%	23.4%	31.7%	0%		-	2%	94.2%	3.7%	0.1%		-	57%	22.6%	19.3%	1.1%		-	1.8%	94.9%	3.2%	0%		-	**-**	-
Totals %	1.6%	0.8%	1.1%	0%		3.5%	0.9%	41.2%	1.6%	0%		43.7%	3.5%	1.4%	1.2%	0.1%		6.2%	0.9%	44.2%	1.5%	0%		46.6%	**-**	-
Heavy	2	3	5	0		-	1	107	3	0		-	2	3	1	0		-	2	103	3	0		-	**-**	-
Heavy %	1.7%	4.8%	6%	0%		-	1.5%	3.5%	2.5%	0%		-	0.8%	2.9%	1.1%	0%		-	3.1%	3.1%	2.7%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & MISSISSAUGA RD
Date: Sat, Nov 07, 2020 Deployment Lead: Theo Daglis

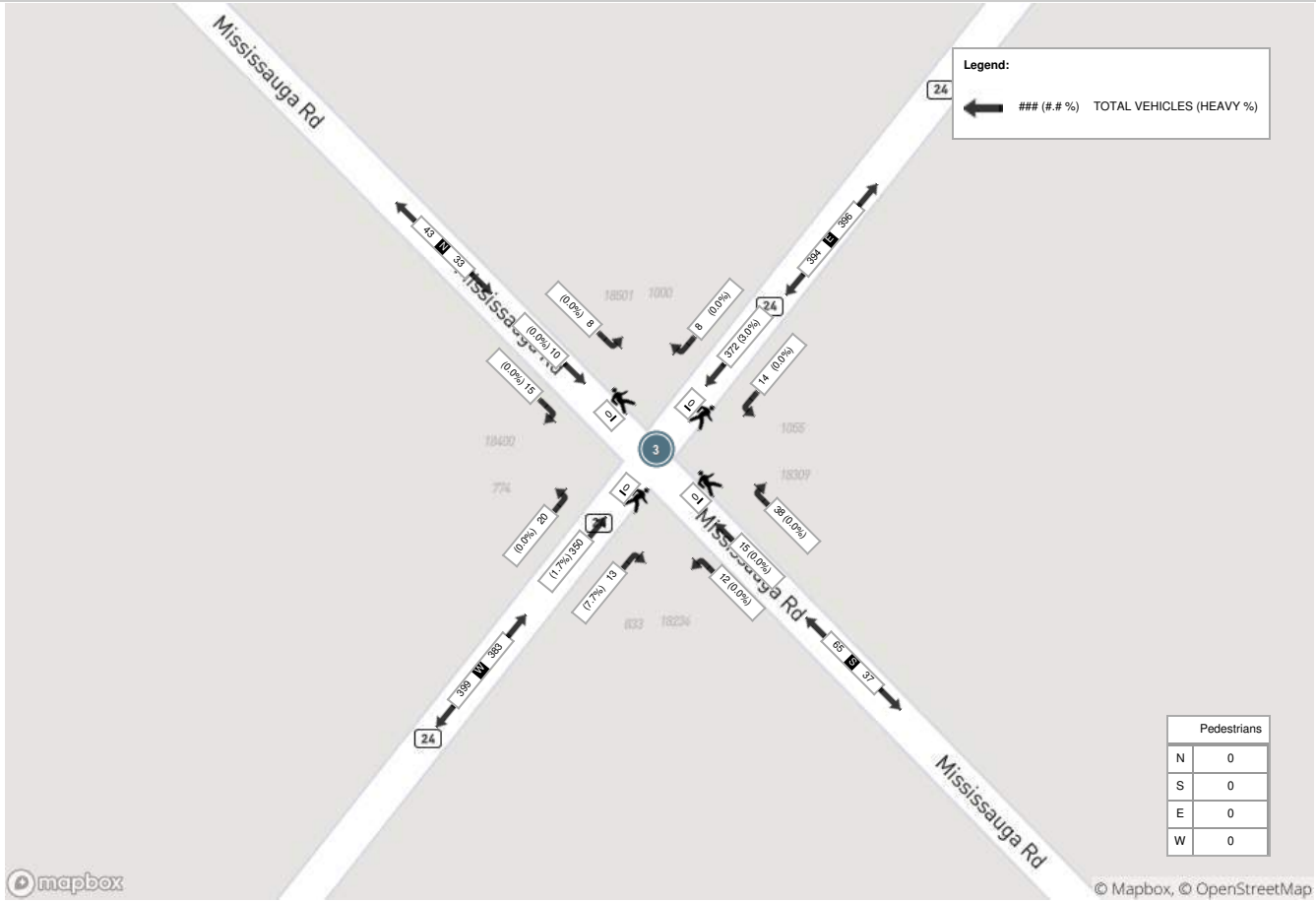
The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 02:00 PM - 03:00 PM Weather: Clear Sky (9.65 °C)

Start Time	N Approach MISSISSAUGA ROAD						E Approach CHARLESTON SIDEROAD						S Approach MISSISSAUGA ROAD						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
14:00:00	3	3	3	0	0	9	3	95	5	0	0	103	11	5	4	0	0	20	6	86	5	0	0	97	229
14:15:00	4	3	2	0	0	9	0	93	4	0	0	97	4	1	1	0	0	6	1	83	5	0	0	89	201
14:30:00	4	1	2	0	0	7	4	88	3	1	0	96	14	3	3	0	0	20	2	93	2	0	0	97	220
14:45:00	4	3	1	0	0	8	1	96	2	0	0	99	9	6	4	0	0	19	4	88	8	0	0	100	226
Grand Total	15	10	8	0	0	33	8	372	14	1	0	395	38	15	12	0	0	65	13	350	20	0	0	383	**876**
Approach%	45.5%	30.3%	24.2%	0%		-	2%	94.2%	3.5%	0.3%		-	58.5%	23.1%	18.5%	0%		-	3.4%	91.4%	5.2%	0%		-	-
Totals %	1.7%	1.1%	0.9%	0%		3.8%	0.9%	42.5%	1.6%	0.1%		45.1%	4.3%	1.7%	1.4%	0%		7.4%	1.5%	40%	2.3%	0%		43.7%	-
PHF	0.94	0.83	0.67	0		0.92	0.5	0.97	0.7	0.25		0.96	0.68	0.63	0.75	0		0.81	0.54	0.94	0.63	0		0.96	-
Heavy	0	0	0	0		0	0	11	0	0		11	0	0	0	0		0	1	6	0	0		7	-
Heavy %	0%	0%	0%	0%		0%	0%	3%	0%	0%		2.8%	0%	0%	0%	0%		0%	7.7%	1.7%	0%	0%		1.8%	-
Lights	15	10	8	0		33	8	360	14	1		383	38	15	12	0		65	12	344	20	0		376	-
Lights %	100%	100%	100%	0%		100%	100%	96.8%	100%	100%		97%	100%	100%	100%	0%		100%	92.3%	98.3%	100%	0%		98.2%	-
Single-Unit Trucks	0	0	0	0		0	0	8	0	0		8	0	0	0	0		0	0	4	0	0		4	-
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	2.2%	0%	0%		2%	0%	0%	0%	0%		0%	0%	1.1%	0%	0%		1%	-
Articulated Trucks	0	0	0	0		0	0	2	0	0		2	0	0	0	0		0	0	1	0	0		1	-
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.5%	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.3%	-
Aggregate Trucks	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	1	1	0	0		2	-
Aggregate Trucks %	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.3%	0%	0%	0%	0%		0%	7.7%	0.3%	0%	0%		0.5%	-
Bicycles on Road	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	-
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.3%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 02:00 PM - 03:00 PM Weather: Clear Sky (9.65 °C)



Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & REGIONAL RD 136 / MAIN ST
Date: Thu, Nov 05, 2020 Deployment Lead: Theo Daglis

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Turning Movement Count (2 . CHARLESTON SIDEROAD & REGIONAL RD 136 / MAIN ST) CustID: 02412429 MioID:

Start Time	N Approach MAIN ST						E Approach CHARLESTON SIDE RD						S Approach CATARACT RD						W Approach CHARLESTON SIDE RD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	5	0	12	0	0	17	1	40	0	0	0	41	1	0	0	0	0	1	0	54	0	0	0	54	113	
06:15:00	6	0	13	0	0	19	3	44	0	0	0	47	0	1	0	0	0	1	0	66	1	0	0	67	134	
06:30:00	3	0	19	0	0	22	1	40	1	0	0	42	0	1	0	0	0	1	0	61	2	0	0	63	128	
06:45:00	4	0	11	0	0	15	5	56	0	0	0	61	0	1	0	0	0	1	0	58	7	0	0	65	142	517
07:00:00	8	1	12	0	0	21	3	46	0	0	0	49	1	0	0	0	0	1	1	72	3	0	0	76	147	551
07:15:00	4	0	15	0	0	19	3	43	0	0	0	46	1	2	2	0	0	5	3	61	7	0	0	71	141	558
07:30:00	7	1	19	0	0	27	4	58	1	0	0	63	3	1	0	0	0	4	1	72	4	0	0	77	171	601
07:45:00	9	0	6	0	0	15	8	54	0	0	0	62	1	0	6	0	0	7	1	58	10	0	0	69	153	612
08:00:00	4	1	14	0	0	19	3	52	1	0	0	56	0	1	1	0	0	2	4	68	8	0	0	80	157	622
08:15:00	6	3	8	0	0	17	11	53	0	0	0	64	2	2	2	0	0	6	2	72	4	0	0	78	165	646
08:30:00	3	1	8	0	0	12	10	61	0	0	0	71	1	1	1	0	0	3	4	74	12	0	0	90	176	651
08:45:00	6	3	8	0	0	17	6	52	0	0	0	58	1	2	1	0	0	4	2	65	5	0	0	72	151	649
09:00:00	3	2	3	0	0	8	12	63	1	0	0	76	3	1	1	0	0	5	3	65	6	0	0	74	163	655
09:15:00	2	1	11	0	0	14	15	52	1	0	0	68	0	1	2	0	0	3	1	62	8	0	0	71	156	646
09:30:00	2	3	7	0	0	12	13	44	2	0	0	59	3	2	2	0	0	7	0	68	11	0	0	79	157	627
09:45:00	6	0	0	0	0	6	20	42	0	0	0	62	1	1	2	0	0	4	0	54	4	0	0	58	130	606
10:00:00	7	1	7	0	0	15	11	55	5	0	0	71	1	0	0	1	0	2	1	78	9	0	0	88	176	619
10:15:00	4	1	3	0	0	8	12	49	2	0	0	63	1	3	0	0	0	4	3	54	12	0	0	69	144	607
10:30:00	4	3	6	0	0	13	9	53	2	0	0	64	2	2	2	0	0	6	3	47	8	0	0	58	141	591
10:45:00	6	1	4	0	0	11	10	75	1	0	1	86	2	2	2	0	0	6	1	52	11	0	0	64	167	628
11:00:00	5	3	11	0	0	19	11	59	2	0	0	72	1	2	3	0	0	6	3	57	4	0	0	64	161	613
11:15:00	6	3	8	0	0	17	20	53	5	0	1	78	2	0	2	0	0	4	2	55	15	0	0	72	171	640
11:30:00	6	2	10	0	0	18	12	34	0	0	1	46	4	4	1	0	0	9	2	58	9	0	1	69	142	641
11:45:00	7	3	4	0	0	14	12	67	0	0	0	79	2	1	3	0	0	6	1	52	5	0	0	58	157	631
12:00:00	5	2	6	0	0	13	14	46	0	0	4	60	0	1	0	0	2	1	4	62	5	0	2	71	145	615
12:15:00	13	3	6	0	0	22	10	52	1	0	0	63	3	1	2	0	0	6	5	63	5	0	0	73	164	608
12:30:00	5	3	13	0	0	21	12	54	3	0	0	69	0	3	1	0	2	4	4	62	2	0	0	68	162	628
12:45:00	7	2	5	0	0	14	10	66	0	0	0	76	1	3	1	0	0	5	1	49	8	0	2	58	153	624
13:00:00	7	2	6	0	0	15	12	59	2	0	0	73	2	3	0	0	0	5	2	64	16	0	0	82	175	654
13:15:00	6	3	9	0	0	18	10	57	2	0	0	69	2	3	0	0	0	5	3	58	13	0	0	74	166	656
13:30:00	10	4	9	0	0	23	12	71	0	0	0	83	1	1	1	0	0	3	2	47	7	0	0	56	165	659
13:45:00	11	3	17	0	0	31	11	65	2	0	0	78	4	7	1	0	0	12	0	61	7	0	0	68	189	695
14:00:00	13	3	14	0	0	30	7	55	0	0	0	62	2	2	2	0	0	6	2	74	7	0	0	83	181	701
14:15:00	5	1	12	0	0	18	6	63	1	0	0	70	0	3	0	0	0	3	3	65	7	0	0	75	166	701
14:30:00	10	2	12	0	0	24	15	62	0	0	0	77	2	0	3	0	0	5	4	60	12	0	0	76	182	718
14:45:00	20	0	16	0	0	36	14	55	2	0	0	71	1	3	4	0	0	8	1	71	6	0	0	78	193	722
15:00:00	17	3	24	0	0	44	11	68	2	0	0	81	2	1	3	0	0	6	2	65	7	0	0	74	205	746
15:15:00	12	3	10	0	0	25	7	67	1	0	0	75	2	2	3	0	0	7	3	70	16	0	0	89	196	776
15:30:00	11	1	6	0	0	18	13	77	3	0	0	93	3	2	5	0	0	10	2	61	13	0	0	76	197	791
15:45:00	6	2	11	0	0	19	15	75	3	0	0	93	1	3	4	0	0	8	2	71	8	0	0	81	201	799
16:00:00	10	2	9	0	0	21	18	84	2	0	0	104	1	5	3	0	0	9	2	69	15	0	0	86	220	814
16:15:00	21	2	14	0	0	37	13	84	2	0	0	99	2	1	4	0	0	7	3	76	14	0	0	93	236	854
16:30:00	9	6	16	0	0	31	15	91	1	0	0	107	0	5	4	0	0	9	5	66	14	0	0	85	232	889
16:45:00	10	3	30	0	0	43	14	76	2	0	0	92	1	5	4	0	0	10	10	76	10	0	0	96	241	929
17:00:00	5	3	17	0	0	25	15	69	2	0	0	86	2	6	5	0	0	13	4	66	9	0	0	79	203	912

17:15:00	8	4	15	0	0	27	12	97	3	0	0	112	1	1	6	0	0	8	5	75	13	0	0	93	240	916
17:30:00	9	3	4	0	0	16	10	82	4	0	0	96	0	2	4	0	0	6	4	74	10	0	0	88	206	890
17:45:00	4	5	5	0	0	14	16	62	3	0	0	81	1	3	6	0	0	10	3	66	9	0	0	78	183	832
Grand Total	357	98	505	0	0	960	507	2882	65	0	7	3454	67	97	99	1	4	264	114	3054	398	0	5	3566	**8244**	-
Approach%	37.2%	10.2%	52.6%	0%		-	14.7%	83.4%	1.9%	0%		-	25.4%	36.7%	37.5%	0.4%		-	3.2%	85.6%	11.2%	0%		-	**-**	-
Totals %	4.3%	1.2%	6.1%	0%		11.6%	6.1%	35%	0.8%	0%		41.9%	0.8%	1.2%	1.2%	0%		3.2%	1.4%	37%	4.8%	0%		43.3%	**-**	-
Heavy	13	0	17	0		-	17	670	6	0		-	3	0	7	0		-	1	652	15	0		-	**-**	-
Heavy %	3.6%	0%	3.4%	0%		-	3.4%	23.2%	9.2%	0%		-	4.5%	0%	7.1%	0%		-	0.9%	21.3%	3.8%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & REGIONAL RD 136 / MAIN ST
Date: Thu, Nov 05, 2020 Deployment Lead: Theo Daglis

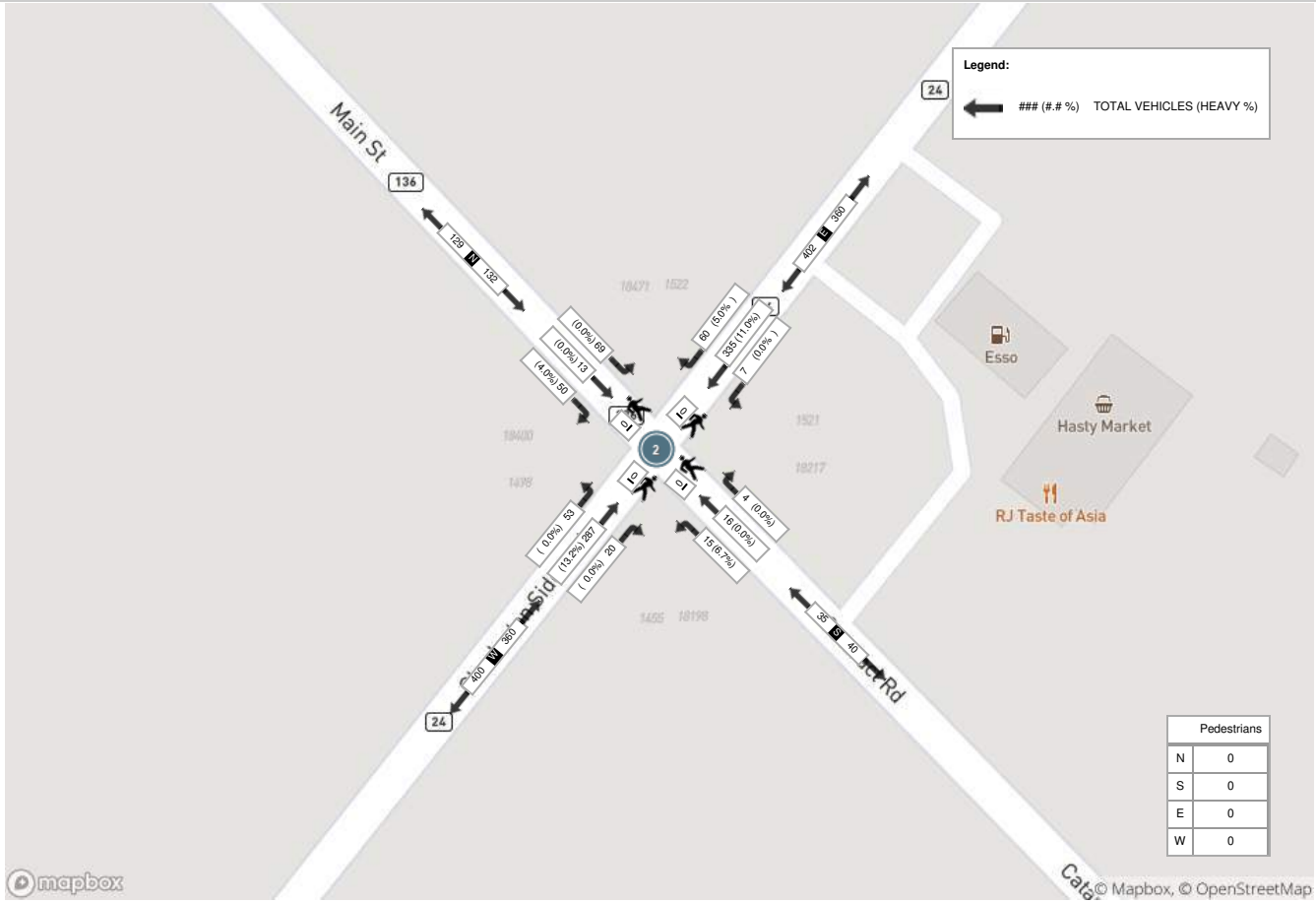
The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 04:00 PM - 05:00 PM Weather: Clear Sky (10.35 °C)

Start Time	N Approach MAIN ST						E Approach CHARLESTON SIDE RD						S Approach CATARACT RD						W Approach CHARLESTON SIDE RD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:00:00	10	2	9	0	0	21	18	84	2	0	0	104	1	5	3	0	0	9	2	69	15	0	0	86	220
16:15:00	21	2	14	0	0	37	13	84	2	0	0	99	2	1	4	0	0	7	3	76	14	0	0	93	236
16:30:00	9	6	16	0	0	31	15	91	1	0	0	107	0	5	4	0	0	9	5	66	14	0	0	85	232
16:45:00	10	3	30	0	0	43	14	76	2	0	0	92	1	5	4	0	0	10	10	76	10	0	0	96	241
Grand Total	50	13	69	0	0	132	60	335	7	0	0	402	4	16	15	0	0	35	20	287	53	0	0	360	**929**
Approach%	37.9%	9.8%	52.3%	0%		-	14.9%	83.3%	1.7%	0%		-	11.4%	45.7%	42.9%	0%		-	5.6%	79.7%	14.7%	0%		-	**-**
Totals %	5.4%	1.4%	7.4%	0%		14.2%	6.5%	36.1%	0.8%	0%		43.3%	0.4%	1.7%	1.6%	0%		3.8%	2.2%	30.9%	5.7%	0%		38.8%	**-**
PHF	0.6	0.54	0.58	0		0.77	0.83	0.92	0.88	0		0.94	0.5	0.8	0.94	0		0.88	0.5	0.94	0.88	0		0.94	**-**
Heavy	2	0	0	0		2	3	37	0	0		40	0	0	1	0		1	0	38	0	0		38	**-**
Heavy %	4%	0%	0%	0%		1.5%	5%	11%	0%	0%		10%	0%	0%	6.7%	0%		2.9%	0%	13.2%	0%	0%		10.6%	**-**
Lights	48	13	69	0		130	57	298	7	0		362	4	16	14	0		34	20	249	53	0		322	**-**
Lights %	96%	100%	100%	0%		98.5%	95%	89%	100%	0%		90%	100%	100%	93.3%	0%		97.1%	100%	86.8%	100%	0%		89.4%	**-**
Single-Unit Trucks	0	0	0	0		0	1	14	0	0		15	0	0	1	0		1	0	5	0	0		5	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	1.7%	4.2%	0%	0%		3.7%	0%	0%	6.7%	0%		2.9%	0%	1.7%	0%	0%		1.4%	**-**
Buses	2	0	0	0		2	2	1	0	0		3	0	0	0	0		0	0	0	0	0		0	**-**
Buses %	4%	0%	0%	0%		1.5%	3.3%	0.3%	0%	0%		0.7%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	0	0	0	0		0	0	17	0	0		17	0	0	0	0		0	0	22	0	0		22	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	5.1%	0%	0%		4.2%	0%	0%	0%	0%		0%	0%	7.7%	0%	0%		6.1%	**-**
Aggregate Trucks	0	0	0	0		0	0	5	0	0		5	0	0	0	0		0	0	11	0	0		11	**-**
Aggregate Trucks %	0%	0%	0%	0%		0%	0%	1.5%	0%	0%		1.2%	0%	0%	0%	0%		0%	0%	3.8%	0%	0%		3.1%	**-**
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%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 04:00 PM - 05:00 PM **Weather: Clear Sky (10.35 °C)**



Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & REGIONAL RD 136 / MAIN ST
Date: Sat, Nov 07, 2020 Deployment Lead: Theo Daglis

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Turning Movement Count (2 . CHARLESTON SIDEROAD & REGIONAL RD 136 / MAIN ST) CustID: 02412429 MioID:

Start Time	N Approach MAIN ST						E Approach CHARLESTON SIDE RD						S Approach CATARACT RD						W Approach CHARLESTON SIDE RD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	0	0	2	0	0	2	0	8	0	0	0	8	0	0	0	0	0	0	0	19	0	0	0	19	29	
06:15:00	1	0	4	0	0	5	4	14	0	0	0	18	0	0	0	0	0	0	0	16	0	0	0	16	39	
06:30:00	0	0	2	0	0	2	2	15	0	0	0	17	0	0	0	0	0	0	0	18	1	0	0	19	38	
06:45:00	1	0	4	0	0	5	3	15	0	0	0	18	0	0	0	0	0	0	0	14	2	0	0	16	39	145
07:00:00	4	0	1	0	0	5	2	20	0	0	0	22	0	0	0	0	0	0	1	32	1	0	0	34	61	177
07:15:00	0	0	4	0	0	4	1	17	0	0	0	18	0	2	0	0	0	2	3	40	3	0	0	46	70	208
07:30:00	2	0	2	0	0	4	3	30	0	0	0	33	0	2	0	0	0	2	2	27	0	0	0	29	68	238
07:45:00	3	1	1	0	0	5	2	27	2	0	0	31	0	1	0	0	0	1	0	32	3	0	0	35	72	271
08:00:00	5	1	5	0	0	11	3	34	0	0	0	37	0	1	2	0	0	3	1	43	3	0	0	47	98	308
08:15:00	2	1	4	0	0	7	10	33	2	0	0	45	2	2	1	0	0	5	1	51	11	0	0	63	120	358
08:30:00	3	0	1	0	0	4	5	33	1	0	0	39	1	0	1	0	0	2	1	50	6	0	0	57	102	392
08:45:00	5	4	6	0	0	15	11	34	2	0	0	47	1	0	1	0	0	2	2	64	10	0	0	76	140	460
09:00:00	4	0	3	0	0	7	7	42	0	0	0	49	2	2	1	0	0	5	2	52	4	0	0	58	119	481
09:15:00	9	3	4	0	0	16	13	37	2	0	0	52	2	1	4	0	0	7	3	64	7	0	0	74	149	510
09:30:00	6	0	6	0	0	12	15	52	3	0	0	70	2	2	2	0	1	6	1	54	12	0	0	67	155	563
09:45:00	5	0	8	0	0	13	19	62	0	0	0	81	0	1	3	0	0	4	0	84	12	0	0	96	194	617
10:00:00	8	2	5	0	0	15	12	53	3	0	0	68	3	3	0	0	0	6	1	62	13	0	0	76	165	663
10:15:00	6	4	4	0	0	14	14	48	5	0	0	67	2	1	1	0	0	4	2	77	8	1	0	88	173	687
10:30:00	9	0	6	0	0	15	21	69	5	0	0	95	11	5	3	0	0	19	8	85	15	0	0	108	237	769
10:45:00	4	5	10	0	0	19	15	62	7	0	0	84	3	2	3	1	0	9	4	74	5	0	0	83	195	770
11:00:00	7	5	9	0	0	21	12	61	2	0	0	75	5	6	3	0	0	14	2	69	15	0	0	86	196	801
11:15:00	8	4	6	0	0	18	12	67	2	0	0	81	5	2	2	0	0	9	4	85	13	0	0	102	210	838
11:30:00	8	6	4	0	0	18	15	67	7	0	0	89	4	1	1	0	0	6	4	86	16	0	0	106	219	820
11:45:00	10	2	6	0	0	18	14	84	7	0	0	105	3	1	4	0	0	8	5	71	12	0	0	88	219	844
12:00:00	13	2	8	0	0	23	28	73	5	0	0	106	7	1	3	0	0	11	1	73	10	0	0	84	224	872
12:15:00	11	3	6	0	0	20	22	75	4	0	0	101	5	4	2	0	0	11	5	70	18	0	0	93	225	887
12:30:00	15	3	10	0	0	28	16	86	9	0	0	111	4	3	3	0	0	10	3	79	13	0	0	95	244	912
12:45:00	8	3	5	0	0	16	7	70	5	0	0	82	1	2	1	0	0	4	5	78	19	0	1	102	204	897
13:00:00	12	3	7	0	0	22	19	80	7	0	0	106	7	5	3	0	0	15	4	82	12	0	0	98	241	914
13:15:00	10	8	9	0	0	27	17	71	1	0	0	89	2	4	3	0	0	9	0	75	7	0	0	82	207	896
13:30:00	14	6	10	0	0	30	17	80	5	0	0	102	3	4	2	0	0	9	4	75	14	0	0	93	234	886
13:45:00	12	5	17	0	0	34	14	65	7	0	0	86	2	5	2	0	0	9	4	81	19	0	0	104	233	915
14:00:00	15	4	15	0	0	34	13	87	8	0	0	108	4	5	1	0	0	10	5	86	11	0	0	102	254	928
14:15:00	15	4	12	0	0	31	14	83	6	0	0	103	2	5	3	0	0	10	2	77	12	0	0	91	235	956
14:30:00	14	7	12	0	0	33	14	77	7	0	0	98	4	1	2	0	0	7	5	77	24	0	0	106	244	966
14:45:00	16	6	32	0	0	54	14	82	0	0	0	96	3	5	2	0	0	10	7	84	14	0	0	105	265	998
15:00:00	6	8	15	0	0	29	14	70	3	0	0	87	8	4	8	0	0	20	3	70	11	0	0	84	220	964
15:15:00	10	6	16	0	0	32	18	84	6	0	0	108	2	2	5	0	0	9	3	80	11	0	0	94	243	972
15:30:00	14	4	12	0	0	30	10	79	3	0	0	92	5	2	2	0	0	9	2	71	11	0	0	84	215	943
15:45:00	9	6	25	0	0	40	10	85	8	0	0	103	4	2	4	0	0	10	2	63	10	0	0	75	228	906
16:00:00	18	3	14	0	0	35	17	85	5	0	0	107	5	7	0	0	0	12	2	88	13	0	0	103	257	943
16:15:00	12	3	14	0	0	29	12	72	5	0	0	89	2	3	3	0	0	8	6	75	4	0	0	85	211	911
16:30:00	15	4	27	0	0	46	4	72	2	0	0	78	3	3	0	0	0	6	7	84	8	0	0	99	229	925
16:45:00	6	1	24	0	0	31	9	78	3	0	0	90	1	2	1	0	0	4	3	92	11	0	0	106	231	928
17:00:00	8	9	21	0	0	38	8	69	1	0	0	78	7	1	1	0	0	9	3	43	7	0	0	53	178	849

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

17:15:00	9	4	20	0	0	33	6	66	2	0	0	74	3	1	3	0	0	7	3	67	3	0	0	73	187	825
17:30:00	15	3	9	0	0	27	6	54	0	0	0	60	3	1	4	0	0	8	5	68	16	0	0	89	184	780
17:45:00	9	0	10	0	0	19	6	52	1	0	0	59	3	2	2	0	0	7	1	49	7	0	0	57	142	691
Grand Total	396	143	457	0	0	996	530	2779	153	0	0	3462	136	109	92	1	1	338	132	3056	457	1	1	3646	**8442**	-
Approach%	39.8%	14.4%	45.9%	0%		-	15.3%	80.3%	4.4%	0%		-	40.2%	32.2%	27.2%	0.3%		-	3.6%	83.8%	12.5%	0%		-	**-**	-
Totals %	4.7%	1.7%	5.4%	0%		11.8%	6.3%	32.9%	1.8%	0%		41%	1.6%	1.3%	1.1%	0%		4%	1.6%	36.2%	5.4%	0%		43.2%	**-**	-
Heavy	3	0	2	0		-	1	99	2	0		-	1	0	0	0		-	0	113	3	0		-	**-**	-
Heavy %	0.8%	0%	0.4%	0%		-	0.2%	3.6%	1.3%	0%		-	0.7%	0%	0%	0%		-	0%	3.7%	0.7%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

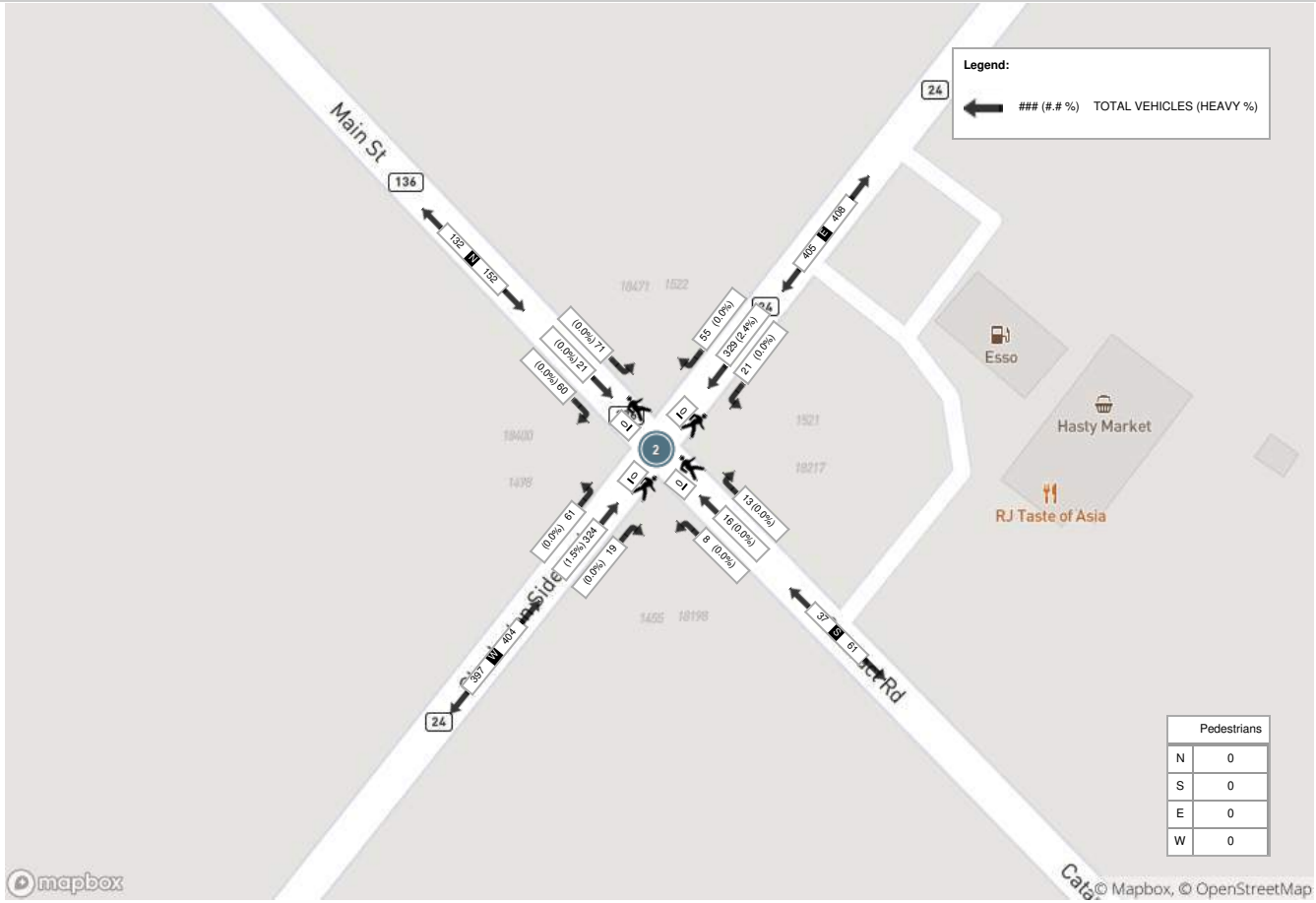
The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 02:00 PM - 03:00 PM Weather: Clear Sky (9.65 °C)

Start Time	N Approach MAIN ST						E Approach CHARLESTON SIDE RD						S Approach CATARACT RD						W Approach CHARLESTON SIDE RD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
14:00:00	15	4	15	0	0	34	13	87	8	0	0	108	4	5	1	0	0	10	5	86	11	0	0	102	254
14:15:00	15	4	12	0	0	31	14	83	6	0	0	103	2	5	3	0	0	10	2	77	12	0	0	91	235
14:30:00	14	7	12	0	0	33	14	77	7	0	0	98	4	1	2	0	0	7	5	77	24	0	0	106	244
14:45:00	16	6	32	0	0	54	14	82	0	0	0	96	3	5	2	0	0	10	7	84	14	0	0	105	265
Grand Total	60	21	71	0	0	152	55	329	21	0	0	405	13	16	8	0	0	37	19	324	61	0	0	404	**998**
Approach%	39.5%	13.8%	46.7%	0%		-	13.6%	81.2%	5.2%	0%		-	35.1%	43.2%	21.6%	0%		-	4.7%	80.2%	15.1%	0%		-	-
Totals %	6%	2.1%	7.1%	0%		15.2%	5.5%	33%	2.1%	0%		40.6%	1.3%	1.6%	0.8%	0%		3.7%	1.9%	32.5%	6.1%	0%		40.5%	-
PHF	0.94	0.75	0.55	0		0.7	0.98	0.95	0.66	0		0.94	0.81	0.8	0.67	0		0.93	0.68	0.94	0.64	0		0.95	-
Heavy	0	0	0	0		0	0	8	0	0		8	0	0	0	0		0	0	5	0	0		5	-
Heavy %	0%	0%	0%	0%		0%	0%	2.4%	0%	0%		2%	0%	0%	0%	0%		0%	0%	1.5%	0%	0%		1.2%	-
Lights	60	21	71	0		152	55	320	21	0		396	13	15	8	0		36	19	319	61	0		399	-
Lights %	100%	100%	100%	0%		100%	100%	97.3%	100%	0%		97.8%	100%	93.8%	100%	0%		97.3%	100%	98.5%	100%	0%		98.8%	-
Single-Unit Trucks	0	0	0	0		0	0	5	0	0		5	0	0	0	0		0	0	3	0	0		3	-
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	1.5%	0%	0%		1.2%	0%	0%	0%	0%		0%	0%	0.9%	0%	0%		0.7%	-
Buses	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Articulated Trucks	0	0	0	0		0	0	2	0	0		2	0	0	0	0		0	0	1	0	0		1	-
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0.6%	0%	0%		0.5%	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.2%	-
Aggregate Trucks	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	0	1	0	0		1	-
Aggregate Trucks %	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.2%	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.2%	-
Bicycles on Road	0	0	0	0		0	0	1	0	0		1	0	1	0	0		1	0	0	0	0		0	-
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.2%	0%	6.3%	0%	0%		2.7%	0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 02:00 PM - 03:00 PM **Weather: Clear Sky (9.65 °C)**



Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & HWY 10 /HURONTARIO ST
Date: Sat, Jul 10, 2021 Deployment Lead: Theo Daglis

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Turning Movement Count (1 . CHARLESTON SIDEROAD & HWY 10 /HURONTARIO ST) CustID: 02408233 MioID:

Start Time	N Approach HURONTARIO ST						E Approach CHARLESTON SIDEROAD						S Approach HURONTARIO ST						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	0	62	0	0	0	62	0	10	8	0	0	18	2	53	5	0	0	60	5	9	1	0	0	15	155	
06:15:00	6	79	0	0	0	85	2	7	9	0	0	18	7	68	15	0	0	90	12	17	3	0	0	32	225	
06:30:00	3	72	2	0	0	77	1	7	13	0	0	21	7	88	14	0	0	109	18	10	5	0	0	33	240	
06:45:00	2	67	5	0	0	74	1	8	10	0	0	19	7	92	26	0	0	125	9	19	7	0	0	35	253	873
07:00:00	3	90	2	0	0	95	0	13	17	0	0	30	10	111	30	0	0	151	4	23	13	0	0	40	316	1034
07:15:00	6	102	7	0	0	115	1	6	11	0	0	18	6	114	16	0	0	136	7	31	19	0	0	57	326	1135
07:30:00	4	100	4	0	0	108	3	12	17	0	0	32	13	153	30	0	0	196	12	22	17	0	0	51	387	1282
07:45:00	6	100	3	0	0	109	4	20	10	0	2	34	15	167	25	0	2	207	9	40	13	0	1	62	412	1441
08:00:00	10	101	2	0	2	113	2	20	17	0	1	39	20	183	29	0	0	232	13	29	9	0	0	51	435	1560
08:15:00	5	136	9	0	0	150	5	16	15	0	0	36	22	223	25	0	1	270	18	34	19	0	0	71	527	1761
08:30:00	12	124	5	0	2	141	7	30	21	0	1	58	30	215	29	1	0	275	19	44	32	0	0	95	569	1943
08:45:00	11	114	10	0	0	135	6	23	20	0	0	49	30	274	29	0	2	333	17	53	24	0	0	94	611	2142
09:00:00	8	116	4	0	0	128	9	25	27	0	0	61	23	206	31	0	1	260	14	55	31	0	0	100	549	2256
09:15:00	15	143	10	0	0	168	7	28	20	0	0	55	30	289	44	0	0	363	19	51	26	0	0	96	682	2411
09:30:00	19	159	15	0	0	193	8	32	24	0	1	64	30	263	42	1	1	336	21	61	32	0	2	114	707	2549
09:45:00	15	138	9	0	3	162	11	48	25	0	2	84	28	263	52	0	1	343	20	47	19	0	1	86	675	2613
10:00:00	16	138	17	0	0	171	5	48	28	0	0	81	33	245	41	0	5	319	13	72	29	0	0	114	685	2749
10:15:00	13	182	17	0	1	212	9	41	21	0	0	71	32	304	30	0	1	366	18	71	27	0	0	116	765	2832
10:30:00	15	170	10	0	1	195	11	54	30	0	1	95	33	304	32	0	2	369	24	68	32	0	0	124	783	2908
10:45:00	15	204	15	0	4	234	4	43	33	0	1	80	39	334	42	0	1	415	26	69	37	0	4	132	861	3094
11:00:00	12	184	15	0	0	211	9	40	35	0	0	84	30	351	42	0	2	423	26	68	29	1	1	124	842	3251
11:15:00	18	198	14	0	3	230	8	52	26	0	2	86	46	326	53	0	3	425	31	57	36	0	5	124	865	3351
11:30:00	22	182	8	0	3	212	9	57	34	0	1	100	32	297	41	0	4	370	28	82	38	0	4	148	830	3398
11:45:00	27	197	18	0	2	242	12	45	26	0	6	83	30	335	52	1	1	418	15	79	29	0	0	123	866	3403
12:00:00	24	188	12	0	0	224	7	53	29	0	0	89	32	319	35	0	0	386	27	61	31	0	0	119	818	3379
12:15:00	22	205	24	0	0	251	9	60	35	0	0	104	35	312	42	0	0	389	23	57	26	0	0	106	850	3364
12:30:00	15	217	17	0	0	249	12	57	34	0	0	103	26	322	52	0	2	400	26	71	43	0	2	140	892	3426
12:45:00	22	193	16	0	0	231	14	41	32	0	0	87	53	306	51	0	0	410	33	59	28	0	0	120	848	3408
13:00:00	21	238	17	0	0	276	10	51	27	0	2	88	47	328	58	0	3	433	22	65	19	0	1	106	903	3493
13:15:00	24	171	19	0	1	214	11	61	32	0	0	104	32	302	55	0	3	389	25	90	38	0	3	153	860	3503
13:30:00	15	215	21	0	3	251	10	51	31	0	3	92	34	316	58	0	0	408	24	81	28	0	6	133	884	3495
13:45:00	15	217	19	0	0	251	15	47	29	0	2	91	36	323	53	0	0	412	39	69	27	0	0	135	889	3536
14:00:00	29	237	12	0	0	278	14	54	21	0	0	89	62	311	70	0	0	443	21	67	30	0	0	118	928	3561
14:15:00	19	195	12	0	0	226	10	66	33	0	0	109	34	257	63	0	0	354	33	75	31	0	0	139	828	3529
14:30:00	23	256	25	0	2	304	8	46	25	0	0	79	39	291	43	0	0	373	23	65	35	0	0	123	879	3524
14:45:00	29	223	11	0	0	263	5	55	35	0	0	95	26	304	43	0	0	373	36	71	29	0	1	136	867	3502
15:00:00	23	208	16	0	2	247	16	68	33	0	0	117	37	259	35	0	0	331	36	45	18	0	0	99	794	3368
15:15:00	19	245	16	0	0	280	8	44	34	0	1	86	36	257	44	0	7	337	21	55	32	0	0	108	811	3351
15:30:00	18	202	11	0	2	231	10	51	31	0	1	92	40	234	46	0	2	320	28	50	22	0	0	100	743	3215
15:45:00	24	230	19	0	0	273	4	48	40	0	2	92	27	261	32	0	1	320	35	67	20	0	0	122	807	3155
16:00:00	20	220	14	0	0	254	6	43	31	0	0	80	32	262	37	0	0	331	41	49	26	0	2	116	781	3142
16:15:00	21	242	16	0	0	279	8	62	46	0	0	116	32	236	35	1	0	304	47	55	20	0	0	122	821	3152
16:30:00	20	215	20	0	0	255	7	50	30	0	0	87	36	217	46	0	2	299	37	46	31	0	0	114	755	3164
16:45:00	19	236	12	1	0	268	7	58	29	0	0	94	15	225	31	0	2	271	41	53	21	0	0	115	748	3105
17:00:00	11	214	19	0	0	244	6	54	30	0	0	90	32	185	35	0	0	252	29	37	14	0	0	80	666	2990

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

17:15:00	23	266	17	0	2	306	5	40	36	0	0	81	30	206	32	0	0	268	31	47	15	0	0	93	748	2917
17:30:00	18	236	12	0	4	266	11	54	30	0	1	95	24	180	43	0	2	247	32	38	22	0	0	92	700	2862
17:45:00	20	249	14	0	0	283	4	40	39	0	0	83	27	171	29	0	0	227	35	21	21	0	2	77	670	2784
Grand Total	757	8476	592	1	37	9826	351	1939	1269	0	30	3559	1379	11642	1843	4	51	14868	1143	2505	1154	1	35	4803	**33056**	-
Approach%	7.7%	86.3%	6%	0%		-	9.9%	54.5%	35.7%	0%		-	9.3%	78.3%	12.4%	0%		-	23.8%	52.2%	24%	0%		-	**-**	-
Totals %	2.3%	25.6%	1.8%	0%		29.7%	1.1%	5.9%	3.8%	0%		10.8%	4.2%	35.2%	5.6%	0%		45%	3.5%	7.6%	3.5%	0%		14.5%	**-**	-
Heavy	15	229	17	0		-	11	58	12	0		-	25	242	30	0		-	30	77	12	0		-	**-**	-
Heavy %	2%	2.7%	2.9%	0%		-	3.1%	3%	0.9%	0%		-	1.8%	2.1%	1.6%	0%		-	2.6%	3.1%	1%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & HWY 10 /HURONTARIO ST
Date: Sat, Jul 10, 2021 Deployment Lead: Theo Daglis

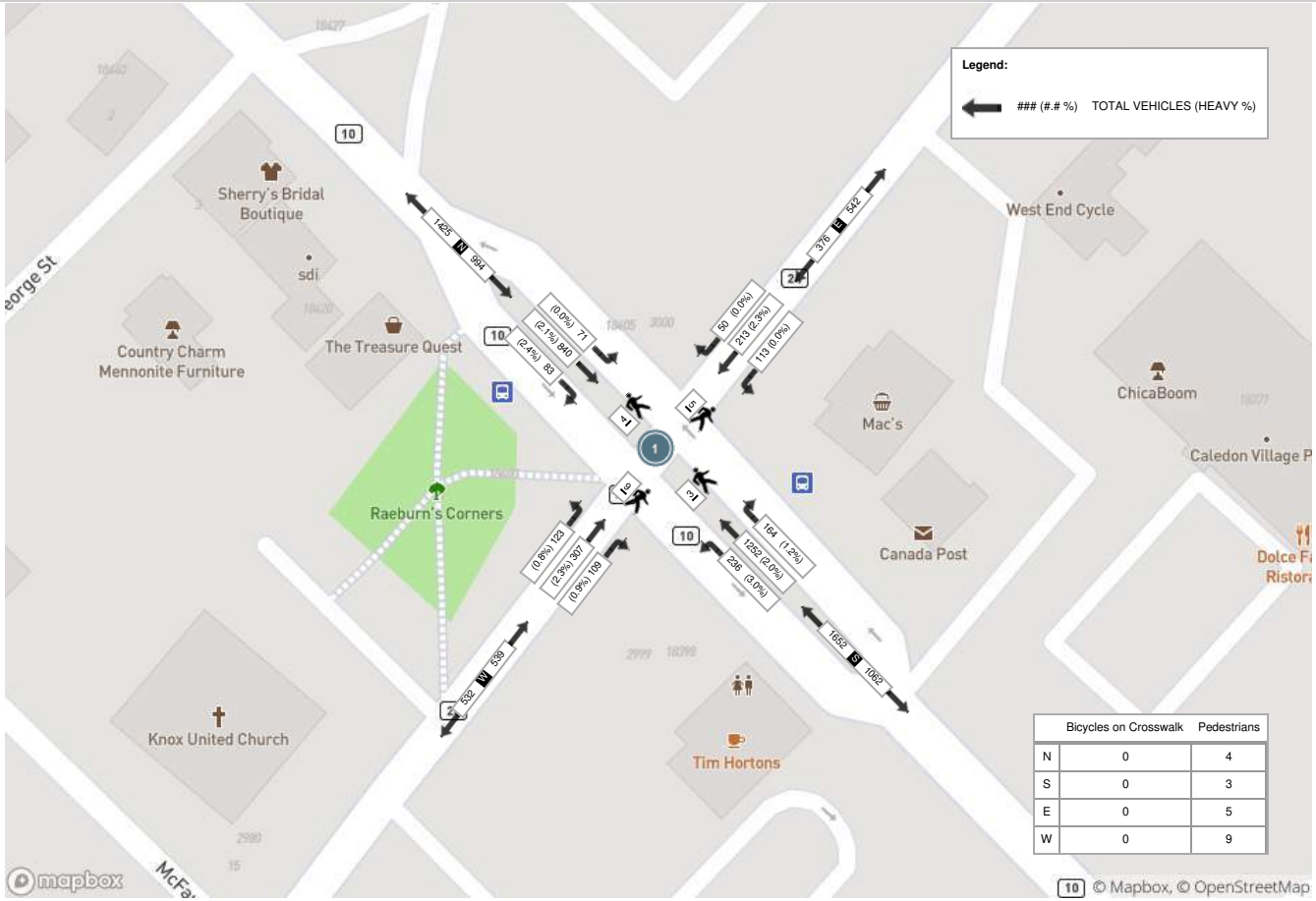
The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 01:15 PM - 02:15 PM Weather: Broken Clouds (11.81 °C)

Start Time	N Approach HURONTARIO ST						E Approach CHARLESTON SIDEROAD						S Approach HURONTARIO ST						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
13:15:00	24	171	19	0	1	214	11	61	32	0	0	104	32	302	55	0	3	389	25	90	38	0	3	153	860
13:30:00	15	215	21	0	3	251	10	51	31	0	3	92	34	316	58	0	0	408	24	81	28	0	6	133	884
13:45:00	15	217	19	0	0	251	15	47	29	0	2	91	36	323	53	0	0	412	39	69	27	0	0	135	889
14:00:00	29	237	12	0	0	278	14	54	21	0	0	89	62	311	70	0	0	443	21	67	30	0	0	118	928
Grand Total	83	840	71	0	4	994	50	213	113	0	5	376	164	1252	236	0	3	1652	109	307	123	0	9	539	**3561**
Approach%	8.4%	84.5%	7.1%	0%		-	13.3%	56.6%	30.1%	0%		-	9.9%	75.8%	14.3%	0%		-	20.2%	57%	22.8%	0%		-	**-**
Totals %	2.3%	23.6%	2%	0%		27.9%	1.4%	6%	3.2%	0%		10.6%	4.6%	35.2%	6.6%	0%		46.4%	3.1%	8.6%	3.5%	0%		15.1%	**-**
PHF	0.72	0.89	0.85	0		0.89	0.83	0.87	0.88	0		0.9	0.66	0.97	0.84	0		0.93	0.7	0.85	0.81	0		0.88	**-**
Heavy	2	18	0	0		20	0	5	0	0		5	2	25	7	0		34	1	7	1	0		9	**-**
Heavy %	2.4%	2.1%	0%	0%		2%	0%	2.3%	0%	0%		1.3%	1.2%	2%	3%	0%		2.1%	0.9%	2.3%	0.8%	0%		1.7%	**-**
Lights	81	822	71	0		974	50	208	113	0		371	162	1227	229	0		1618	108	298	122	0		528	**-**
Lights %	97.6%	97.9%	100%	0%		98%	100%	97.7%	100%	0%		98.7%	98.8%	98%	97%	0%		97.9%	99.1%	97.1%	99.2%	0%		98%	**-**
Single-Unit Trucks	1	9	0	0		10	0	2	0	0		2	0	11	3	0		14	1	2	1	0		4	**-**
Single-Unit Trucks %	1.2%	1.1%	0%	0%		1%	0%	0.9%	0%	0%		0.5%	0%	0.9%	1.3%	0%		0.8%	0.9%	0.7%	0.8%	0%		0.7%	**-**
Buses	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Buses %	0%	0.1%	0%	0%		0.1%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	1	5	0	0		6	0	3	0	0		3	2	6	1	0		9	0	4	0	0		4	**-**
Articulated Trucks %	1.2%	0.6%	0%	0%		0.6%	0%	1.4%	0%	0%		0.8%	1.2%	0.5%	0.4%	0%		0.5%	0%	1.3%	0%	0%		0.7%	**-**
Aggregate Trucks	0	3	0	0		3	0	0	0	0		0	0	8	3	0		11	0	1	0	0		1	**-**
Aggregate Trucks %	0%	0.4%	0%	0%		0.3%	0%	0%	0%	0%		0%	0%	0.6%	1.3%	0%		0.7%	0%	0.3%	0%	0%		0.2%	**-**
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	2	0	0		2	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.7%	0%	0%		0.4%	**-**
Pedestrians	-	-	-	-	4	-	-	-	-	-	5	-	-	-	-	-	3	-	-	-	-	-	9	-	**-**
Pedestrians%	-	-	-	-	19%		-	-	-	-	23.8%		-	-	-	-	14.3%		-	-	-	-	42.9%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 01:15 PM - 02:15 PM Weather: Broken Clouds (11.81 °C)



Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & MISSISSAUGA RD
Date: Thu, Jul 08, 2021 Deployment Lead: Theo Daglis

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Turning Movement Count (3 . CHARLESTON SIDEROAD & MISSISSAUGA RD) CustID: 02413835 MioID:

Start Time	N Approach MISSISSAUGA RD						E Approach CHARLESTON SIDEROAD						S Approach MISSISSAUGA RD						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	3	0	1	0	0	4	1	20	6	0	0	27	1	0	0	0	0	1	0	59	0	0	0	59	91	
06:15:00	0	4	0	0	0	4	0	33	1	0	0	34	3	0	0	0	0	3	0	62	0	0	0	62	103	
06:30:00	0	2	0	0	0	2	1	32	2	0	0	35	3	0	0	0	0	3	2	49	0	0	0	51	91	
06:45:00	3	0	1	0	0	4	0	46	2	0	0	48	2	0	0	0	0	2	1	66	1	0	0	68	122	407
07:00:00	0	1	4	0	0	5	0	37	2	1	0	40	3	0	2	0	0	5	1	67	2	0	0	70	120	436
07:15:00	2	1	0	0	0	3	1	38	1	0	0	40	1	0	0	0	0	1	0	63	0	0	0	63	107	440
07:30:00	4	2	2	0	0	8	0	55	1	0	0	56	1	0	0	0	0	1	0	68	1	0	0	69	134	483
07:45:00	1	1	2	0	0	4	1	46	4	0	0	51	3	2	2	0	0	7	1	65	1	0	0	67	129	490
08:00:00	3	3	1	0	0	7	0	49	5	0	0	54	5	3	1	0	0	9	1	58	3	0	0	62	132	502
08:15:00	4	1	0	0	0	5	0	49	3	0	0	52	3	1	1	0	0	5	2	61	6	0	0	69	131	526
08:30:00	2	2	0	0	0	4	0	41	1	0	0	42	4	0	0	0	0	4	0	76	3	0	0	79	129	521
08:45:00	2	3	2	0	0	7	0	59	3	0	0	62	3	2	3	0	0	8	1	67	2	0	0	70	147	539
09:00:00	3	2	2	0	0	7	0	55	3	0	0	58	1	0	0	0	0	1	0	71	1	0	0	72	138	545
09:15:00	2	0	1	0	0	3	0	60	2	0	0	62	7	3	1	0	0	11	0	54	1	0	0	55	131	545
09:30:00	1	0	0	0	0	1	1	50	0	0	0	51	4	2	0	0	0	6	1	75	4	0	0	80	138	554
09:45:00	1	1	2	0	0	4	1	47	3	0	0	51	1	1	0	0	0	2	0	76	5	0	0	81	138	545
10:00:00	6	0	0	0	0	6	0	43	6	0	0	49	0	1	2	0	0	3	1	80	1	0	0	82	140	547
10:15:00	3	0	1	0	0	4	3	52	2	0	0	57	7	0	0	0	0	7	0	66	2	0	0	68	136	552
10:30:00	2	0	0	0	0	2	1	59	3	0	0	63	4	0	2	0	0	6	0	75	4	0	0	79	150	564
10:45:00	6	1	2	0	0	9	1	75	3	0	0	79	5	2	2	0	2	9	0	73	2	0	0	75	172	598
11:00:00	4	0	2	0	0	6	1	51	1	0	0	53	3	2	6	0	0	11	2	68	2	0	0	72	142	600
11:15:00	2	1	1	0	0	4	1	76	2	0	0	79	2	1	0	0	0	3	3	87	5	0	0	95	181	645
11:30:00	3	0	1	0	0	4	1	64	3	0	0	68	2	1	0	0	0	3	0	72	0	0	0	72	147	642
11:45:00	3	1	5	0	0	9	0	85	2	0	0	87	5	3	0	0	0	8	1	66	1	0	0	68	172	642
12:00:00	1	1	1	0	0	3	1	51	1	0	0	53	7	1	1	0	0	9	1	76	2	1	0	80	145	645
12:15:00	2	2	0	0	0	4	0	68	4	0	0	72	3	1	1	0	0	5	1	66	2	0	0	69	150	614
12:30:00	2	2	2	0	0	6	3	71	2	0	0	76	4	3	0	0	0	7	0	66	0	0	0	66	155	622
12:45:00	1	0	3	0	0	4	2	72	5	0	0	79	3	1	1	0	0	5	3	83	0	0	0	86	174	624
13:00:00	0	1	2	0	0	3	1	63	6	0	0	70	2	2	0	0	0	4	1	73	0	0	0	74	151	630
13:15:00	1	1	1	0	0	3	1	66	4	0	0	71	4	1	4	0	0	9	0	106	1	0	0	107	190	670
13:30:00	4	2	0	0	0	6	1	74	1	0	0	76	5	2	0	0	0	7	0	89	0	0	0	89	178	693
13:45:00	2	2	0	0	0	4	1	66	0	0	0	67	0	1	5	0	0	6	1	94	2	0	0	97	174	693
14:00:00	3	1	1	0	0	5	1	78	1	0	0	80	3	0	1	0	0	4	0	65	2	0	0	67	156	698
14:15:00	4	0	0	0	0	4	1	67	3	0	0	71	4	4	0	0	0	8	2	67	1	0	0	70	153	661
14:30:00	3	0	0	0	0	3	3	91	3	0	0	97	1	2	2	0	0	5	0	75	2	0	0	77	182	665
14:45:00	2	1	1	0	0	4	3	75	3	0	0	81	2	2	0	0	0	4	0	76	1	0	0	77	166	657
15:00:00	2	0	3	0	0	5	0	88	1	0	0	89	5	2	0	0	0	7	1	63	0	0	0	64	165	666
15:15:00	3	2	2	0	0	7	2	83	0	0	0	85	2	5	1	0	0	8	0	81	2	0	0	83	183	696
15:30:00	0	3	1	0	0	4	6	71	0	0	0	77	4	3	0	0	0	7	1	90	5	0	0	96	184	698
15:45:00	1	0	1	0	0	2	2	87	1	0	0	90	6	0	2	0	0	8	3	89	1	0	0	93	193	725
16:00:00	4	1	0	0	0	5	3	93	3	0	0	99	3	1	3	0	0	7	3	101	1	0	0	105	216	776
16:15:00	2	0	1	0	0	3	3	106	1	0	0	110	2	3	2	0	0	7	1	86	2	0	0	89	209	802
16:30:00	5	1	2	0	0	8	1	96	2	0	0	99	4	4	0	0	0	8	0	94	5	0	0	99	214	832
16:45:00	3	1	0	0	0	4	3	91	5	0	0	99	5	2	4	0	0	11	1	83	3	0	0	87	201	840
17:00:00	1	2	3	0	0	6	3	108	1	0	0	112	4	2	1	0	0	7	1	81	2	0	0	84	209	833

17:15:00	2	2	4	0	0	8	3	103	0	0	0	106	3	4	1	0	0	8	0	87	5	0	0	92	214	838
17:30:00	0	0	0	0	0	0	2	88	5	0	0	95	2	6	1	0	0	9	0	84	0	0	0	84	188	812
17:45:00	1	1	1	0	0	3	1	70	1	0	0	72	1	0	1	0	0	2	1	70	3	0	0	74	151	762
Grand Total	109	52	59	0	0	220	61	3148	114	1	0	3324	152	76	53	0	2	281	38	3569	89	1	0	3697	**7522**	-
Approach%	49.5%	23.6%	26.8%	0%		-	1.8%	94.7%	3.4%	0%		-	54.1%	27%	18.9%	0%		-	1%	96.5%	2.4%	0%		-	**-**	-
Totals %	1.4%	0.7%	0.8%	0%		2.9%	0.8%	41.9%	1.5%	0%		44.2%	2%	1%	0.7%	0%		3.7%	0.5%	47.4%	1.2%	0%		49.1%	**-**	-
Heavy	20	1	4	0		-	4	412	46	0		-	48	2	2	0		-	1	455	17	0		-	**-**	-
Heavy %	18.3%	1.9%	6.8%	0%		-	6.6%	13.1%	40.4%	0%		-	31.6%	2.6%	3.8%	0%		-	2.6%	12.7%	19.1%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & MISSISSAUGA RD
Date: Thu, Jul 08, 2021 Deployment Lead: Theo Daglis

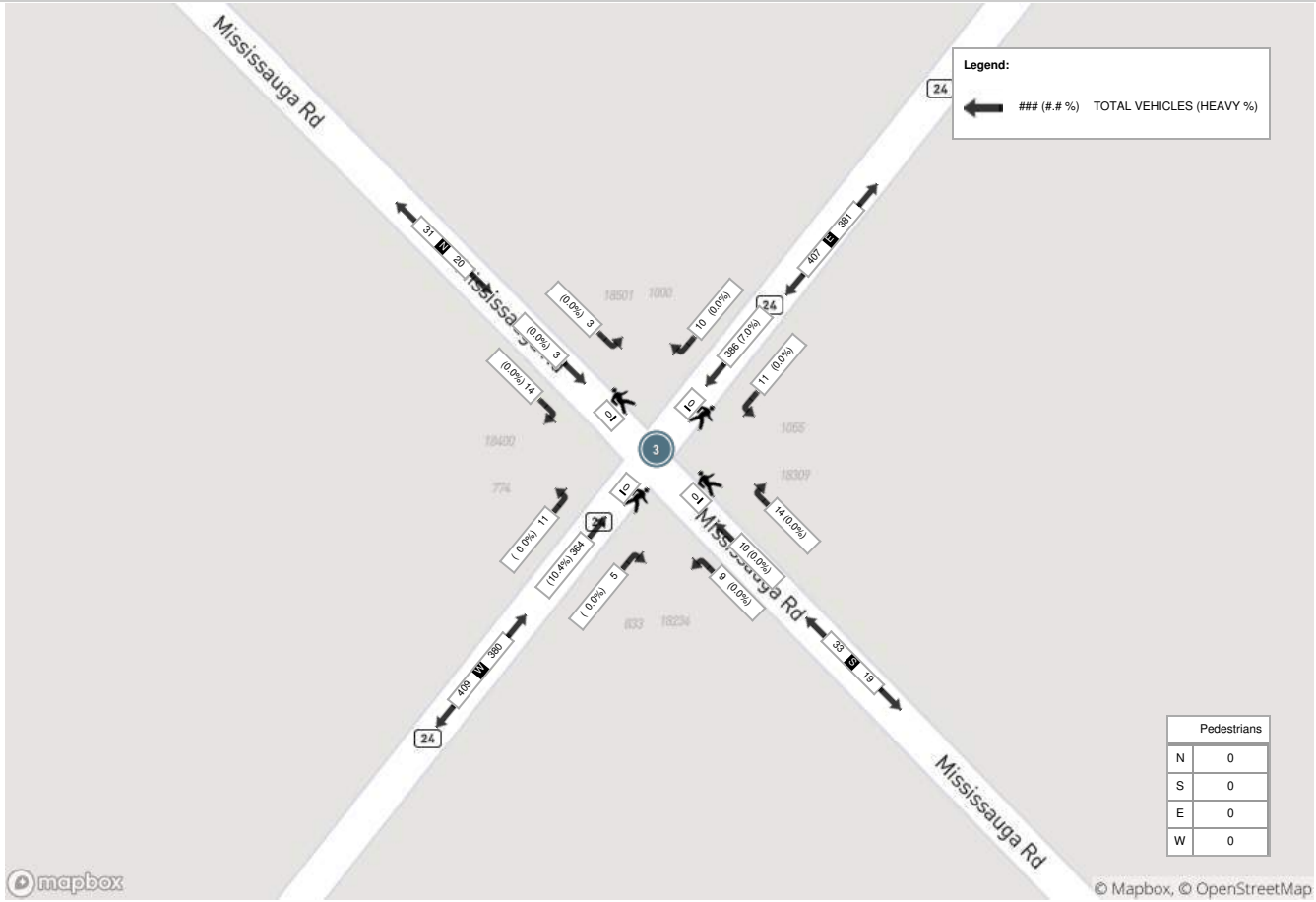
The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 04:00 PM - 05:00 PM Weather: Light Rain (13.85 °C)

Start Time	N Approach MISSISSAUGA RD						E Approach CHARLESTON SIDEROAD						S Approach MISSISSAUGA RD						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:00:00	4	1	0	0	0	5	3	93	3	0	0	99	3	1	3	0	0	7	3	101	1	0	0	105	216
16:15:00	2	0	1	0	0	3	3	106	1	0	0	110	2	3	2	0	0	7	1	86	2	0	0	89	209
16:30:00	5	1	2	0	0	8	1	96	2	0	0	99	4	4	0	0	0	8	0	94	5	0	0	99	214
16:45:00	3	1	0	0	0	4	3	91	5	0	0	99	5	2	4	0	0	11	1	83	3	0	0	87	201
Grand Total	14	3	3	0	0	20	10	386	11	0	0	407	14	10	9	0	0	33	5	364	11	0	0	380	**840**
Approach%	70%	15%	15%	0%		-	2.5%	94.8%	2.7%	0%		-	42.4%	30.3%	27.3%	0%		-	1.3%	95.8%	2.9%	0%		-	**-**
Totals %	1.7%	0.4%	0.4%	0%		2.4%	1.2%	46%	1.3%	0%		48.5%	1.7%	1.2%	1.1%	0%		3.9%	0.6%	43.3%	1.3%	0%		45.2%	**-**
PHF	0.7	0.75	0.38	0		0.63	0.83	0.91	0.55	0		0.93	0.7	0.63	0.56	0		0.75	0.42	0.9	0.55	0		0.9	**-**
Heavy	0	0	0	0		0	0	27	0	0		27	0	0	0	0		0	0	38	0	0		38	**-**
Heavy %	0%	0%	0%	0%		0%	0%	7%	0%	0%		6.6%	0%	0%	0%	0%		0%	0%	10.4%	0%	0%		10%	**-**
Lights	14	3	3	0		20	10	359	11	0		380	14	10	9	0		33	5	326	11	0		342	**-**
Lights %	100%	100%	100%	0%		100%	100%	93%	100%	0%		93.4%	100%	100%	100%	0%		100%	100%	89.6%	100%	0%		90%	**-**
Single-Unit Trucks	0	0	0	0		0	0	8	0	0		8	0	0	0	0		0	0	7	0	0		7	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	2.1%	0%	0%		2%	0%	0%	0%	0%		0%	0%	1.9%	0%	0%		1.8%	**-**
Buses	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	0	0	0	0		0	0	15	0	0		15	0	0	0	0		0	0	24	0	0		24	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	3.9%	0%	0%		3.7%	0%	0%	0%	0%		0%	0%	6.6%	0%	0%		6.3%	**-**
Aggregate Trucks	0	0	0	0		0	0	4	0	0		4	0	0	0	0		0	0	7	0	0		7	**-**
Aggregate Trucks %	0%	0%	0%	0%		0%	0%	1%	0%	0%		1%	0%	0%	0%	0%		0%	0%	1.9%	0%	0%		1.8%	**-**
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%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 04:00 PM - 05:00 PM Weather: Light Rain (13.85 °C)



	Pedestrians
N	0
S	0
E	0
W	0

Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & MISSISSAUGA RD
Date: Sat, Jul 10, 2021 Deployment Lead: Theo Daglis

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Turning Movement Count (3 . CHARLESTON SIDEROAD & MISSISSAUGA RD) CustID: 02413835 MioID:

Start Time	N Approach MISSISSAUGA RD						E Approach CHARLESTON SIDEROAD						S Approach MISSISSAUGA RD						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	0	0	0	0	0	0	0	8	0	0	0	8	1	1	0	0	0	2	0	22	1	0	0	23	33	
06:15:00	0	1	1	0	0	2	0	9	1	0	0	10	0	0	0	0	0	0	0	29	1	0	0	30	42	
06:30:00	0	0	0	0	0	0	0	21	3	0	0	24	1	1	0	0	0	2	0	27	0	0	0	27	53	
06:45:00	1	0	1	0	0	2	0	19	1	0	0	20	0	0	0	0	0	0	0	36	1	0	0	37	59	187
07:00:00	0	1	0	0	0	1	0	23	1	0	0	24	2	0	0	0	0	2	0	40	0	0	0	40	67	221
07:15:00	0	0	2	0	0	2	0	17	5	0	0	22	0	0	0	0	0	0	0	32	0	0	0	32	56	235
07:30:00	0	0	2	0	0	2	0	25	0	0	0	25	2	0	1	0	0	3	0	43	0	0	0	43	73	255
07:45:00	0	0	0	0	0	0	0	26	1	0	0	27	1	0	0	0	0	1	0	58	1	0	0	59	87	283
08:00:00	2	0	1	0	0	3	1	34	0	0	0	35	1	2	0	0	0	3	1	56	1	0	0	58	99	315
08:15:00	1	3	1	0	0	5	0	21	1	0	0	22	2	2	0	0	0	4	0	56	0	0	0	56	87	346
08:30:00	2	1	0	0	0	3	1	36	1	0	0	38	3	1	1	0	0	5	0	74	1	0	0	75	121	394
08:45:00	0	0	0	0	0	0	0	29	2	0	0	31	4	0	0	0	0	4	4	74	3	0	0	81	116	423
09:00:00	0	0	2	0	0	2	0	38	7	0	1	45	6	3	0	0	0	9	1	65	1	0	0	67	123	447
09:15:00	1	0	1	0	0	2	0	51	2	0	0	53	6	0	2	0	0	8	1	94	1	0	0	96	159	519
09:30:00	5	0	1	0	0	6	5	74	2	0	0	81	5	3	2	0	0	10	0	92	0	0	0	92	189	587
09:45:00	1	1	2	0	0	4	0	82	2	0	0	84	2	3	2	0	0	7	1	80	1	1	0	83	178	649
10:00:00	2	0	2	0	0	4	1	69	6	0	0	76	7	1	1	0	0	9	0	91	0	0	0	91	180	706
10:15:00	1	0	1	0	0	2	0	72	1	0	0	73	5	3	4	0	0	12	2	87	2	0	0	91	178	725
10:30:00	3	1	1	0	0	5	0	60	3	0	0	63	4	2	1	0	0	7	1	107	2	0	0	110	185	721
10:45:00	4	1	1	0	0	6	2	81	4	0	0	87	4	1	4	0	0	9	2	111	1	0	0	114	216	759
11:00:00	5	0	0	0	0	5	1	66	4	0	0	71	2	4	1	0	0	7	1	112	2	0	0	115	198	777
11:15:00	2	1	0	0	0	3	4	79	3	0	0	86	6	5	2	0	0	13	0	87	4	0	0	91	193	792
11:30:00	2	1	2	0	0	5	1	104	4	0	0	109	6	1	0	0	0	7	2	112	2	0	0	116	237	844
11:45:00	3	14	0	0	0	17	2	96	4	0	0	102	4	2	0	0	0	6	1	90	1	0	0	92	217	845
12:00:00	1	3	1	0	0	5	2	75	3	0	0	80	12	4	0	0	0	16	2	92	2	0	0	96	197	844
12:15:00	2	2	2	0	0	6	2	82	3	0	0	87	3	2	0	0	0	5	2	108	0	0	0	110	208	859
12:30:00	4	3	2	0	0	9	3	100	5	0	0	108	6	3	5	0	0	14	1	84	2	0	0	87	218	840
12:45:00	4	4	1	0	0	9	2	84	3	0	0	89	3	5	0	0	0	8	2	85	0	0	0	87	193	816
13:00:00	0	2	0	0	0	2	2	95	7	0	0	104	4	7	1	1	0	13	1	123	4	0	0	128	247	866
13:15:00	7	0	1	0	0	8	0	97	8	0	0	105	6	3	2	0	0	11	4	98	3	0	0	105	229	887
13:30:00	4	1	0	0	0	5	2	103	4	0	0	109	2	8	0	0	0	10	0	102	3	0	0	105	229	898
13:45:00	3	4	1	0	0	8	2	81	1	0	0	84	3	3	2	0	0	8	2	100	2	0	0	104	204	909
14:00:00	4	2	2	0	0	8	2	101	5	0	0	108	4	4	3	0	0	11	2	98	3	0	0	103	230	892
14:15:00	3	5	2	0	0	10	4	117	5	0	0	126	2	2	2	0	0	6	1	103	2	0	0	106	248	911
14:30:00	0	3	1	0	0	4	2	102	3	0	0	107	2	4	0	0	0	6	3	99	3	0	0	105	222	904
14:45:00	3	2	1	0	0	6	7	110	7	0	0	124	5	2	3	1	0	11	4	91	0	0	0	95	236	936
15:00:00	6	3	0	0	0	9	0	102	2	0	0	104	3	5	2	0	0	10	0	72	2	0	0	74	197	903
15:15:00	5	3	1	0	0	9	1	93	2	0	0	96	7	3	3	1	0	14	1	96	2	0	0	99	218	873
15:30:00	3	2	1	0	0	6	3	91	0	0	0	94	4	3	1	0	0	8	3	68	1	0	0	72	180	831
15:45:00	6	2	1	0	0	9	1	84	3	0	0	88	2	2	0	0	0	4	1	112	2	0	0	115	216	811
16:00:00	8	1	0	0	0	9	0	84	2	1	0	87	0	2	1	0	0	3	1	90	3	0	0	94	193	807
16:15:00	0	3	4	0	0	7	2	90	5	0	0	97	11	1	1	0	0	13	3	99	4	0	0	106	223	812
16:30:00	4	3	2	0	0	9	1	121	6	0	0	128	3	1	3	0	0	7	2	73	1	0	0	76	220	852
16:45:00	4	1	2	0	0	7	0	87	2	0	0	89	3	5	0	0	0	8	1	82	0	0	0	83	187	823
17:00:00	3	0	0	0	0	3	1	83	2	0	0	86	2	5	1	0	0	8	4	57	2	0	0	63	160	790

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

17:15:00	1	1	2	0	0	4	0	78	2	0	0	80	3	2	0	0	0	5	0	85	3	0	0	88	177	744
17:30:00	1	3	1	0	0	5	1	87	3	0	0	91	0	3	1	0	0	4	3	59	1	0	0	63	163	687
17:45:00	0	2	2	0	0	4	0	77	2	0	0	79	3	5	1	0	0	9	0	53	1	0	0	54	146	646
Grand Total	111	80	51	0	0	242	58	3364	143	1	1	3566	167	119	53	3	0	342	60	3804	72	1	0	3937	**8087**	-
Approach%	45.9%	33.1%	21.1%	0%		-	1.6%	94.3%	4%	0%		-	48.8%	34.8%	15.5%	0.9%		-	1.5%	96.6%	1.8%	0%		-	**-**	-
Totals %	1.4%	1%	0.6%	0%		3%	0.7%	41.6%	1.8%	0%		44.1%	2.1%	1.5%	0.7%	0%		4.2%	0.7%	47%	0.9%	0%		48.7%	**-**	-
Heavy	0	0	0	0		-	1	87	1	0		-	2	0	1	0		-	2	100	0	0		-	**-**	-
Heavy %	0%	0%	0%	0%		-	1.7%	2.6%	0.7%	0%		-	1.2%	0%	1.9%	0%		-	3.3%	2.6%	0%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & MISSISSAUGA RD
Date: Sat, Jul 10, 2021 Deployment Lead: Theo Daglis

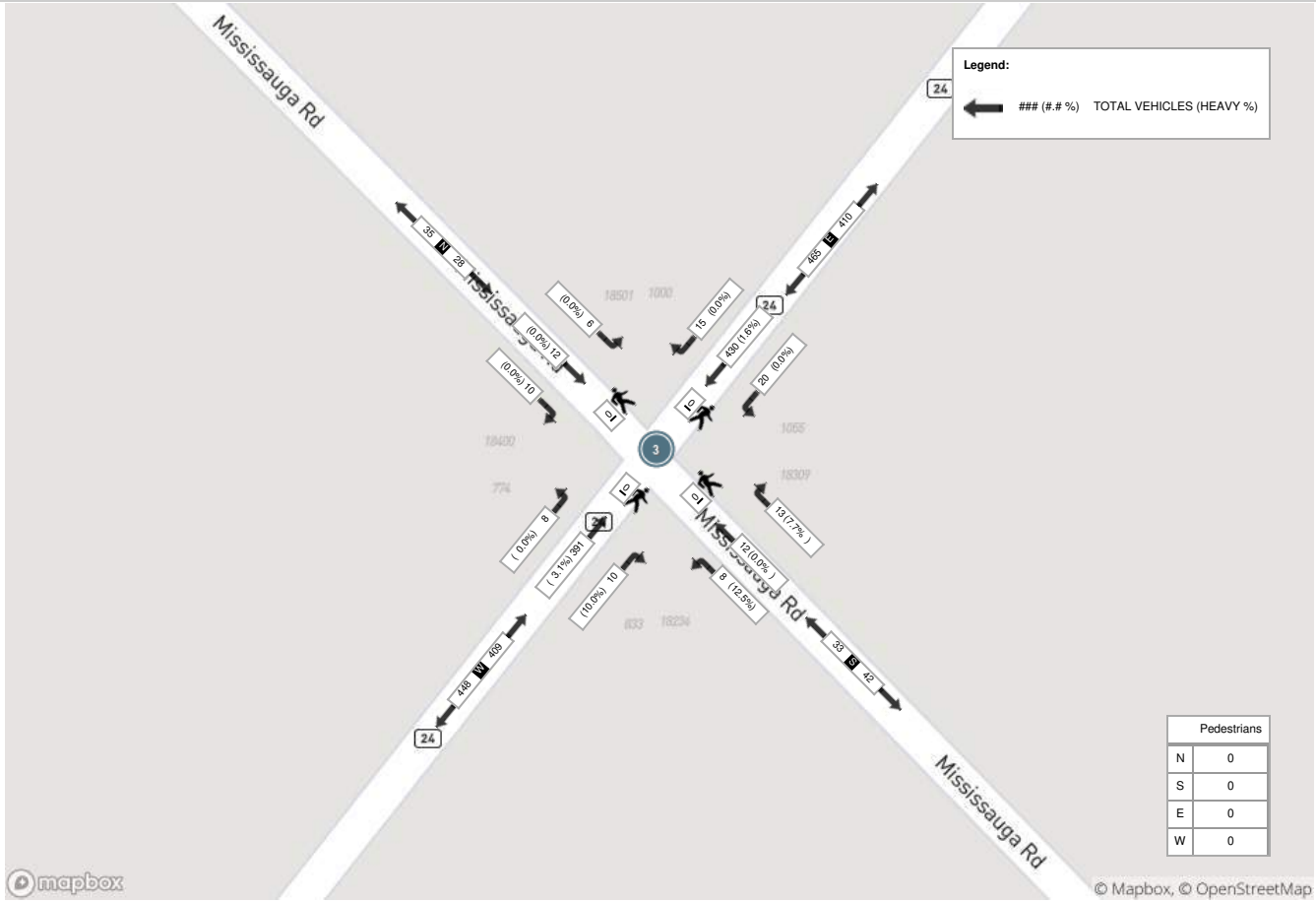
The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 02:00 PM - 03:00 PM Weather: Broken Clouds (11.81 °C)

Start Time	N Approach MISSISSAUGA RD						E Approach CHARLESTON SIDEROAD						S Approach MISSISSAUGA RD						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
14:00:00	4	2	2	0	0	8	2	101	5	0	0	108	4	4	3	0	0	11	2	98	3	0	0	103	230
14:15:00	3	5	2	0	0	10	4	117	5	0	0	126	2	2	2	0	0	6	1	103	2	0	0	106	248
14:30:00	0	3	1	0	0	4	2	102	3	0	0	107	2	4	0	0	0	6	3	99	3	0	0	105	222
14:45:00	3	2	1	0	0	6	7	110	7	0	0	124	5	2	3	1	0	11	4	91	0	0	0	95	236
Grand Total	10	12	6	0	0	28	15	430	20	0	0	465	13	12	8	1	0	34	10	391	8	0	0	409	**936**
Approach%	35.7%	42.9%	21.4%	0%		-	3.2%	92.5%	4.3%	0%		-	38.2%	35.3%	23.5%	2.9%		-	2.4%	95.6%	2%	0%		-	**-**
Totals %	1.1%	1.3%	0.6%	0%		3%	1.6%	45.9%	2.1%	0%		49.7%	1.4%	1.3%	0.9%	0.1%		3.6%	1.1%	41.8%	0.9%	0%		43.7%	**-**
PHF	0.63	0.6	0.75	0		0.7	0.54	0.92	0.71	0		0.92	0.65	0.75	0.67	0.25		0.77	0.63	0.95	0.67	0		0.96	**-**
Heavy	0	0	0	0		0	0	7	0	0		7	1	0	1	0		2	1	12	0	0		13	**-**
Heavy %	0%	0%	0%	0%		0%	0%	1.6%	0%	0%		1.5%	7.7%	0%	12.5%	0%		5.9%	10%	3.1%	0%	0%		3.2%	**-**
Lights	10	10	6	0		26	15	423	20	0		458	12	12	7	1		32	9	378	8	0		395	**-**
Lights %	100%	83.3%	100%	0%		92.9%	100%	98.4%	100%	0%		98.5%	92.3%	100%	87.5%	100%		94.1%	90%	96.7%	100%	0%		96.6%	**-**
Single-Unit Trucks	0	0	0	0		0	0	3	0	0		3	1	0	1	0		2	1	6	0	0		7	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0.7%	0%	0%		0.6%	7.7%	0%	12.5%	0%		5.9%	10%	1.5%	0%	0%		1.7%	**-**
Articulated Trucks	0	0	0	0		0	0	2	0	0		2	0	0	0	0		0	0	4	0	0		4	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.4%	0%	0%	0%	0%		0%	0%	1%	0%	0%		1%	**-**
Aggregate Trucks	0	0	0	0		0	0	2	0	0		2	0	0	0	0		0	0	2	0	0		2	**-**
Aggregate Trucks %	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.4%	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.5%	**-**
Bicycles on Road	0	2	0	0		2	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	**-**
Bicycles on Road %	0%	16.7%	0%	0%		7.1%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.2%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 02:00 PM - 03:00 PM **Weather: Broken Clouds (11.81 °C)**



Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & REGIONAL RD 136 / MAIN ST
Date: Thu, Jul 08, 2021 Deployment Lead: Theo Daglis

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Turning Movement Count (2 . CHARLESTON SIDEROAD & REGIONAL RD 136 / MAIN ST) CustID: 02412429 MioID:

Start Time	N Approach MAIN ST						E Approach CHARLESTON SIDE RD						S Approach CATARACT RD						W Approach CHARLESTON SIDE RD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	2	0	12	0	0	14	1	26	0	0	0	27	0	0	0	0	0	0	0	60	1	0	0	61	102	
06:15:00	4	0	17	0	0	21	2	36	0	0	0	38	0	1	0	0	0	1	2	61	1	0	0	64	124	
06:30:00	2	0	11	0	0	13	2	30	0	0	0	32	1	1	0	0	0	2	0	51	2	0	0	53	100	
06:45:00	4	1	15	0	0	20	6	39	0	0	0	45	0	1	1	0	0	2	1	62	2	0	0	65	132	458
07:00:00	2	0	6	0	0	8	5	38	1	0	0	44	1	0	0	0	0	1	0	75	5	0	0	80	133	489
07:15:00	4	2	15	0	0	21	6	40	1	0	0	47	0	0	0	0	0	0	2	56	5	0	0	63	131	496
07:30:00	5	1	10	0	0	16	5	51	0	0	0	56	1	3	0	0	0	4	1	60	7	0	0	68	144	540
07:45:00	4	1	10	0	0	15	6	50	1	0	0	57	0	1	0	0	0	1	0	68	4	0	0	72	145	553
08:00:00	3	1	8	0	0	12	10	47	1	0	0	58	1	1	0	0	0	2	0	63	3	0	0	66	138	558
08:15:00	3	0	6	0	0	9	6	46	2	0	0	54	2	2	0	0	0	4	0	57	5	0	0	62	129	556
08:30:00	6	1	7	0	0	14	2	41	0	0	0	43	1	0	0	0	0	1	1	70	7	0	0	78	136	548
08:45:00	14	3	6	0	0	23	6	50	0	0	0	56	3	1	1	0	0	5	0	69	6	0	0	75	159	562
09:00:00	6	4	7	0	0	17	4	50	0	0	0	54	1	1	0	0	0	2	1	71	3	0	0	75	148	572
09:15:00	8	1	4	0	0	13	6	52	0	0	0	58	2	1	2	0	0	5	1	54	3	0	0	58	134	577
09:30:00	3	0	5	0	0	8	1	43	0	0	0	44	0	2	1	0	0	3	2	67	10	0	0	79	134	575
09:45:00	7	1	4	0	0	12	9	45	1	0	0	55	0	2	0	0	0	2	2	69	9	0	0	80	149	565
10:00:00	6	1	11	0	0	18	4	39	3	0	0	46	0	4	1	0	0	5	1	73	8	0	0	82	151	568
10:15:00	5	1	6	0	0	12	6	52	0	0	0	58	1	0	1	0	0	2	0	62	9	0	0	71	143	577
10:30:00	7	0	11	0	0	18	9	57	2	0	0	68	1	1	0	0	0	2	0	74	9	0	0	83	171	614
10:45:00	6	2	2	0	0	10	9	65	0	0	0	74	1	4	2	0	0	7	1	68	9	0	0	78	169	634
11:00:00	4	5	14	0	0	23	7	52	0	0	0	59	3	3	0	0	0	6	1	61	13	0	0	75	163	646
11:15:00	6	0	8	0	0	14	9	70	2	0	0	81	2	3	2	0	0	7	1	85	6	0	0	92	194	697
11:30:00	11	3	6	0	0	20	4	55	0	0	0	59	0	4	1	0	0	5	2	60	7	0	0	69	153	679
11:45:00	9	2	3	0	0	14	9	77	0	0	0	86	1	1	3	0	0	5	4	66	9	0	0	79	184	694
12:00:00	4	0	9	0	0	13	4	53	2	0	0	59	0	1	2	0	0	3	1	72	9	0	0	82	157	688
12:15:00	10	3	7	0	0	20	2	57	2	0	0	61	1	2	3	0	0	6	2	68	5	0	0	75	162	656
12:30:00	5	0	11	0	0	16	11	69	1	0	0	81	1	3	0	0	0	4	2	56	12	0	1	70	171	674
12:45:00	7	2	0	0	0	9	5	70	0	0	0	75	2	3	0	0	0	5	3	76	8	0	1	87	176	666
13:00:00	4	2	5	0	0	11	7	62	2	0	0	71	2	0	2	0	0	4	2	64	11	0	0	77	163	672
13:15:00	5	2	12	0	0	19	10	69	0	0	0	79	3	1	5	0	0	9	2	97	14	0	0	113	220	730
13:30:00	1	2	4	0	0	7	4	70	2	0	0	76	1	1	1	0	0	3	1	75	8	0	0	84	170	729
13:45:00	4	3	7	0	0	14	9	65	0	0	0	74	1	1	0	0	1	2	2	91	8	0	0	101	191	744
14:00:00	4	1	8	0	0	13	7	76	1	0	0	84	2	1	1	0	0	4	3	61	5	0	0	69	170	751
14:15:00	12	5	9	0	0	26	8	53	0	0	0	61	1	1	0	0	0	2	3	61	11	0	0	75	164	695
14:30:00	8	1	7	0	0	16	10	89	2	0	0	101	1	1	0	0	0	2	1	68	3	0	0	72	191	716
14:45:00	5	1	7	0	0	13	7	79	2	0	0	88	4	4	0	0	0	8	5	70	4	0	0	79	188	713
15:00:00	6	3	9	0	0	18	18	75	4	0	0	97	2	1	2	0	0	5	2	61	8	0	0	71	191	734
15:15:00	10	3	6	0	0	19	8	80	0	0	0	88	0	5	3	0	0	8	2	69	12	0	0	83	198	768
15:30:00	7	3	6	0	0	16	19	63	1	0	0	83	1	3	1	0	0	5	4	87	7	0	0	98	202	779
15:45:00	10	1	6	0	0	17	12	84	2	0	0	98	1	1	1	0	0	3	0	78	13	0	0	91	209	800
16:00:00	9	4	7	0	0	20	16	78	2	0	0	96	2	6	5	0	0	13	2	94	8	0	0	104	233	842
16:15:00	3	2	4	0	0	9	10	107	0	0	0	117	1	4	2	0	0	7	1	77	9	0	0	87	220	864
16:30:00	12	1	4	0	0	17	13	84	2	0	0	99	2	1	2	0	0	5	3	88	11	0	0	102	223	885
16:45:00	7	3	9	0	0	19	16	93	1	0	0	110	3	2	3	0	0	8	5	81	6	0	0	92	229	905
17:00:00	7	3	6	0	0	16	14	94	2	0	0	110	2	4	6	0	0	12	3	70	17	0	0	90	228	900

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

17:15:00	6	3	7	0	0	16	11	103	0	0	0	114	4	1	3	0	0	8	4	75	16	0	0	95	233	913
17:30:00	6	2	6	0	0	14	17	84	0	0	0	101	1	2	4	0	0	7	4	74	7	0	0	85	207	897
17:45:00	4	3	5	0	0	12	15	62	2	0	0	79	1	1	2	0	0	4	4	58	6	0	0	68	163	831
Grand Total	287	83	365	0	0	735	387	2970	44	0	0	3401	61	87	63	0	1	211	84	3333	361	0	2	3778	**8125**	-
Approach%	39%	11.3%	49.7%	0%		-	11.4%	87.3%	1.3%	0%		-	28.9%	41.2%	29.9%	0%		-	2.2%	88.2%	9.6%	0%		-	**-**	-
Totals %	3.5%	1%	4.5%	0%		9%	4.8%	36.6%	0.5%	0%		41.9%	0.8%	1.1%	0.8%	0%		2.6%	1%	41%	4.4%	0%		46.5%	**-**	-
Heavy	15	1	9	0		-	6	448	0	0		-	1	2	3	0		-	2	490	19	0		-	**-**	-
Heavy %	5.2%	1.2%	2.5%	0%		-	1.6%	15.1%	0%	0%		-	1.6%	2.3%	4.8%	0%		-	2.4%	14.7%	5.3%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & REGIONAL RD 136 / MAIN ST
Date: Thu, Jul 08, 2021 Deployment Lead: Theo Daglis

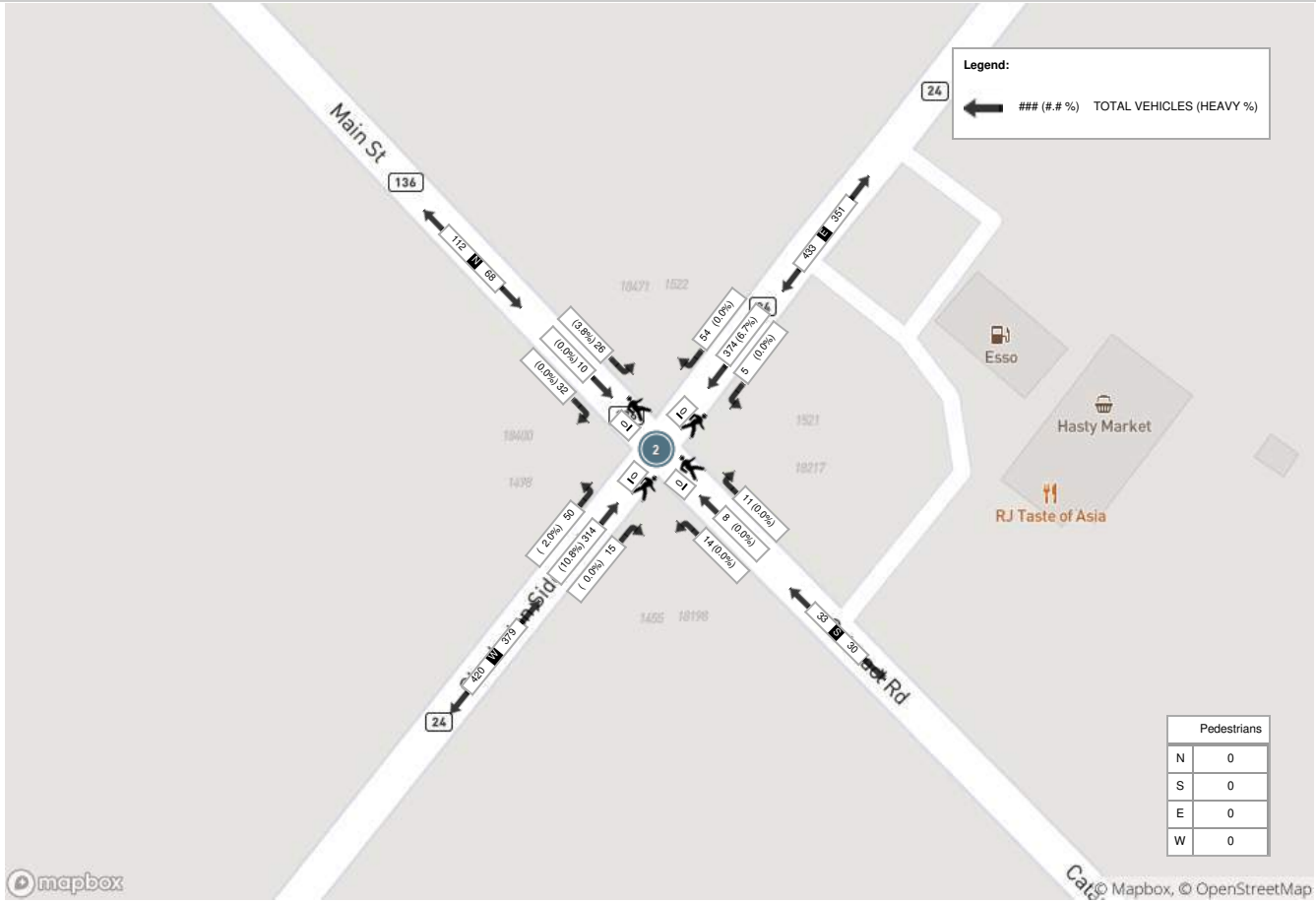
The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 04:30 PM - 05:30 PM Weather: Light Rain (13.85 °C)

Start Time	N Approach MAIN ST						E Approach CHARLESTON SIDE RD						S Approach CATARACT RD						W Approach CHARLESTON SIDE RD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:30:00	12	1	4	0	0	17	13	84	2	0	0	99	2	1	2	0	0	5	3	88	11	0	0	102	223
16:45:00	7	3	9	0	0	19	16	93	1	0	0	110	3	2	3	0	0	8	5	81	6	0	0	92	229
17:00:00	7	3	6	0	0	16	14	94	2	0	0	110	2	4	6	0	0	12	3	70	17	0	0	90	228
17:15:00	6	3	7	0	0	16	11	103	0	0	0	114	4	1	3	0	0	8	4	75	16	0	0	95	233
Grand Total	32	10	26	0	0	68	54	374	5	0	0	433	11	8	14	0	0	33	15	314	50	0	0	379	**913**
Approach%	47.1%	14.7%	38.2%	0%		-	12.5%	86.4%	1.2%	0%		-	33.3%	24.2%	42.4%	0%		-	4%	82.8%	13.2%	0%		-	**-**
Totals %	3.5%	1.1%	2.8%	0%		7.4%	5.9%	41%	0.5%	0%		47.4%	1.2%	0.9%	1.5%	0%		3.6%	1.6%	34.4%	5.5%	0%		41.5%	**-**
PHF	0.67	0.83	0.72	0		0.89	0.84	0.91	0.63	0		0.95	0.69	0.5	0.58	0		0.69	0.75	0.89	0.74	0		0.93	**-**
Heavy	0	0	1	0		1	0	25	0	0		25	0	0	0	0		0	0	34	1	0		35	**-**
Heavy %	0%	0%	3.8%	0%		1.5%	0%	6.7%	0%	0%		5.8%	0%	0%	0%	0%		0%	0%	10.8%	2%	0%		9.2%	**-**
Lights	32	9	25	0		66	54	349	5	0		408	11	8	14	0		33	15	280	49	0		344	**-**
Lights %	100%	90%	96.2%	0%		97.1%	100%	93.3%	100%	0%		94.2%	100%	100%	100%	0%		100%	100%	89.2%	98%	0%		90.8%	**-**
Single-Unit Trucks	0	0	1	0		1	0	9	0	0		9	0	0	0	0		0	0	5	1	0		6	**-**
Single-Unit Trucks %	0%	0%	3.8%	0%		1.5%	0%	2.4%	0%	0%		2.1%	0%	0%	0%	0%		0%	0%	1.6%	2%	0%		1.6%	**-**
Buses	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	0	0	0	0		0	0	12	0	0		12	0	0	0	0		0	0	25	0	0		25	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	3.2%	0%	0%		2.8%	0%	0%	0%	0%		0%	0%	8%	0%	0%		6.6%	**-**
Aggregate Trucks	0	0	0	0		0	0	4	0	0		4	0	0	0	0		0	0	4	0	0		4	**-**
Aggregate Trucks %	0%	0%	0%	0%		0%	0%	1.1%	0%	0%		0.9%	0%	0%	0%	0%		0%	0%	1.3%	0%	0%		1.1%	**-**
Bicycles on Road	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	0%	10%	0%	0%		1.5%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 04:30 PM - 05:30 PM **Weather: Light Rain (13.85 °C)**



Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & REGIONAL RD 136 / MAIN ST
Date: Sat, Jul 10, 2021 Deployment Lead: Theo Daglis

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Turning Movement Count (2 . CHARLESTON SIDEROAD & REGIONAL RD 136 / MAIN ST) CustID: 02412429 MioID:

Start Time	N Approach MAIN ST						E Approach CHARLESTON SIDE RD						S Approach CATARACT RD						W Approach CHARLESTON SIDE RD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	0	0	3	0	0	3	2	8	0	0	0	10	0	0	0	0	0	0	0	17	6	0	0	23	36	
06:15:00	2	0	7	0	0	9	3	12	0	0	0	15	1	0	0	0	0	1	0	27	0	0	0	27	52	
06:30:00	0	0	3	0	0	3	4	20	1	0	0	25	0	0	0	0	0	0	2	27	0	0	0	29	57	
06:45:00	3	0	4	0	0	7	12	16	1	0	0	29	1	0	0	0	0	1	1	30	4	0	0	35	72	217
07:00:00	3	0	4	0	0	7	12	20	0	0	0	32	2	2	1	0	0	5	1	41	2	0	0	44	88	269
07:15:00	0	0	8	0	0	8	7	24	0	0	0	31	0	1	0	0	0	1	0	27	5	0	0	32	72	289
07:30:00	3	0	2	0	0	5	6	21	1	0	0	28	0	2	0	0	0	2	2	39	6	0	0	47	82	314
07:45:00	2	0	4	0	0	6	13	24	0	0	0	37	1	1	1	0	0	3	0	50	10	0	0	60	106	348
08:00:00	2	0	2	0	0	4	6	30	0	0	0	36	2	0	2	0	0	4	1	48	7	0	0	56	100	360
08:15:00	3	1	7	0	0	11	10	25	1	0	0	36	1	1	0	0	0	2	0	55	6	0	0	61	110	398
08:30:00	1	2	5	0	0	8	15	31	2	0	0	48	1	3	1	0	0	5	3	67	8	0	0	78	139	455
08:45:00	1	2	9	0	0	12	10	32	6	0	0	48	1	1	0	1	0	3	0	65	7	0	0	72	135	484
09:00:00	3	0	4	0	0	7	9	44	1	0	0	54	1	1	1	0	0	3	1	69	7	0	0	77	141	525
09:15:00	0	2	3	0	0	5	16	48	3	0	0	67	1	1	1	0	0	3	1	92	8	0	0	101	176	591
09:30:00	5	0	6	0	0	11	14	77	1	0	0	92	0	7	0	0	0	7	2	90	9	0	0	101	211	663
09:45:00	7	1	5	0	0	13	8	76	5	0	0	89	0	3	4	0	0	7	1	75	5	0	0	81	190	718
10:00:00	7	3	7	0	0	17	20	65	4	0	0	89	0	0	0	0	0	0	4	82	15	0	0	101	207	784
10:15:00	6	0	9	0	0	15	6	65	0	0	0	71	0	3	2	0	0	5	1	78	13	0	0	92	183	791
10:30:00	12	2	5	0	0	19	14	64	3	0	0	81	2	2	1	0	0	5	1	97	14	0	0	112	217	797
10:45:00	6	3	10	0	0	19	15	66	2	0	0	83	3	2	2	0	0	7	4	100	12	0	0	116	225	832
11:00:00	12	7	9	0	0	28	24	59	2	0	0	85	1	6	1	0	0	8	3	93	10	0	0	106	227	852
11:15:00	10	3	14	0	0	27	18	83	3	0	0	104	1	12	2	0	0	15	4	87	11	0	0	102	248	917
11:30:00	19	3	7	0	0	29	16	76	1	0	0	93	3	3	2	0	0	8	3	101	9	0	0	113	243	943
11:45:00	7	3	7	0	0	17	14	94	12	0	0	120	4	5	3	0	0	12	5	78	13	0	0	96	245	963
12:00:00	8	4	14	0	0	26	13	70	1	0	0	84	3	1	3	0	0	7	7	89	11	0	0	107	224	960
12:15:00	8	3	14	0	0	25	17	82	1	0	0	100	0	4	3	0	0	7	3	90	8	0	0	101	233	945
12:30:00	8	4	10	0	0	22	15	90	5	0	0	110	2	2	3	0	0	7	5	83	12	0	0	100	239	941
12:45:00	12	2	18	0	0	32	16	78	3	0	0	97	5	8	3	0	0	16	2	70	14	0	0	86	231	927
13:00:00	17	5	10	0	0	32	15	79	2	0	0	96	4	3	5	0	0	12	5	117	11	0	0	133	273	976
13:15:00	7	2	9	0	0	18	21	99	1	0	0	121	0	6	4	0	0	10	0	88	11	0	0	99	248	991
13:30:00	9	4	18	0	0	31	18	97	5	0	0	120	2	6	3	0	0	11	2	94	7	0	0	103	265	1017
13:45:00	7	4	16	0	0	27	21	68	4	0	0	93	2	5	0	0	0	7	2	93	13	0	0	108	235	1021
14:00:00	11	3	16	0	0	30	26	104	4	0	0	134	4	5	2	0	0	11	5	86	15	0	0	106	281	1029
14:15:00	14	8	16	0	0	38	12	102	4	0	0	118	1	6	2	0	0	9	0	95	13	0	0	108	273	1054
14:30:00	8	5	17	0	0	30	9	102	8	0	0	119	1	5	3	0	0	9	2	77	15	0	0	94	252	1041
14:45:00	10	5	14	0	0	29	13	105	2	0	0	120	6	4	5	0	0	15	4	92	9	0	0	105	269	1075
15:00:00	10	2	15	0	0	27	14	94	2	0	0	110	1	2	2	0	0	5	2	65	6	0	0	73	215	1009
15:15:00	11	3	19	0	0	33	17	79	2	0	0	98	0	5	2	0	0	7	2	91	8	0	0	101	239	975
15:30:00	6	1	15	0	0	22	10	84	6	0	0	100	2	2	2	0	0	6	5	65	5	0	1	75	203	926
15:45:00	11	2	17	0	0	30	7	80	8	0	0	95	3	2	0	0	0	5	2	101	13	0	1	116	246	903
16:00:00	11	5	9	0	0	25	7	74	4	0	0	85	3	6	2	0	0	11	8	78	10	0	0	96	217	905
16:15:00	12	2	8	0	0	22	14	89	4	0	0	107	2	7	5	0	0	14	6	97	11	0	0	114	257	923
16:30:00	12	3	22	0	0	37	12	100	0	0	0	112	3	3	3	0	0	9	0	73	5	0	0	78	236	956
16:45:00	12	5	19	0	0	36	6	81	1	0	0	88	2	2	1	0	0	5	4	73	10	0	0	87	216	926
17:00:00	7	5	17	0	0	29	7	79	5	0	0	91	2	0	2	0	0	4	3	51	7	0	0	61	185	894

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

17:15:00	5	6	8	0	0	19	13	69	2	0	0	84	1	2	0	0	0	3	2	73	11	0	0	86	192	829
17:30:00	6	3	17	0	0	26	6	90	3	0	0	99	2	7	3	0	0	12	6	55	4	0	0	65	202	795
17:45:00	4	4	13	0	0	21	7	66	2	0	0	75	4	6	1	0	0	11	2	51	5	0	0	58	165	744
Grand Total	340	122	495	0	0	957	590	3141	128	0	0	3859	81	155	83	1	0	320	119	3482	421	0	2	4022	**9158**	-
Approach%	35.5%	12.7%	51.7%	0%		-	15.3%	81.4%	3.3%	0%		-	25.3%	48.4%	25.9%	0.3%		-	3%	86.6%	10.5%	0%		-	**-**	-
Totals %	3.7%	1.3%	5.4%	0%		10.4%	6.4%	34.3%	1.4%	0%		42.1%	0.9%	1.7%	0.9%	0%		3.5%	1.3%	38%	4.6%	0%		43.9%	**-**	-
Heavy	1	1	8	0		-	6	90	1	0		-	1	0	0	0		-	0	100	6	0		-	**-**	-
Heavy %	0.3%	0.8%	1.6%	0%		-	1%	2.9%	0.8%	0%		-	1.2%	0%	0%	0%		-	0%	2.9%	1.4%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & REGIONAL RD 136 / MAIN ST
Date: Sat, Jul 10, 2021 Deployment Lead: Theo Daglis

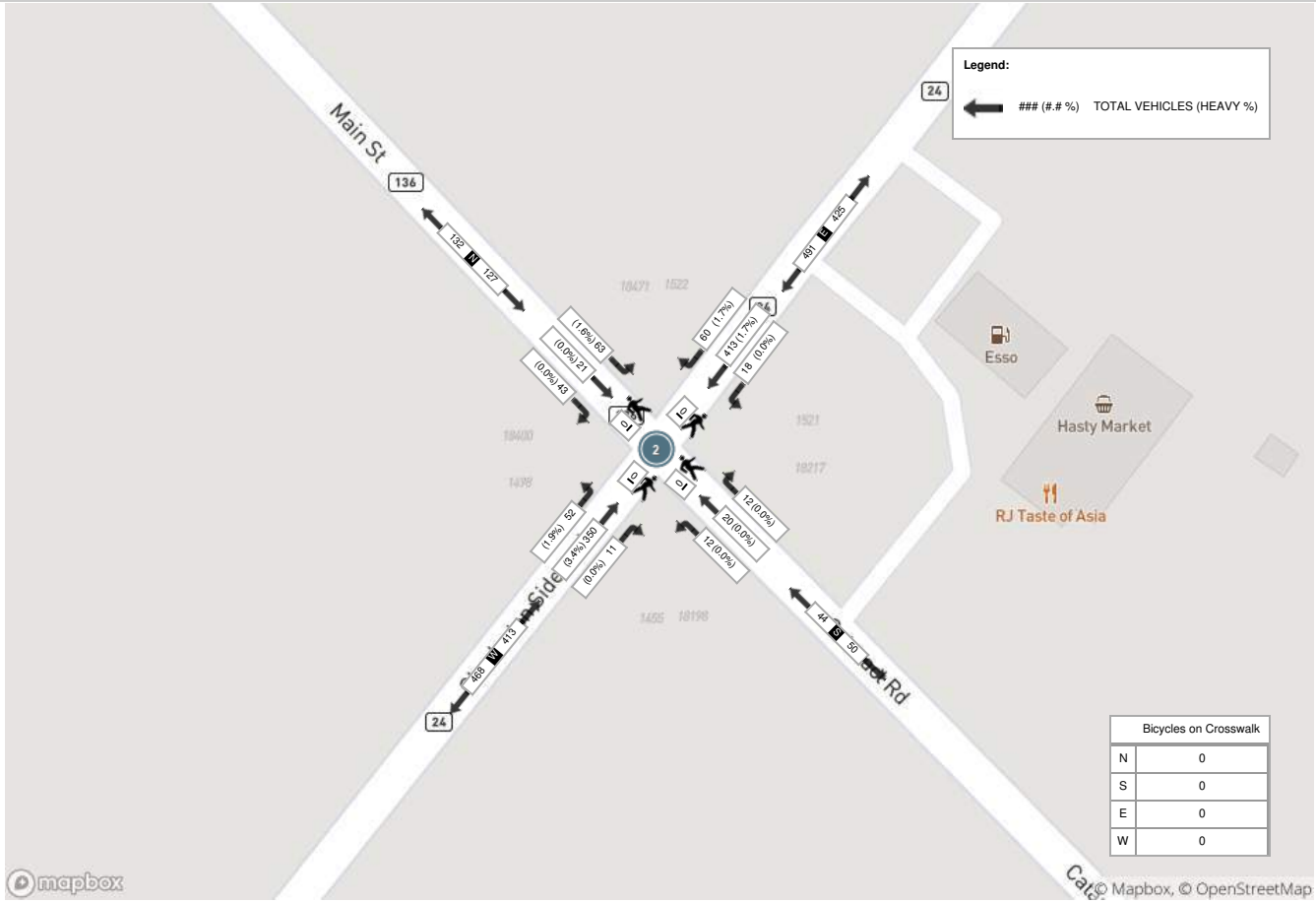
The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 02:00 PM - 03:00 PM Weather: Broken Clouds (11.81 °C)

Start Time	N Approach MAIN ST						E Approach CHARLESTON SIDE RD						S Approach CATARACT RD						W Approach CHARLESTON SIDE RD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
14:00:00	11	3	16	0	0	30	26	104	4	0	0	134	4	5	2	0	0	11	5	86	15	0	0	106	281
14:15:00	14	8	16	0	0	38	12	102	4	0	0	118	1	6	2	0	0	9	0	95	13	0	0	108	273
14:30:00	8	5	17	0	0	30	9	102	8	0	0	119	1	5	3	0	0	9	2	77	15	0	0	94	252
14:45:00	10	5	14	0	0	29	13	105	2	0	0	120	6	4	5	0	0	15	4	92	9	0	0	105	269
Grand Total	43	21	63	0	0	127	60	413	18	0	0	491	12	20	12	0	0	44	11	350	52	0	0	413	**1075**
Approach%	33.9%	16.5%	49.6%	0%		-	12.2%	84.1%	3.7%	0%		-	27.3%	45.5%	27.3%	0%		-	2.7%	84.7%	12.6%	0%		-	**-**
Totals %	4%	2%	5.9%	0%		11.8%	5.6%	38.4%	1.7%	0%		45.7%	1.1%	1.9%	1.1%	0%		4.1%	1%	32.6%	4.8%	0%		38.4%	**-**
PHF	0.77	0.66	0.93	0		0.84	0.58	0.98	0.56	0		0.92	0.5	0.83	0.6	0		0.73	0.55	0.92	0.87	0		0.96	**-**
Heavy	0	0	1	0		1	1	7	0	0		8	0	0	0	0		0	0	12	1	0		13	**-**
Heavy %	0%	0%	1.6%	0%		0.8%	1.7%	1.7%	0%	0%		1.6%	0%	0%	0%	0%		0%	0%	3.4%	1.9%	0%		3.1%	**-**
Lights	43	20	62	0		125	59	406	16	0		481	11	19	12	0		42	10	338	51	0		399	**-**
Lights %	100%	95.2%	98.4%	0%		98.4%	98.3%	98.3%	88.9%	0%		98%	91.7%	95%	100%	0%		95.5%	90.9%	96.6%	98.1%	0%		96.6%	**-**
Single-Unit Trucks	0	0	1	0		1	0	3	0	0		3	0	0	0	0		0	0	6	1	0		7	**-**
Single-Unit Trucks %	0%	0%	1.6%	0%		0.8%	0%	0.7%	0%	0%		0.6%	0%	0%	0%	0%		0%	0%	1.7%	1.9%	0%		1.7%	**-**
Buses	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	0	0	0	0		0	0	2	0	0		2	0	0	0	0		0	0	4	0	0		4	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.4%	0%	0%	0%	0%		0%	0%	1.1%	0%	0%		1%	**-**
Aggregate Trucks	0	0	0	0		0	1	2	0	0		3	0	0	0	0		0	0	2	0	0		2	**-**
Aggregate Trucks %	0%	0%	0%	0%		0%	1.7%	0.5%	0%	0%		0.6%	0%	0%	0%	0%		0%	0%	0.6%	0%	0%		0.5%	**-**
Bicycles on Road	0	1	0	0		1	0	0	2	0		2	1	1	0	0		2	1	0	0	0		1	**-**
Bicycles on Road %	0%	4.8%	0%	0%		0.8%	0%	0%	11.1%	0%		0.4%	8.3%	5%	0%	0%		4.5%	9.1%	0%	0%	0%		0.2%	**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 02:00 PM - 03:00 PM **Weather: Broken Clouds (11.81 °C)**



The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Turning Movement Count (1 . CHARLESTON SIDEROAD & HWY 10 /HURONTARIO ST) CustID: 02408233 MioID:

Start Time	N Approach HURONTARIO ST						E Approach CHARLESTON SIDEROAD						S Approach HURONTARIO ST						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	4	327	7	0	0	338	0	11	22	0	0	33	3	51	6	0	0	60	43	18	4	0	0	65	496	
06:15:00	3	270	11	0	0	284	1	21	28	0	0	50	8	62	15	0	0	85	53	26	2	0	0	81	500	
06:30:00	4	245	10	0	0	259	3	16	33	0	0	52	11	136	23	0	0	170	42	24	5	0	0	71	552	
06:45:00	11	273	8	0	1	292	2	24	25	0	0	51	4	122	24	0	0	150	36	30	15	0	0	81	574	2122
07:00:00	9	273	7	0	0	289	1	22	27	0	0	50	15	114	18	0	1	147	33	33	10	0	1	76	562	2188
07:15:00	3	310	9	0	1	322	2	32	37	0	0	71	16	132	21	0	0	169	51	30	15	0	0	96	658	2346
07:30:00	8	280	5	0	0	293	5	23	27	0	0	55	16	154	21	0	0	191	30	25	22	0	0	77	616	2410
07:45:00	5	198	17	0	0	220	8	27	28	0	0	63	9	166	32	0	1	207	36	26	19	0	0	81	571	2407
08:00:00	12	250	9	0	0	271	3	31	28	0	0	62	18	160	23	0	0	201	34	20	13	0	0	67	601	2446
08:15:00	11	212	10	0	0	233	8	27	26	0	0	61	8	173	24	0	0	205	39	32	15	0	0	86	585	2373
08:30:00	9	193	15	0	0	217	8	19	37	0	0	64	15	137	32	0	0	184	31	35	20	0	0	86	551	2308
08:45:00	9	196	22	0	0	227	10	31	29	0	0	70	18	144	26	0	0	188	32	37	20	0	0	89	574	2311
09:00:00	8	205	16	0	0	229	3	34	25	0	0	62	18	137	24	0	0	179	31	38	9	0	0	78	548	2258
09:15:00	8	165	8	0	0	181	10	46	27	0	0	83	19	148	29	0	0	196	28	32	34	0	0	94	554	2227
09:30:00	4	185	15	0	0	204	10	23	42	0	0	75	20	141	23	0	0	184	23	31	14	0	0	68	531	2207
09:45:00	19	173	9	0	0	201	5	28	24	0	0	57	18	155	27	0	0	200	31	49	29	0	0	109	567	2200
10:00:00	10	198	7	0	0	215	8	25	30	0	0	63	21	150	21	0	0	192	20	45	13	0	0	78	548	2200
10:15:00	11	161	8	0	0	180	7	35	17	0	0	59	21	154	29	0	0	204	27	35	16	0	0	78	521	2167
10:30:00	12	155	13	0	0	180	4	33	14	0	0	51	21	161	32	0	0	214	30	42	21	0	0	93	538	2174
10:45:00	17	186	16	0	0	219	9	44	25	0	0	78	21	162	30	0	1	213	26	36	20	0	1	82	592	2199
11:00:00	12	175	12	0	1	199	9	40	30	0	0	79	18	133	43	0	1	194	22	47	28	0	0	97	569	2220
11:15:00	16	167	8	0	1	191	12	36	21	0	0	69	19	150	29	0	0	198	22	41	19	0	0	82	540	2239
11:30:00	16	158	7	0	0	181	8	36	16	0	0	60	20	163	36	0	0	219	26	60	19	0	0	105	565	2266
11:45:00	12	150	11	0	1	173	7	43	26	0	0	76	18	167	32	0	0	217	24	38	16	0	0	78	544	2218
12:00:00	18	172	30	0	0	220	6	30	21	0	0	57	20	167	26	0	0	213	21	53	23	0	0	97	587	2236
12:15:00	8	182	18	0	0	208	7	44	27	0	0	78	18	164	27	0	1	209	27	51	24	0	0	102	597	2293
12:30:00	20	185	13	0	0	218	9	35	25	0	0	69	27	176	19	0	0	222	29	34	18	0	0	81	590	2318
12:45:00	20	162	12	0	0	194	13	36	32	0	0	81	19	183	28	0	0	230	24	48	18	0	1	90	595	2369
13:00:00	13	187	17	0	1	217	6	43	34	0	0	83	29	178	30	0	0	237	25	46	17	0	0	88	625	2407
13:15:00	19	201	15	0	1	235	9	48	30	0	0	87	25	182	25	0	2	232	29	58	30	0	2	117	671	2481
13:30:00	20	166	8	0	2	194	10	46	19	0	0	75	22	184	31	0	0	237	24	60	15	0	0	99	605	2496
13:45:00	16	164	14	0	0	194	11	47	25	0	0	83	24	197	29	0	2	250	21	58	26	0	2	105	632	2533
14:00:00	16	209	11	0	1	236	11	46	20	0	0	77	33	216	32	0	0	281	23	52	15	0	0	90	684	2592
14:15:00	15	185	15	0	2	215	12	40	16	0	0	68	27	222	35	0	0	284	21	53	24	0	0	98	665	2586
14:30:00	14	182	13	0	0	209	9	42	25	0	0	76	32	265	39	0	0	336	20	44	20	0	0	84	705	2686
14:45:00	17	171	12	0	1	200	11	39	22	0	0	72	33	252	46	0	0	331	25	41	16	0	0	82	685	2739
15:00:00	19	150	11	0	1	180	12	53	14	0	0	79	27	243	40	0	2	310	22	50	24	0	0	96	665	2720
15:15:00	18	182	13	0	0	213	11	43	15	0	0	69	40	276	32	0	0	348	24	47	11	0	0	82	712	2767
15:30:00	12	162	9	0	0	183	7	35	17	0	0	59	25	277	44	0	0	346	32	64	24	0	0	120	708	2770
15:45:00	15	150	11	0	0	176	7	41	24	0	0	72	45	344	55	0	0	444	27	52	18	0	0	97	789	2874
16:00:00	15	156	9	0	0	180	13	52	20	0	0	85	33	291	51	0	2	375	26	64	23	0	1	113	753	2962
16:15:00	26	174	12	0	0	212	12	52	25	0	0	89	38	355	35	0	3	428	21	51	14	0	3	86	815	3065
16:30:00	17	171	15	0	0	203	19	66	28	0	0	113	43	319	41	0	0	403	27	60	18	0	0	105	824	3181
16:45:00	16	172	16	0	0	204	17	46	26	0	0	89	27	304	63	0	0	394	24	46	28	0	0	98	785	3177
17:00:00	12	175	19	0	1	206	15	58	22	0	0	95	25	324	49	0	2	398	21	54	23	0	0	98	797	3221

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

17:15:00	22	185	12	0	1	219	12	65	29	0	0	106	42	339	50	0	0	431	27	57	15	0	0	99	855	3261
17:30:00	21	179	6	0	1	206	17	47	16	0	0	80	29	294	47	0	0	370	21	53	16	0	1	90	746	3183
17:45:00	12	132	11	0	0	155	5	36	23	0	0	64	32	299	43	0	2	374	16	44	18	0	0	78	671	3069
Grand Total	634	9259	582	0	17	10475	404	1797	1199	0	0	3400	1090	9423	1537	0	20	12050	1347	2070	876	0	12	4293	**30218**	-
Approach%	6.1%	88.4%	5.6%	0%		-	11.9%	52.9%	35.3%	0%		-	9%	78.2%	12.8%	0%		-	31.4%	48.2%	20.4%	0%		-	**-**	-
Totals %	2.1%	30.6%	1.9%	0%		34.7%	1.3%	5.9%	4%	0%		11.3%	3.6%	31.2%	5.1%	0%		39.9%	4.5%	6.9%	2.9%	0%		14.2%	**-**	-
Heavy	49	667	51	0		-	39	257	52	0		-	104	806	158	0		-	157	313	56	0		-	**-**	-
Heavy %	7.7%	7.2%	8.8%	0%		-	9.7%	14.3%	4.3%	0%		-	9.5%	8.6%	10.3%	0%		-	11.7%	15.1%	6.4%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & HWY 10 /HURONTARIO ST
Date: Thu, Jul 08, 2021 Deployment Lead: Theo Daglis

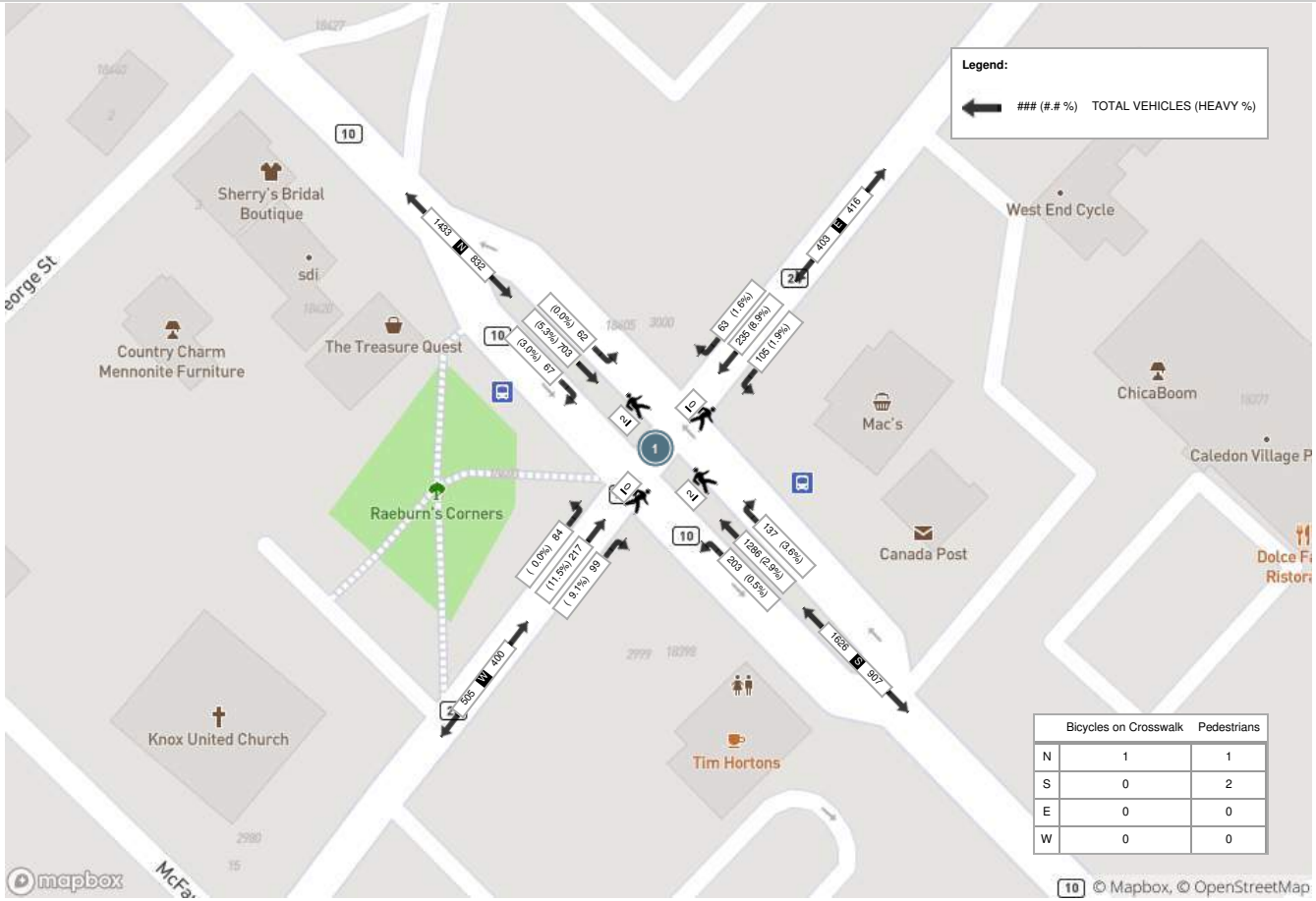
The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 04:30 PM - 05:30 PM Weather: Light Rain (13.85 °C)

Start Time	N Approach HURONTARIO ST						E Approach CHARLESTON SIDEROAD						S Approach HURONTARIO ST						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:30:00	17	171	15	0	0	203	19	66	28	0	0	113	43	319	41	0	0	403	27	60	18	0	0	105	824
16:45:00	16	172	16	0	0	204	17	46	26	0	0	89	27	304	63	0	0	394	24	46	28	0	0	98	785
17:00:00	12	175	19	0	1	206	15	58	22	0	0	95	25	324	49	0	2	398	21	54	23	0	0	98	797
17:15:00	22	185	12	0	1	219	12	65	29	0	0	106	42	339	50	0	0	431	27	57	15	0	0	99	855
Grand Total	67	703	62	0	2	832	63	235	105	0	0	403	137	1286	203	0	2	1626	99	217	84	0	0	400	**3261**
Approach%	8.1%	84.5%	7.5%	0%		-	15.6%	58.3%	26.1%	0%		-	8.4%	79.1%	12.5%	0%		-	24.8%	54.3%	21%	0%		-	**-**
Totals %	2.1%	21.6%	1.9%	0%		25.5%	1.9%	7.2%	3.2%	0%		12.4%	4.2%	39.4%	6.2%	0%		49.9%	3%	6.7%	2.6%	0%		12.3%	**-**
PHF	0.76	0.95	0.82	0		0.95	0.83	0.89	0.91	0		0.89	0.8	0.95	0.81	0		0.94	0.92	0.9	0.75	0		0.95	**-**
Heavy	2	37	0	0		39	1	21	2	0		24	5	37	1	0		43	9	25	0	0		34	**-**
Heavy %	3%	5.3%	0%	0%		4.7%	1.6%	8.9%	1.9%	0%		6%	3.6%	2.9%	0.5%	0%		2.6%	9.1%	11.5%	0%	0%		8.5%	**-**
Lights	65	666	62	0		793	62	214	103	0		379	132	1249	202	0		1583	90	192	84	0		366	**-**
Lights %	97%	94.7%	100%	0%		95.3%	98.4%	91.1%	98.1%	0%		94%	96.4%	97.1%	99.5%	0%		97.4%	90.9%	88.5%	100%	0%		91.5%	**-**
Single-Unit Trucks	2	21	0	0		23	1	5	2	0		8	4	14	0	0		18	3	1	0	0		4	**-**
Single-Unit Trucks %	3%	3%	0%	0%		2.8%	1.6%	2.1%	1.9%	0%		2%	2.9%	1.1%	0%	0%		1.1%	3%	0.5%	0%	0%		1%	**-**
Buses	0	0	0	0		0	0	0	0	0		0	1	1	0	0		2	0	0	0	0		0	**-**
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0.7%	0.1%	0%	0%		0.1%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	0	13	0	0		13	0	12	0	0		12	0	22	1	0		23	4	23	0	0		27	**-**
Articulated Trucks %	0%	1.8%	0%	0%		1.6%	0%	5.1%	0%	0%		3%	0%	1.7%	0.5%	0%		1.4%	4%	10.6%	0%	0%		6.8%	**-**
Aggregate Trucks	0	3	0	0		3	0	4	0	0		4	0	0	0	0		0	2	1	0	0		3	**-**
Aggregate Trucks %	0%	0.4%	0%	0%		0.4%	0%	1.7%	0%	0%		1%	0%	0%	0%	0%		0%	2%	0.5%	0%	0%		0.8%	**-**
Pedestrians	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	25%		-	-	-	-	0%		-	-	-	-	50%		-	-	-	-	0%		**-**
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	25%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

The Municipal Infrastructure Group
SUITE 200 8800 DUFFERIN ST
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 04:30 PM - 05:30 PM **Weather: Light Rain (13.85 °C)**



Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & HWY 10 (HURONTARIO ST)
Date: Thu, Apr 21, 2022 Deployment Lead: Tasos Issaaakidis

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Turning Movement Count (1 . CHARLESTON SIDEROAD & HWY 10 (HURONTARIO ST)) CustID: 02408233 MioID:

Start Time	N Approach HURONTARIO ST						E Approach CHARLESTON SIDEROAD						S Approach HURONTARIO ST						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	5	301	4	0	0	310	0	12	25	0	0	37	2	60	17	0	0	79	47	11	5	0	0	63	489	
06:15:00	5	305	5	0	0	315	2	9	29	0	0	40	5	103	15	0	2	123	48	20	5	0	0	73	551	
06:30:00	11	285	8	0	0	304	2	22	36	0	0	60	8	112	14	0	0	134	41	25	4	0	0	70	568	
06:45:00	7	283	5	0	1	295	0	23	32	0	0	55	9	95	22	0	0	126	38	33	4	0	0	75	551	2159
07:00:00	5	360	12	0	0	377	3	19	28	0	0	50	13	120	11	0	0	144	50	24	7	0	0	81	652	2322
07:15:00	5	373	6	0	0	384	3	30	33	0	0	66	16	134	17	0	0	167	65	34	11	0	0	110	727	2498
07:30:00	11	324	10	0	0	345	2	19	31	0	0	52	14	162	20	0	0	196	48	43	18	0	0	109	702	2632
07:45:00	14	328	13	0	1	355	12	31	28	0	0	71	12	177	22	0	1	211	33	34	17	0	0	84	721	2802
08:00:00	7	247	17	0	0	271	9	26	32	0	0	67	9	159	24	0	1	192	56	36	25	0	0	117	647	2797
08:15:00	10	284	13	0	0	307	8	29	37	0	0	74	15	148	26	0	0	189	40	29	11	0	0	80	650	2720
08:30:00	8	269	13	0	0	290	9	31	34	0	0	74	24	142	29	0	0	195	39	25	18	0	0	82	641	2659
08:45:00	11	213	19	0	0	243	8	32	26	0	0	66	17	161	25	0	0	203	21	42	13	0	0	76	588	2526
09:00:00	10	233	20	0	0	263	7	30	24	0	0	61	23	142	34	0	0	199	32	32	20	0	0	84	607	2486
09:15:00	10	206	13	0	0	229	10	35	47	0	2	92	19	150	36	0	0	205	34	30	23	0	0	87	613	2449
09:30:00	4	162	7	0	0	173	5	25	26	0	0	56	22	152	33	0	0	207	28	32	13	0	0	73	509	2317
09:45:00	10	180	9	0	1	199	9	23	25	0	4	57	18	144	28	0	3	190	32	31	17	0	1	80	526	2255
10:00:00	7	176	13	0	2	196	8	26	17	0	0	51	21	128	22	0	1	171	32	27	16	0	0	75	493	2141
10:15:00	15	182	11	0	0	208	10	33	24	0	0	67	13	130	29	0	0	172	35	32	15	0	0	82	529	2057
10:30:00	6	191	12	0	1	209	6	27	19	0	1	52	19	159	29	0	0	207	26	36	20	0	3	82	550	2098
10:45:00	10	127	10	0	0	147	14	18	21	0	0	53	16	154	24	0	5	194	27	33	18	0	0	78	472	2044
11:00:00	16	181	12	0	0	209	5	27	17	0	0	49	18	120	20	0	0	158	23	23	16	0	0	62	478	2029
11:15:00	13	153	7	0	1	173	6	19	19	0	0	44	11	133	28	0	0	172	25	24	14	0	0	63	452	1952
11:30:00	13	169	9	0	0	191	10	24	21	0	0	55	13	144	23	0	0	180	27	34	17	0	0	78	504	1906
11:45:00	9	144	14	0	1	167	7	22	22	0	0	51	17	137	22	0	0	176	21	36	17	0	1	74	468	1902
BREAK																										
12:00:00	13	165	11	0	0	189	6	22	24	0	1	52	29	160	24	0	1	213	14	35	8	0	0	57	511	
12:15:00	12	162	12	0	0	186	13	29	33	0	0	75	12	164	32	0	0	208	23	35	15	0	0	73	542	
12:30:00	13	142	13	0	0	168	6	30	24	0	0	60	28	170	25	0	0	223	23	32	26	0	0	81	532	
12:45:00	8	164	15	0	0	187	3	20	28	0	0	51	26	186	30	1	0	243	23	36	13	0	0	72	553	2138
13:00:00	11	151	7	0	0	169	9	32	27	0	0	68	16	142	26	0	0	184	27	24	17	0	0	68	489	2116
13:15:00	8	159	14	0	0	181	5	32	24	0	1	61	15	176	25	0	1	216	20	34	9	0	1	63	521	2095
13:30:00	17	174	14	0	0	205	5	22	22	0	0	49	23	162	21	0	0	206	20	27	19	0	0	66	526	2089
13:45:00	11	146	4	0	0	161	11	31	12	0	1	54	30	194	39	0	1	263	23	30	18	0	0	71	549	2085
14:00:00	18	176	11	0	1	205	4	26	18	0	1	48	27	163	25	0	1	215	13	46	23	0	0	82	550	2146
14:15:00	14	185	7	0	0	206	2	31	15	0	1	48	26	205	28	0	1	259	22	33	16	0	1	71	584	2209
14:30:00	18	156	8	0	1	182	11	40	27	0	2	78	24	211	28	0	1	263	29	38	18	0	1	85	608	2291
14:45:00	16	149	9	0	1	174	15	33	20	0	2	68	36	275	50	0	1	361	20	28	16	0	0	64	667	2409
15:00:00	13	139	9	0	0	161	1	30	21	0	1	52	29	272	39	0	0	340	22	38	17	0	0	77	630	2489
15:15:00	19	148	10	0	0	177	8	39	20	0	0	67	34	305	31	0	0	370	20	35	15	0	0	70	684	2589
15:30:00	16	164	16	0	1	196	12	35	20	0	1	67	27	370	53	0	1	450	12	48	22	0	1	82	795	2776
15:45:00	10	168	6	0	0	184	15	46	30	0	0	91	41	373	56	0	1	470	29	41	25	0	2	95	840	2949
16:00:00	13	150	16	0	0	179	28	42	33	0	0	103	28	319	50	0	0	397	18	35	25	0	0	78	757	3076
16:15:00	16	174	19	0	2	209	20	60	24	0	0	104	31	379	51	0	2	461	21	45	15	0	1	81	855	3247
16:30:00	12	150	15	0	0	177	15	50	31	0	0	96	33	351	47	0	1	431	23	40	20	0	1	83	787	3239
16:45:00	18	168	11	0	1	197	16	49	24	0	1	89	26	364	46	0	1	436	19	42	20	0	0	81	803	3202

17:00:00	15	178	6	0	0	199	20	49	28	0	0	97	29	331	30	0	0	390	23	39	30	0	0	92	778	3223
17:15:00	22	155	10	0	1	187	23	37	19	0	0	79	27	374	49	0	0	450	20	28	23	0	0	71	787	3155
17:30:00	16	176	20	0	0	212	12	53	20	0	0	85	22	285	41	0	0	348	27	30	13	0	0	70	715	3083
17:45:00	13	169	12	0	2	194	12	36	14	0	1	62	23	294	42	0	2	359	18	39	20	0	1	77	692	2972
Grand Total	564	9544	537	0	18	10645	427	1466	1211	0	20	3104	996	9491	1458	1	28	11946	1377	1584	787	0	14	3748	**29443**	-
Approach%	5.3%	89.7%	5%	0%		-	13.8%	47.2%	39%	0%		-	8.3%	79.4%	12.2%	0%		-	36.7%	42.3%	21%	0%		-	**-**	-
Totals %	1.9%	32.4%	1.8%	0%		36.2%	1.5%	5%	4.1%	0%		10.5%	3.4%	32.2%	5%	0%		40.6%	4.7%	5.4%	2.7%	0%		12.7%	**-**	-
Heavy	65	656	54	0		-	36	199	46	0		-	86	838	178	0		-	122	287	59	0		-	**-**	-
Heavy %	11.5%	6.9%	10.1%	0%		-	8.4%	13.6%	3.8%	0%		-	8.6%	8.8%	12.2%	0%		-	8.9%	18.1%	7.5%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 07:00 AM - 08:00 AM Weather: Overcast Clouds (4.03 °C)

Start Time	N Approach HURONTARIO ST						E Approach CHARLESTON SIDEROAD						S Approach HURONTARIO ST						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
07:00:00	5	360	12	0	0	377	3	19	28	0	0	50	13	120	11	0	0	144	50	24	7	0	0	81	652
07:15:00	5	373	6	0	0	384	3	30	33	0	0	66	16	134	17	0	0	167	65	34	11	0	0	110	727
07:30:00	11	324	10	0	0	345	2	19	31	0	0	52	14	162	20	0	0	196	48	43	18	0	0	109	702
07:45:00	14	328	13	0	1	355	12	31	28	0	0	71	12	177	22	0	1	211	33	34	17	0	0	84	721
Grand Total	35	1385	41	0	1	1461	20	99	120	0	0	239	55	593	70	0	1	718	196	135	53	0	0	384	**2802**
Approach%	2.4%	94.8%	2.8%	0%		-	8.4%	41.4%	50.2%	0%		-	7.7%	82.6%	9.7%	0%		-	51%	35.2%	13.8%	0%		-	**-**
Totals %	1.2%	49.4%	1.5%	0%		52.1%	0.7%	3.5%	4.3%	0%		8.5%	2%	21.2%	2.5%	0%		25.6%	7%	4.8%	1.9%	0%		13.7%	**-**
PHF	0.63	0.93	0.79	0		0.95	0.42	0.8	0.91	0		0.84	0.86	0.84	0.8	0		0.85	0.75	0.78	0.74	0		0.87	**-**
Heavy	3	52	7	0		62	4	12	1	0		17	12	74	16	0		102	16	31	2	0		49	**-**
Heavy %	8.6%	3.8%	17.1%	0%		4.2%	20%	12.1%	0.8%	0%		7.1%	21.8%	12.5%	22.9%	0%		14.2%	8.2%	23%	3.8%	0%		12.8%	**-**
Lights	32	1333	34	0		1399	16	87	119	0		222	43	519	54	0		616	180	104	51	0		335	**-**
Lights %	91.4%	96.2%	82.9%	0%		95.8%	80%	87.9%	99.2%	0%		92.9%	78.2%	87.5%	77.1%	0%		85.8%	91.8%	77%	96.2%	0%		87.2%	**-**
Single-Unit Trucks	2	10	1	0		13	2	3	0	0		5	2	23	2	0		27	1	5	1	0		7	**-**
Single-Unit Trucks %	5.7%	0.7%	2.4%	0%		0.9%	10%	3%	0%	0%		2.1%	3.6%	3.9%	2.9%	0%		3.8%	0.5%	3.7%	1.9%	0%		1.8%	**-**
Buses	1	8	2	0		11	0	0	1	0		1	1	3	0	0		4	0	1	0	0		1	**-**
Buses %	2.9%	0.6%	4.9%	0%		0.8%	0%	0%	0.8%	0%		0.4%	1.8%	0.5%	0%	0%		0.6%	0%	0.7%	0%	0%		0.3%	**-**
Articulated Trucks	0	24	1	0		25	2	7	0	0		9	0	34	2	0		36	3	13	0	0		16	**-**
Articulated Trucks %	0%	1.7%	2.4%	0%		1.7%	10%	7.1%	0%	0%		3.8%	0%	5.7%	2.9%	0%		5%	1.5%	9.6%	0%	0%		4.2%	**-**
Aggregate Trucks	0	10	3	0		13	0	2	0	0		2	9	14	12	0		35	12	12	1	0		25	**-**
Aggregate Trucks %	0%	0.7%	7.3%	0%		0.9%	0%	2%	0%	0%		0.8%	16.4%	2.4%	17.1%	0%		4.9%	6.1%	8.9%	1.9%	0%		6.5%	**-**
Pedestrians	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	50%		-	-	-	-	0%		-	-	-	-	50%		-	-	-	-	0%		**-**

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 03:30 PM - 04:30 PM Weather: Light Rain (8.66 °C)

Start Time	N Approach HURONTARIO ST						E Approach CHARLESTON SIDEROAD						S Approach HURONTARIO ST						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
15:30:00	16	164	16	0	1	196	12	35	20	0	1	67	27	370	53	0	1	450	12	48	22	0	1	82	795
15:45:00	10	168	6	0	0	184	15	46	30	0	0	91	41	373	56	0	1	470	29	41	25	0	2	95	840
16:00:00	13	150	16	0	0	179	28	42	33	0	0	103	28	319	50	0	0	397	18	35	25	0	0	78	757
16:15:00	16	174	19	0	2	209	20	60	24	0	0	104	31	379	51	0	2	461	21	45	15	0	1	81	855
Grand Total	55	656	57	0	3	768	75	183	107	0	1	365	127	1441	210	0	4	1778	80	169	87	0	4	336	**3247**
Approach%	7.2%	85.4%	7.4%	0%		-	20.5%	50.1%	29.3%	0%		-	7.1%	81%	11.8%	0%		-	23.8%	50.3%	25.9%	0%		-	**-**
Totals %	1.7%	20.2%	1.8%	0%		23.7%	2.3%	5.6%	3.3%	0%		11.2%	3.9%	44.4%	6.5%	0%		54.8%	2.5%	5.2%	2.7%	0%		10.3%	**-**
PHF	0.86	0.94	0.75	0		0.92	0.67	0.76	0.81	0		0.88	0.77	0.95	0.94	0		0.95	0.69	0.88	0.87	0		0.88	**-**
Heavy	5	45	12	0		62	4	17	8	0		29	10	45	9	0		64	5	29	9	0		43	**-**
Heavy %	9.1%	6.9%	21.1%	0%		8.1%	5.3%	9.3%	7.5%	0%		7.9%	7.9%	3.1%	4.3%	0%		3.6%	6.3%	17.2%	10.3%	0%		12.8%	**-**
Lights	50	611	45	0		706	71	166	99	0		336	117	1396	201	0		1714	75	140	78	0		293	**-**
Lights %	90.9%	93.1%	78.9%	0%		91.9%	94.7%	90.7%	92.5%	0%		92.1%	92.1%	96.9%	95.7%	0%		96.4%	93.8%	82.8%	89.7%	0%		87.2%	**-**
Single-Unit Trucks	1	14	4	0		19	1	3	3	0		7	3	16	5	0		24	4	4	2	0		10	**-**
Single-Unit Trucks %	1.8%	2.1%	7%	0%		2.5%	1.3%	1.6%	2.8%	0%		1.9%	2.4%	1.1%	2.4%	0%		1.3%	5%	2.4%	2.3%	0%		3%	**-**
Buses	0	7	4	0		11	3	6	5	0		14	3	4	1	0		8	0	6	5	0		11	**-**
Buses %	0%	1.1%	7%	0%		1.4%	4%	3.3%	4.7%	0%		3.8%	2.4%	0.3%	0.5%	0%		0.4%	0%	3.6%	5.7%	0%		3.3%	**-**
Articulated Trucks	3	24	4	0		31	0	8	0	0		8	2	18	2	0		22	0	14	2	0		16	**-**
Articulated Trucks %	5.5%	3.7%	7%	0%		4%	0%	4.4%	0%	0%		2.2%	1.6%	1.2%	1%	0%		1.2%	0%	8.3%	2.3%	0%		4.8%	**-**
Aggregate Trucks	1	0	0	0		1	0	0	0	0		0	2	7	1	0		10	1	5	0	0		6	**-**
Aggregate Trucks %	1.8%	0%	0%	0%		0.1%	0%	0%	0%	0%		0%	1.6%	0.5%	0.5%	0%		0.6%	1.3%	3%	0%	0%		1.8%	**-**
Pedestrians	-	-	-	-	3	-	-	-	-	-	1	-	-	-	-	-	4	-	-	-	-	-	4	-	**-**
Pedestrians%	-	-	-	-	25%		-	-	-	-	8.3%		-	-	-	-	33.3%		-	-	-	-	33.3%		**-**

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 07:00 AM - 08:00 AM **Weather: Overcast Clouds (4.03 °C)**

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 03:30 PM - 04:30 PM Weather: Light Rain (8.66 °C)

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Turning Movement Count (1 . CHARLESTON SIDEROAD & HWY 10 (HURONTARIO ST)) CustID: 02408233 MioID:

Start Time	N Approach HURONTARIO ST						E Approach CHARLESTON SIDEROAD						S Approach HURONTARIO ST						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	1	76	2	0	0	79	0	3	7	0	0	10	2	31	6	0	0	39	9	6	3	0	0	18	146	
06:15:00	1	83	2	0	0	86	1	8	5	0	0	14	5	45	7	0	0	57	5	6	3	0	0	14	171	
06:30:00	2	82	4	0	0	88	0	4	8	0	0	12	5	53	9	0	0	67	10	3	7	0	0	20	187	
06:45:00	1	96	2	0	2	99	1	6	7	0	0	14	6	62	11	0	0	79	7	9	4	0	0	20	212	716
07:00:00	5	116	1	0	0	122	2	8	16	0	0	26	4	52	6	0	0	62	7	10	7	0	0	24	234	804
07:15:00	6	140	5	0	0	151	2	7	14	0	0	23	8	91	13	0	1	112	16	16	4	0	1	36	322	955
07:30:00	4	119	4	0	0	127	2	10	22	0	0	34	7	106	19	0	0	132	17	18	14	0	0	49	342	1110
07:45:00	8	101	1	0	1	110	3	13	12	0	1	28	13	125	20	0	0	158	11	23	12	0	1	46	342	1240
08:00:00	7	105	6	0	0	118	2	22	20	0	0	44	9	106	10	0	1	125	17	17	12	0	1	46	333	1339
08:15:00	9	147	7	0	1	163	3	23	15	0	0	41	10	121	16	0	1	147	18	22	16	0	0	56	407	1424
08:30:00	6	153	2	0	0	161	4	16	11	0	0	31	17	118	25	0	0	160	25	27	15	0	0	67	419	1501
08:45:00	9	130	8	0	0	147	5	27	16	0	0	48	14	137	10	0	0	161	11	25	15	0	0	51	407	1566
09:00:00	7	166	11	0	1	184	4	24	25	0	0	53	13	157	12	0	0	182	13	26	18	0	0	57	476	1709
09:15:00	12	190	10	0	0	212	4	37	14	0	0	55	12	134	15	0	0	161	26	26	12	0	0	64	492	1794
09:30:00	7	147	15	0	0	169	12	31	34	0	1	77	18	155	18	0	1	191	15	27	13	0	0	55	492	1867
09:45:00	4	185	14	0	1	203	9	49	23	0	0	81	19	161	26	0	0	206	25	30	16	0	0	71	561	2021
10:00:00	13	185	5	0	1	203	8	30	20	0	0	58	20	177	28	0	0	225	22	26	25	0	0	73	559	2104
10:15:00	13	195	12	0	0	220	8	29	24	0	0	61	15	159	28	0	0	202	17	35	24	0	0	76	559	2171
10:30:00	13	202	11	0	0	226	6	44	24	0	0	74	9	171	26	0	0	206	23	46	29	0	0	98	604	2283
10:45:00	14	207	14	0	1	235	4	29	35	0	0	68	26	193	23	0	4	242	28	50	29	0	0	107	652	2374
11:00:00	19	233	17	0	0	269	8	37	21	0	2	66	17	209	20	0	4	246	30	35	22	0	0	87	668	2483
11:15:00	14	204	11	0	1	229	6	43	35	0	0	84	24	170	34	0	0	228	25	50	28	0	1	103	644	2568
11:30:00	17	237	19	0	0	273	7	48	30	0	0	85	19	204	27	0	1	250	22	43	22	0	2	87	695	2659
11:45:00	11	204	9	0	0	224	7	44	37	0	0	88	31	195	37	0	0	263	23	50	24	0	0	97	672	2679
BREAK																										
12:00:00	11	217	15	0	0	243	6	43	35	0	0	84	26	192	31	0	0	249	21	46	18	0	1	85	661	
12:15:00	17	232	17	0	1	266	7	46	36	0	0	89	23	191	30	0	0	244	17	42	20	0	0	79	678	
12:30:00	15	211	24	0	5	250	4	40	29	0	3	73	27	213	28	0	0	268	21	47	29	0	0	97	688	
12:45:00	20	224	13	1	2	258	11	38	26	0	0	75	25	194	30	0	0	249	22	58	28	0	0	108	690	2717
13:00:00	11	217	9	1	1	238	8	35	28	0	0	71	28	223	32	0	0	283	26	40	19	0	0	85	677	2733
13:15:00	10	185	11	0	3	206	2	32	26	0	1	60	21	209	33	0	1	263	31	35	28	0	1	94	623	2678
13:30:00	15	190	13	0	5	218	6	30	22	0	3	58	24	204	32	0	0	260	29	43	23	0	0	95	631	2621
13:45:00	19	183	16	0	0	218	10	32	29	0	1	71	36	308	32	0	1	376	30	28	21	0	4	79	744	2675
14:00:00	15	228	12	0	2	255	9	31	29	0	0	69	22	232	29	0	1	283	18	42	16	0	5	76	683	2681
14:15:00	7	219	15	0	0	241	8	41	26	0	1	75	15	196	31	0	0	242	34	35	28	0	0	97	655	2713
14:30:00	19	177	12	0	0	208	14	29	21	0	1	64	25	229	37	0	3	291	25	56	21	0	0	102	665	2747
14:45:00	21	209	12	0	3	242	3	37	22	0	1	62	26	217	33	0	0	276	30	48	25	0	1	103	683	2686
15:00:00	18	204	18	0	4	240	10	35	31	0	0	76	31	246	40	0	0	317	19	60	22	0	0	101	734	2737
15:15:00	12	185	15	0	5	212	7	44	28	0	0	79	17	229	17	0	3	263	33	51	20	0	1	104	658	2740
15:30:00	17	188	7	0	1	212	4	38	14	0	1	56	20	220	45	0	0	285	29	36	19	0	0	84	637	2712
15:45:00	19	185	10	0	4	214	9	34	14	0	2	57	19	182	28	0	0	229	23	31	18	0	0	72	572	2601
16:00:00	11	160	13	0	0	184	6	35	25	0	0	66	25	202	36	0	0	263	29	38	12	0	0	79	592	2459
16:15:00	11	187	15	0	0	213	11	33	21	0	0	65	25	240	31	0	0	296	23	45	12	0	0	80	654	2455
16:30:00	12	192	16	0	1	220	10	25	23	0	0	58	23	182	24	0	0	229	24	38	13	0	0	75	582	2400
16:45:00	16	195	14	0	0	225	3	29	18	0	0	50	26	242	32	0	0	300	27	44	16	0	0	87	662	2490

17:00:00	15	172	21	0	4	208	7	32	33	0	2	72	18	179	24	0	2	221	18	37	15	0	0	70	571	2469
17:15:00	7	188	9	0	5	204	4	31	19	0	0	54	22	194	26	0	0	242	22	32	15	0	0	69	569	2384
17:30:00	12	191	12	0	0	215	5	32	22	0	0	59	23	184	27	0	0	234	24	47	16	0	0	87	595	2397
17:45:00	11	149	13	0	0	173	3	39	22	0	0	64	21	177	29	0	3	227	17	43	21	0	0	81	545	2280
Grand Total	544	8391	524	2	55	9461	275	1433	1074	0	20	2782	891	8217	1183	0	27	10291	1014	1648	849	0	19	3511	**26045**	-
Approach%	5.7%	88.7%	5.5%	0%		-	9.9%	51.5%	38.6%	0%		-	8.7%	79.8%	11.5%	0%		-	28.9%	46.9%	24.2%	0%		-	**-**	-
Totals %	2.1%	32.2%	2%	0%		36.3%	1.1%	5.5%	4.1%	0%		10.7%	3.4%	31.5%	4.5%	0%		39.5%	3.9%	6.3%	3.3%	0%		13.5%	**-**	-
Heavy	9	201	9	0		-	7	25	13	0		-	14	228	18	0		-	19	30	14	0		-	**-**	-
Heavy %	1.7%	2.4%	1.7%	0%		-	2.5%	1.7%	1.2%	0%		-	1.6%	2.8%	1.5%	0%		-	1.9%	1.8%	1.6%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 11:00 AM - 12:00 PM Weather: Broken Clouds (5.75 °C)

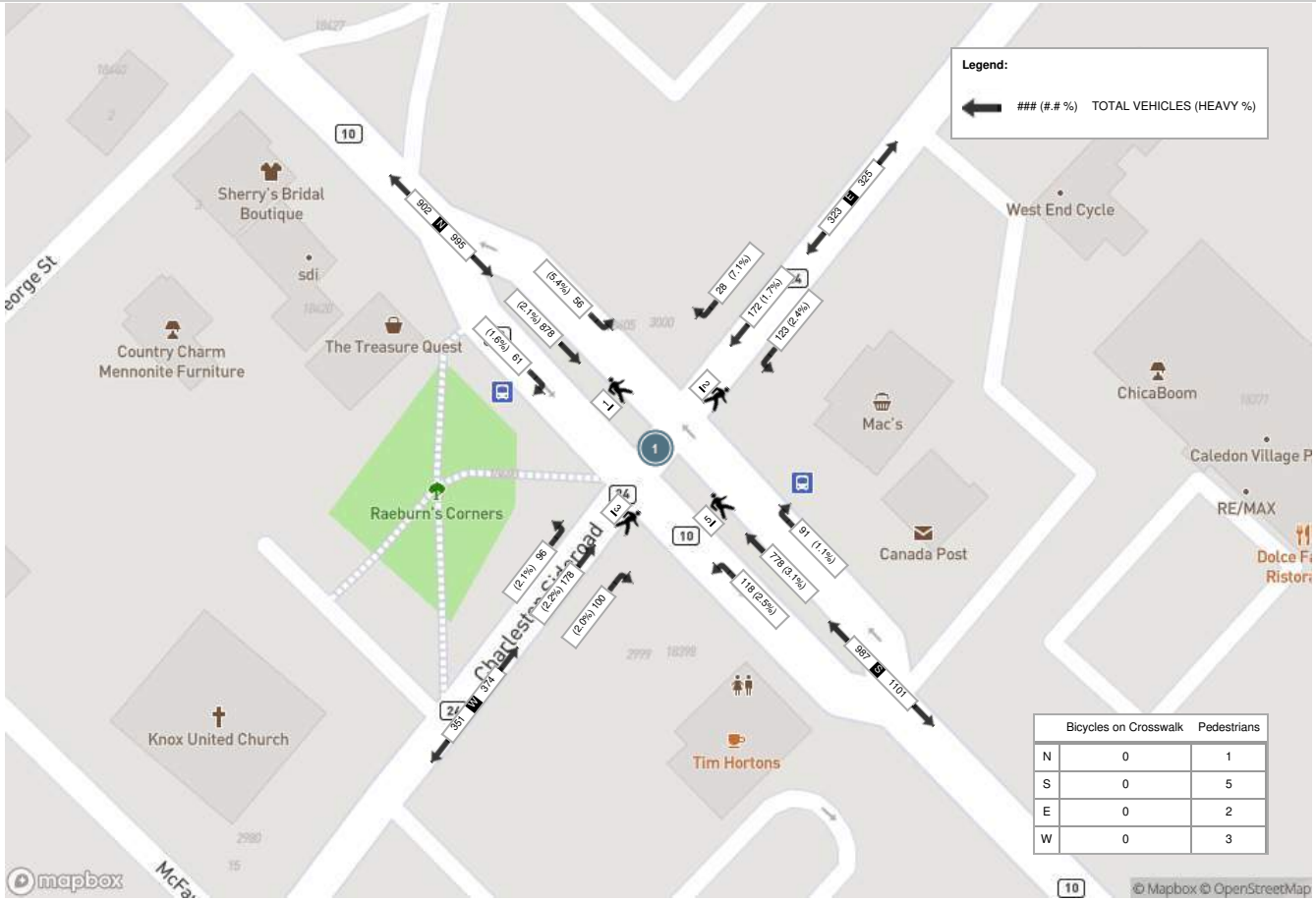
Start Time	N Approach HURONTARIO ST						E Approach CHARLESTON SIDEROAD						S Approach HURONTARIO ST						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
11:00:00	19	233	17	0	0	269	8	37	21	0	2	66	17	209	20	0	4	246	30	35	22	0	0	87	668
11:15:00	14	204	11	0	1	229	6	43	35	0	0	84	24	170	34	0	0	228	25	50	28	0	1	103	644
11:30:00	17	237	19	0	0	273	7	48	30	0	0	85	19	204	27	0	1	250	22	43	22	0	2	87	695
11:45:00	11	204	9	0	0	224	7	44	37	0	0	88	31	195	37	0	0	263	23	50	24	0	0	97	672
Grand Total	61	878	56	0	1	995	28	172	123	0	2	323	91	778	118	0	5	987	100	178	96	0	3	374	**2679**
Approach%	6.1%	88.2%	5.6%	0%		-	8.7%	53.3%	38.1%	0%		-	9.2%	78.8%	12%	0%		-	26.7%	47.6%	25.7%	0%		-	**-**
Totals %	2.3%	32.8%	2.1%	0%		37.1%	1%	6.4%	4.6%	0%		12.1%	3.4%	29%	4.4%	0%		36.8%	3.7%	6.6%	3.6%	0%		14%	**-**
PHF	0.8	0.93	0.74	0		0.91	0.88	0.9	0.83	0		0.92	0.73	0.93	0.8	0		0.94	0.83	0.89	0.86	0		0.91	**-**
Heavy	1	18	3	0		22	2	3	3	0		8	1	24	3	0		28	2	4	2	0		8	**-**
Heavy %	1.6%	2.1%	5.4%	0%		2.2%	7.1%	1.7%	2.4%	0%		2.5%	1.1%	3.1%	2.5%	0%		2.8%	2%	2.2%	2.1%	0%		2.1%	**-**
Lights	60	860	53	0		973	26	169	120	0		315	90	754	115	0		959	98	174	94	0		366	**-**
Lights %	98.4%	97.9%	94.6%	0%		97.8%	92.9%	98.3%	97.6%	0%		97.5%	98.9%	96.9%	97.5%	0%		97.2%	98%	97.8%	97.9%	0%		97.9%	**-**
Single-Unit Trucks	1	8	3	0		12	1	1	3	0		5	1	8	2	0		11	2	3	2	0		7	**-**
Single-Unit Trucks %	1.6%	0.9%	5.4%	0%		1.2%	3.6%	0.6%	2.4%	0%		1.5%	1.1%	1%	1.7%	0%		1.1%	2%	1.7%	2.1%	0%		1.9%	**-**
Buses	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	0	7	0	0		7	0	2	0	0		2	0	6	1	0		7	0	1	0	0		1	**-**
Articulated Trucks %	0%	0.8%	0%	0%		0.7%	0%	1.2%	0%	0%		0.6%	0%	0.8%	0.8%	0%		0.7%	0%	0.6%	0%	0%		0.3%	**-**
Aggregate Trucks	0	3	0	0		3	1	0	0	0		1	0	10	0	0		10	0	0	0	0		0	**-**
Aggregate Trucks %	0%	0.3%	0%	0%		0.3%	3.6%	0%	0%	0%		0.3%	0%	1.3%	0%	0%		1%	0%	0%	0%	0%		0%	**-**
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%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	5	-	-	-	-	-	3	-	**-**
Pedestrians%	-	-	-	-	9.1%		-	-	-	-	18.2%		-	-	-	-	45.5%		-	-	-	-	27.3%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

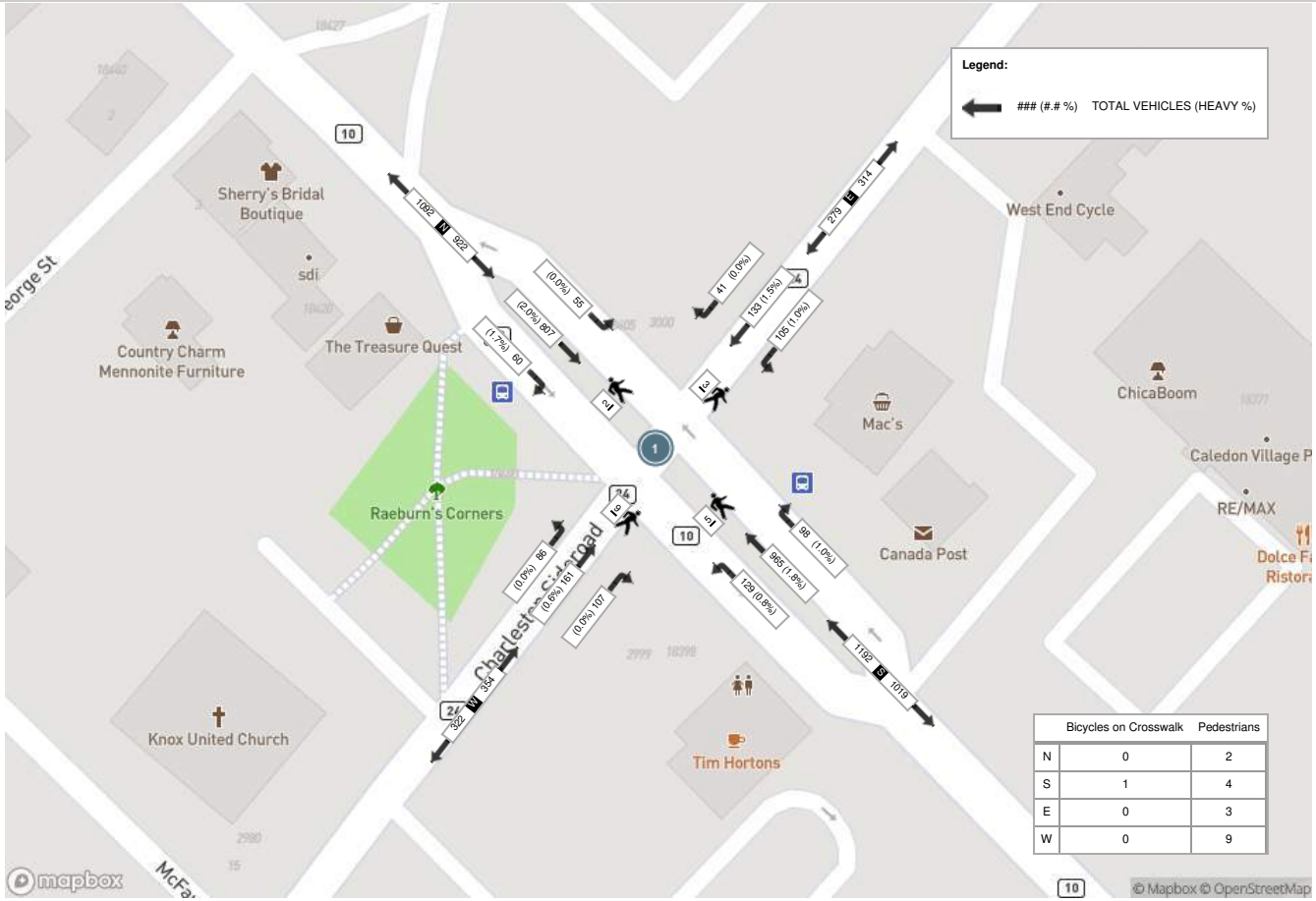
Peak Hour: 01:45 PM - 02:45 PM Weather: Light Rain (5.94 °C)

Start Time	N Approach HURONTARIO ST						E Approach CHARLESTON SIDEROAD						S Approach HURONTARIO ST						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
13:45:00	19	183	16	0	0	218	10	32	29	0	1	71	36	308	32	0	1	376	30	28	21	0	4	79	744
14:00:00	15	228	12	0	2	255	9	31	29	0	0	69	22	232	29	0	1	283	18	42	16	0	5	76	683
14:15:00	7	219	15	0	0	241	8	41	26	0	1	75	15	196	31	0	0	242	34	35	28	0	0	97	655
14:30:00	19	177	12	0	0	208	14	29	21	0	1	64	25	229	37	0	3	291	25	56	21	0	0	102	665
Grand Total	60	807	55	0	2	922	41	133	105	0	3	279	98	965	129	0	5	1192	107	161	86	0	9	354	**2747**
Approach%	6.5%	87.5%	6%	0%		-	14.7%	47.7%	37.6%	0%		-	8.2%	81%	10.8%	0%		-	30.2%	45.5%	24.3%	0%		-	**-**
Totals %	2.2%	29.4%	2%	0%		33.6%	1.5%	4.8%	3.8%	0%		10.2%	3.6%	35.1%	4.7%	0%		43.4%	3.9%	5.9%	3.1%	0%		12.9%	**-**
PHF	0.79	0.88	0.86	0		0.9	0.73	0.81	0.91	0		0.93	0.68	0.78	0.87	0		0.79	0.79	0.72	0.77	0		0.87	**-**
Heavy	1	16	0	0		17	0	2	1	0		3	1	17	1	0		19	0	1	0	0		1	**-**
Heavy %	1.7%	2%	0%	0%		1.8%	0%	1.5%	1%	0%		1.1%	1%	1.8%	0.8%	0%		1.6%	0%	0.6%	0%	0%		0.3%	**-**
Lights	59	791	55	0		905	41	131	104	0		276	97	948	128	0		1173	107	160	86	0		353	**-**
Lights %	98.3%	98%	100%	0%		98.2%	100%	98.5%	99%	0%		98.9%	99%	98.2%	99.2%	0%		98.4%	100%	99.4%	100%	0%		99.7%	**-**
Single-Unit Trucks	1	5	0	0		6	0	1	1	0		2	1	6	1	0		8	0	0	0	0		0	**-**
Single-Unit Trucks %	1.7%	0.6%	0%	0%		0.7%	0%	0.8%	1%	0%		0.7%	1%	0.6%	0.8%	0%		0.7%	0%	0%	0%	0%		0%	**-**
Buses	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	0	9	0	0		9	0	1	0	0		1	0	8	0	0		8	0	1	0	0		1	**-**
Articulated Trucks %	0%	1.1%	0%	0%		1%	0%	0.8%	0%	0%		0.4%	0%	0.8%	0%	0%		0.7%	0%	0.6%	0%	0%		0.3%	**-**
Aggregate Trucks	0	2	0	0		2	0	0	0	0		0	0	3	0	0		3	0	0	0	0		0	**-**
Aggregate Trucks %	0%	0.2%	0%	0%		0.2%	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.3%	0%	0%	0%	0%		0%	**-**
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%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	2	-	-	-	-	-	3	-	-	-	-	-	4	-	-	-	-	-	9	-	**-**
Pedestrians%	-	-	-	-	10.5%		-	-	-	-	15.8%		-	-	-	-	21.1%		-	-	-	-	47.4%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	5.3%		-	-	-	-	0%		**-**

Peak Hour: 11:00 AM - 12:00 PM Weather: Broken Clouds (5.75 °C)



Peak Hour: 01:45 PM - 02:45 PM Weather: Light Rain (5.94 °C)



Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & MISSISSAUGA RD
Date: Thu, Apr 21, 2022 Deployment Lead: Tasos Issaaakidis

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Turning Movement Count (3 . CHARLESTON SIDEROAD & MISSISSAUGA RD) CustID: 02413835 MioID:

Start Time	N Approach MISSISSAUGA RD						E Approach CHARLESTON SIDEROAD						S Approach MISSISSAUGA RD						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	0	0	0	0	0	0	0	36	2	0	0	38	0	0	0	0	0	0	0	47	0	0	0	47	85	
06:15:00	2	1	1	0	0	4	0	19	1	0	0	20	0	0	0	0	0	0	0	58	0	0	0	58	82	
06:30:00	1	1	1	0	0	3	0	43	3	0	0	46	0	2	0	0	0	2	0	55	0	0	0	55	106	
06:45:00	1	0	0	0	0	1	0	38	3	0	0	41	0	0	0	0	0	0	1	77	0	0	0	78	120	393
07:00:00	3	3	1	0	0	7	0	40	1	0	0	41	1	0	0	0	0	1	1	48	0	0	0	49	98	406
07:15:00	2	1	3	0	0	6	0	37	1	0	0	38	0	1	0	0	0	1	0	77	0	0	0	77	122	446
07:30:00	1	1	5	0	0	7	1	47	1	0	0	49	2	0	1	0	0	3	0	86	1	0	0	87	146	486
07:45:00	2	1	2	0	0	5	0	50	1	0	0	51	1	2	0	0	0	3	1	76	3	0	0	80	139	505
08:00:00	4	2	2	0	0	8	0	49	2	0	0	51	3	1	1	0	0	5	0	81	4	0	0	85	149	556
08:15:00	5	2	1	0	0	8	1	41	2	0	0	44	0	3	1	0	0	4	1	72	0	0	0	73	129	563
08:30:00	1	3	0	0	0	4	0	60	2	0	0	62	1	1	1	0	0	3	1	63	0	0	0	64	133	550
08:45:00	1	0	1	0	0	2	2	58	2	0	0	62	4	2	0	0	0	6	2	64	1	0	0	67	137	548
09:00:00	1	0	0	0	0	1	4	58	2	0	0	64	2	0	0	0	0	2	2	64	1	0	0	67	134	533
09:15:00	2	1	1	0	0	4	0	52	1	0	0	53	3	1	0	0	0	4	0	64	3	0	0	67	128	532
09:30:00	1	1	0	0	0	2	0	54	2	0	0	56	5	1	1	0	0	7	0	57	5	0	0	62	127	526
09:45:00	3	0	1	0	0	4	1	56	4	0	0	61	1	3	1	0	0	5	0	70	1	0	0	71	141	530
10:00:00	2	0	2	0	0	4	1	38	2	0	0	41	3	0	0	0	0	3	2	55	2	0	0	59	107	503
10:15:00	1	4	4	0	0	9	1	46	2	0	0	49	2	0	0	0	0	2	0	67	1	0	0	68	128	503
10:30:00	3	1	0	0	0	4	1	52	1	0	0	54	3	1	0	0	0	4	1	58	3	0	0	62	124	500
10:45:00	0	2	2	0	0	4	1	33	2	0	0	36	2	1	1	0	0	4	0	62	3	0	0	65	109	468
11:00:00	4	0	2	0	0	6	2	40	1	0	0	43	2	2	1	0	0	5	1	50	2	0	0	53	107	468
11:15:00	2	0	2	0	0	4	2	46	2	0	0	50	2	2	1	0	0	5	1	46	0	0	0	47	106	446
11:30:00	2	0	3	0	0	5	2	53	0	0	0	55	3	1	0	0	0	4	1	51	1	0	0	53	117	439
11:45:00	2	0	1	0	0	3	0	44	2	0	0	46	3	1	2	0	0	6	1	48	5	0	0	54	109	439
BREAK																										
12:00:00	1	1	0	0	0	2	0	35	3	0	0	38	2	3	3	0	0	8	0	57	0	0	0	57	105	
12:15:00	2	0	0	0	0	2	1	59	1	0	0	61	4	2	0	0	0	6	1	42	0	0	0	43	112	
12:30:00	2	2	1	0	0	5	2	56	3	1	0	62	2	6	1	0	0	9	0	65	4	0	0	69	145	
12:45:00	2	2	1	0	0	5	1	59	2	0	0	62	1	1	1	0	0	3	0	63	4	0	0	67	137	499
13:00:00	2	0	2	0	0	4	0	54	1	0	0	55	1	0	0	0	0	1	1	49	1	0	0	51	111	505
13:15:00	5	1	0	0	0	6	3	59	2	0	0	64	4	3	1	0	0	8	0	64	5	0	0	69	147	540
13:30:00	1	1	1	0	0	3	0	56	0	0	0	56	1	2	0	0	0	3	2	41	1	0	0	44	106	501
13:45:00	1	0	1	0	0	2	0	53	2	0	0	55	2	2	0	0	0	4	0	47	2	0	0	49	110	474
14:00:00	2	1	2	0	0	5	1	56	1	0	0	58	3	2	0	0	0	5	0	77	4	0	0	81	149	512
14:15:00	2	1	0	0	0	3	1	54	2	0	0	57	2	3	0	0	0	5	1	59	2	0	0	62	127	492
14:30:00	7	1	1	0	0	9	0	76	0	0	0	76	4	2	0	0	0	6	1	60	4	0	0	65	156	542
14:45:00	2	1	1	0	0	4	3	67	1	0	0	71	1	1	1	0	0	3	0	65	1	0	0	66	144	576
15:00:00	2	2	0	0	0	4	1	72	1	0	0	74	1	2	0	0	0	3	3	69	3	0	0	75	156	583
15:15:00	4	2	1	0	0	7	1	75	0	0	0	76	5	1	2	0	0	8	0	66	2	0	0	68	159	615
15:30:00	5	2	2	0	0	9	1	87	2	0	0	90	6	5	2	0	0	13	3	75	4	0	0	82	194	653
15:45:00	4	4	0	0	0	8	1	84	0	0	0	85	0	0	4	0	0	4	0	77	7	0	0	84	181	690
16:00:00	2	0	1	0	0	3	4	91	2	0	0	97	5	4	1	0	0	10	0	60	3	0	0	63	173	707
16:15:00	7	0	0	0	0	7	1	78	5	0	0	84	8	3	1	0	0	12	0	54	6	0	0	60	163	711
16:30:00	4	0	0	0	0	4	0	97	3	0	0	100	5	5	0	0	0	10	0	79	4	0	0	83	197	714
16:45:00	1	1	0	0	0	2	2	99	3	0	0	104	5	3	0	0	0	8	1	63	2	0	0	66	180	713

17:00:00	2	2	0	0	0	4	2	78	3	0	0	83	4	2	1	0	0	7	0	60	5	0	0	65	159	699
17:15:00	2	0	0	0	0	2	1	86	1	0	0	88	2	4	1	0	0	7	0	57	1	0	0	58	155	691
17:30:00	2	0	4	0	0	6	3	84	4	0	0	91	4	1	1	0	0	6	2	74	7	0	0	83	186	680
17:45:00	2	3	1	0	0	6	0	78	2	0	0	80	2	1	1	0	0	4	1	65	6	0	0	72	162	662
Grand Total	112	51	54	0	0	217	48	2783	86	1	0	2918	117	83	32	0	0	232	32	2984	114	0	0	3130	**6497**	-
Approach%	51.6%	23.5%	24.9%	0%		-	1.6%	95.4%	2.9%	0%		-	50.4%	35.8%	13.8%	0%		-	1%	95.3%	3.6%	0%		-	**-**	-
Totals %	1.7%	0.8%	0.8%	0%		3.3%	0.7%	42.8%	1.3%	0%		44.9%	1.8%	1.3%	0.5%	0%		3.6%	0.5%	45.9%	1.8%	0%		48.2%	**-**	-
Heavy	2	3	4	0		-	3	396	7	0		-	9	3	0	0		-	3	416	2	0		-	**-**	-
Heavy %	1.8%	5.9%	7.4%	0%		-	6.3%	14.2%	8.1%	0%		-	7.7%	3.6%	0%	0%		-	9.4%	13.9%	1.8%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 07:30 AM - 08:30 AM Weather: Overcast Clouds (4.03 °C)

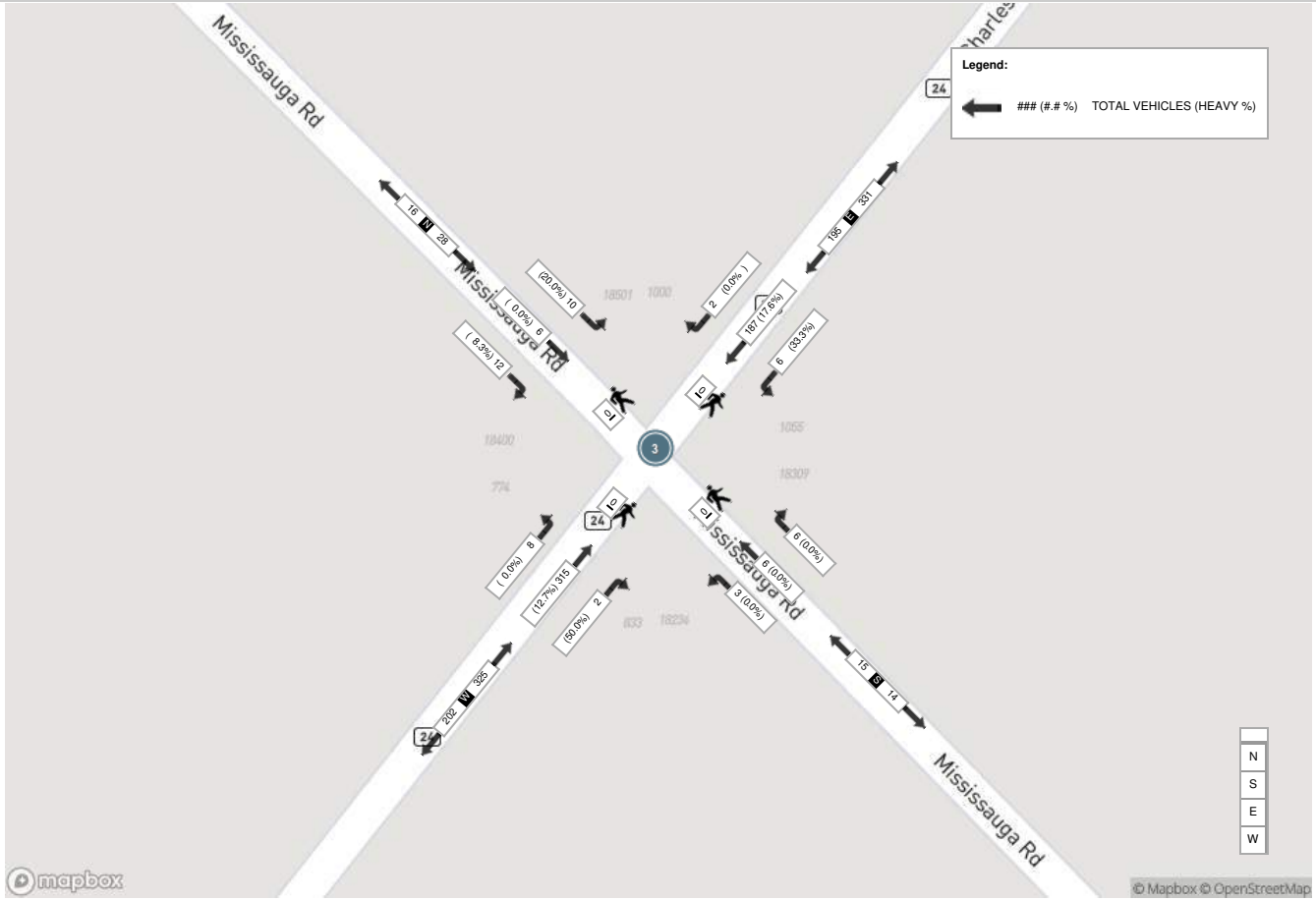
Start Time	N Approach MISSISSAUGA RD						E Approach CHARLESTON SIDEROAD						S Approach MISSISSAUGA RD						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
07:30:00	1	1	5	0	0	7	1	47	1	0	0	49	2	0	1	0	0	3	0	86	1	0	0	87	146
07:45:00	2	1	2	0	0	5	0	50	1	0	0	51	1	2	0	0	0	3	1	76	3	0	0	80	139
08:00:00	4	2	2	0	0	8	0	49	2	0	0	51	3	1	1	0	0	5	0	81	4	0	0	85	149
08:15:00	5	2	1	0	0	8	1	41	2	0	0	44	0	3	1	0	0	4	1	72	0	0	0	73	129
Grand Total	12	6	10	0	0	28	2	187	6	0	0	195	6	6	3	0	0	15	2	315	8	0	0	325	**563**
Approach%	42.9%	21.4%	35.7%	0%		-	1%	95.9%	3.1%	0%		-	40%	40%	20%	0%		-	0.6%	96.9%	2.5%	0%		-	-
Totals %	2.1%	1.1%	1.8%	0%		5%	0.4%	33.2%	1.1%	0%		34.6%	1.1%	1.1%	0.5%	0%		2.7%	0.4%	56%	1.4%	0%		57.7%	-
PHF	0.6	0.75	0.5	0		0.88	0.5	0.94	0.75	0		0.96	0.5	0.5	0.75	0		0.75	0.5	0.92	0.5	0		0.93	-
Heavy	1	0	2	0		3	0	33	2	0		35	0	0	0	0		0	1	40	0	0		41	-
Heavy %	8.3%	0%	20%	0%		10.7%	0%	17.6%	33.3%	0%		17.9%	0%	0%	0%	0%		0%	50%	12.7%	0%	0%		12.6%	-
Lights	11	6	8	0		25	2	154	4	0		160	6	6	3	0		15	1	275	8	0		284	-
Lights %	91.7%	100%	80%	0%		89.3%	100%	82.4%	66.7%	0%		82.1%	100%	100%	100%	0%		100%	50%	87.3%	100%	0%		87.4%	-
Single-Unit Trucks	0	0	0	0		0	0	6	0	0		6	0	0	0	0		0	0	9	0	0		9	-
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	3.2%	0%	0%		3.1%	0%	0%	0%	0%		0%	0%	2.9%	0%	0%		2.8%	-
Buses	1	0	1	0		2	0	0	1	0		1	0	0	0	0		0	1	3	0	0		4	-
Buses %	8.3%	0%	10%	0%		7.1%	0%	0%	16.7%	0%		0.5%	0%	0%	0%	0%		0%	50%	1%	0%	0%		1.2%	-
Articulated Trucks	0	0	1	0		1	0	16	1	0		17	0	0	0	0		0	0	16	0	0		16	-
Articulated Trucks %	0%	0%	10%	0%		3.6%	0%	8.6%	16.7%	0%		8.7%	0%	0%	0%	0%		0%	0%	5.1%	0%	0%		4.9%	-
Aggregate Trucks	0	0	0	0		0	0	11	0	0		11	0	0	0	0		0	0	12	0	0		12	-
Aggregate Trucks %	0%	0%	0%	0%		0%	0%	5.9%	0%	0%		5.6%	0%	0%	0%	0%		0%	0%	3.8%	0%	0%		3.7%	-
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%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

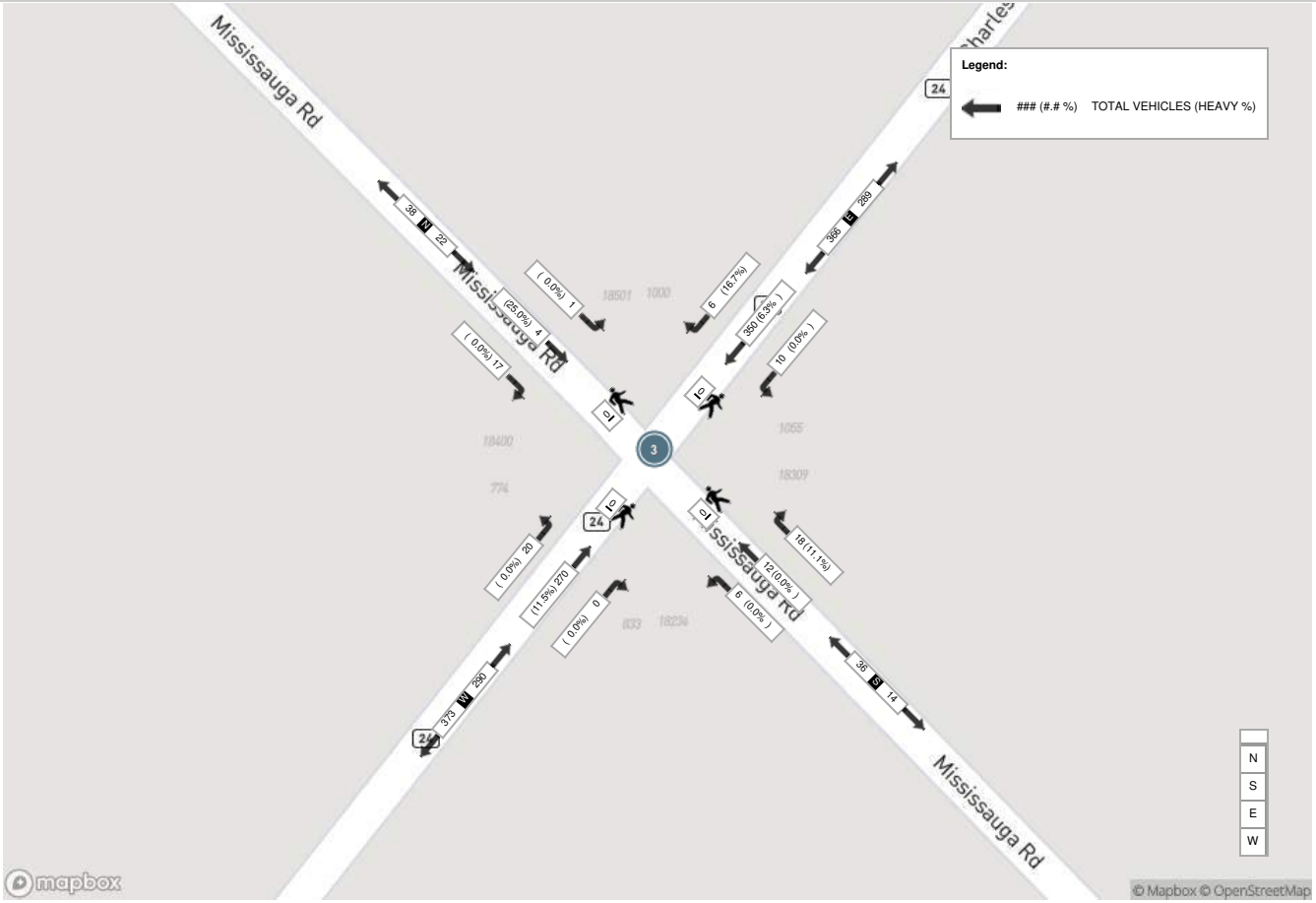
Peak Hour: 03:45 PM - 04:45 PM Weather: Light Rain (8.66 °C)

Start Time	N Approach MISSISSAUGA RD						E Approach CHARLESTON SIDEROAD						S Approach MISSISSAUGA RD						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
15:45:00	4	4	0	0	0	8	1	84	0	0	0	85	0	0	4	0	0	4	0	77	7	0	0	84	181
16:00:00	2	0	1	0	0	3	4	91	2	0	0	97	5	4	1	0	0	10	0	60	3	0	0	63	173
16:15:00	7	0	0	0	0	7	1	78	5	0	0	84	8	3	1	0	0	12	0	54	6	0	0	60	163
16:30:00	4	0	0	0	0	4	0	97	3	0	0	100	5	5	0	0	0	10	0	79	4	0	0	83	197
Grand Total	17	4	1	0	0	22	6	350	10	0	0	366	18	12	6	0	0	36	0	270	20	0	0	290	**714**
Approach%	77.3%	18.2%	4.5%	0%		-	1.6%	95.6%	2.7%	0%		-	50%	33.3%	16.7%	0%		-	0%	93.1%	6.9%	0%		-	**-**
Totals %	2.4%	0.6%	0.1%	0%		3.1%	0.8%	49%	1.4%	0%		51.3%	2.5%	1.7%	0.8%	0%		5%	0%	37.8%	2.8%	0%		40.6%	**-**
PHF	0.61	0.25	0.25	0		0.69	0.38	0.9	0.5	0		0.92	0.56	0.6	0.38	0		0.75	0	0.85	0.71	0		0.86	**-**
Heavy	0	1	0	0		1	1	22	0	0		23	2	0	0	0		2	0	31	0	0		31	**-**
Heavy %	0%	25%	0%	0%		4.5%	16.7%	6.3%	0%	0%		6.3%	11.1%	0%	0%	0%		5.6%	0%	11.5%	0%	0%		10.7%	**-**
Lights	17	3	1	0		21	5	328	10	0		343	16	12	6	0		34	0	239	20	0		259	**-**
Lights %	100%	75%	100%	0%		95.5%	83.3%	93.7%	100%	0%		93.7%	88.9%	100%	100%	0%		94.4%	0%	88.5%	100%	0%		89.3%	**-**
Single-Unit Trucks	0	1	0	0		1	0	7	0	0		7	0	0	0	0		0	0	8	0	0		8	**-**
Single-Unit Trucks %	0%	25%	0%	0%		4.5%	0%	2%	0%	0%		1.9%	0%	0%	0%	0%		0%	0%	3%	0%	0%		2.8%	**-**
Buses	0	0	0	0		0	0	1	0	0		1	2	0	0	0		2	0	1	0	0		1	**-**
Buses %	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.3%	11.1%	0%	0%	0%		5.6%	0%	0.4%	0%	0%		0.3%	**-**
Articulated Trucks	0	0	0	0		0	1	10	0	0		11	0	0	0	0		0	0	14	0	0		14	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	16.7%	2.9%	0%	0%		3%	0%	0%	0%	0%		0%	0%	5.2%	0%	0%		4.8%	**-**
Aggregate Trucks	0	0	0	0		0	0	4	0	0		4	0	0	0	0		0	0	8	0	0		8	**-**
Aggregate Trucks %	0%	0%	0%	0%		0%	0%	1.1%	0%	0%		1.1%	0%	0%	0%	0%		0%	0%	3%	0%	0%		2.8%	**-**
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%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**

Peak Hour: 07:30 AM - 08:30 AM **Weather: Overcast Clouds (4.03 °C)**



Peak Hour: 03:45 PM - 04:45 PM **Weather: Light Rain (8.66 °C)**



TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Turning Movement Count (3 . CHARLESTON SIDEROAD & MISSISSAUGA RD) CustID: 02413835 MioID:

Start Time	N Approach MISSISSAUGA RD						E Approach CHARLESTON SIDEROAD						S Approach MISSISSAUGA RD						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	0	0	0	0	0	0	0	8	0	0	0	8	0	0	0	0	0	0	0	14	0	0	0	14	22	
06:15:00	0	0	0	0	0	0	0	7	0	0	0	7	0	0	1	0	0	1	0	8	0	0	0	8	16	
06:30:00	0	0	0	0	0	0	1	10	0	0	0	11	0	1	0	0	0	1	0	21	0	0	0	21	33	
06:45:00	0	0	1	0	0	1	0	14	0	0	0	14	0	0	0	0	0	0	0	15	0	0	0	15	30	101
07:00:00	3	1	0	0	0	4	0	12	1	0	0	13	0	0	1	0	0	1	0	26	0	0	0	26	44	123
07:15:00	1	0	4	0	0	5	0	18	1	0	0	19	0	0	0	0	0	0	0	21	2	0	0	23	47	154
07:30:00	1	0	0	0	0	1	0	27	0	0	0	27	1	0	0	0	0	1	0	33	0	0	0	33	62	183
07:45:00	1	0	0	0	0	1	0	26	0	0	0	26	2	0	0	0	0	2	1	33	2	0	0	36	65	218
08:00:00	2	1	1	0	0	4	0	22	0	0	0	22	5	0	2	0	0	7	1	29	2	0	0	32	65	239
08:15:00	3	0	0	0	0	3	0	35	0	0	0	35	1	0	0	0	0	1	3	50	3	0	0	56	95	287
08:30:00	1	0	1	0	0	2	0	41	2	0	0	43	1	0	1	0	0	2	1	45	2	0	0	48	95	320
08:45:00	1	0	0	0	0	1	1	31	0	0	0	32	2	1	0	0	0	3	0	39	2	0	0	41	77	332
09:00:00	1	0	3	0	0	4	0	34	1	0	0	35	4	1	0	0	0	5	0	50	1	0	0	51	95	362
09:15:00	2	1	1	0	0	4	0	53	1	0	0	54	0	1	0	0	0	1	0	46	1	0	0	47	106	373
09:30:00	1	0	0	0	0	1	0	47	0	0	0	47	0	1	1	0	0	2	0	43	1	0	0	44	94	372
09:45:00	2	1	1	0	0	4	2	63	0	0	0	65	4	3	2	1	0	10	0	48	0	0	0	48	127	422
10:00:00	2	1	2	0	0	5	1	52	2	0	0	55	3	1	0	0	0	4	1	40	3	0	0	44	108	435
10:15:00	1	0	2	0	0	3	1	40	2	0	0	43	1	2	2	0	0	5	0	60	2	0	0	62	113	442
10:30:00	0	1	1	0	0	2	2	63	2	0	0	67	0	3	0	0	0	3	1	91	2	0	0	94	166	514
10:45:00	3	0	1	0	0	4	0	59	2	0	0	61	5	4	1	0	0	10	1	75	2	0	0	78	153	540
11:00:00	2	1	0	0	0	3	0	51	2	0	0	53	2	0	0	0	0	2	1	58	3	0	0	62	120	552
11:15:00	7	1	1	0	0	9	1	60	1	0	0	62	0	3	0	0	0	3	0	88	3	0	0	91	165	604
11:30:00	1	0	2	0	0	3	2	73	3	0	0	78	4	2	0	0	0	6	1	64	0	0	0	65	152	590
11:45:00	5	0	0	0	0	5	0	60	4	0	0	64	3	4	2	0	0	9	1	72	1	0	0	74	152	589
BREAK																										
12:00:00	0	2	1	0	0	3	1	62	3	0	0	66	3	2	1	0	0	6	3	78	1	0	0	82	157	
12:15:00	5	0	1	0	0	6	0	78	2	0	0	80	3	3	1	0	0	7	0	67	1	0	0	68	161	
12:30:00	1	1	1	0	0	3	1	59	0	0	0	60	4	2	2	0	0	8	0	78	2	1	0	81	152	
12:45:00	3	0	0	0	0	3	0	64	2	0	0	66	1	0	1	0	0	2	1	76	2	0	0	79	150	620
13:00:00	2	0	0	0	0	2	1	67	0	0	0	68	3	0	0	0	0	3	1	89	3	0	0	93	166	629
13:15:00	2	1	1	0	0	4	2	54	2	0	0	58	5	3	1	0	0	9	0	69	1	0	0	70	141	609
13:30:00	1	0	1	0	0	2	0	72	3	0	0	75	2	2	0	0	0	4	1	65	4	0	0	70	151	608
13:45:00	1	0	0	0	0	1	2	66	4	0	0	72	4	2	2	0	0	8	2	67	4	0	0	73	154	612
14:00:00	5	3	0	0	0	8	1	60	0	0	0	61	5	2	0	0	0	7	0	62	1	0	0	63	139	585
14:15:00	1	4	1	0	0	6	0	59	2	0	0	61	3	4	1	0	0	8	2	80	4	0	0	86	161	605
14:30:00	2	0	1	0	0	3	1	67	2	0	0	70	1	3	2	0	0	6	2	80	5	0	0	87	166	620
14:45:00	3	2	2	0	0	7	3	57	0	0	0	60	5	2	0	0	0	7	0	90	1	0	0	91	165	631
15:00:00	1	1	0	0	0	2	2	73	2	0	0	77	2	4	0	0	0	6	3	80	1	0	0	84	169	661
15:15:00	4	1	1	0	0	6	1	64	5	0	0	70	5	1	0	0	0	6	3	77	1	0	0	81	163	663
15:30:00	0	2	0	0	0	2	1	61	4	0	0	66	2	2	1	0	0	5	0	74	4	0	0	78	151	648
15:45:00	3	3	1	0	0	7	4	79	5	0	0	88	1	3	1	0	0	5	0	50	0	0	0	50	150	633
16:00:00	1	1	4	0	0	6	0	60	1	0	0	61	1	1	1	0	0	3	0	65	2	0	0	67	137	601
16:15:00	0	0	2	0	0	2	1	62	6	0	0	69	1	0	0	1	0	2	1	64	1	0	0	66	139	577
16:30:00	5	1	1	0	0	7	2	53	0	0	0	55	1	1	1	0	0	3	2	64	3	0	0	69	134	560
16:45:00	4	1	0	0	0	5	0	58	1	0	0	59	3	1	0	0	0	4	1	75	1	0	0	77	145	555

17:00:00	1	1	0	0	0	2	0	67	2	0	0	69	3	6	0	0	0	9	2	51	3	0	0	56	136	554
17:15:00	5	0	0	0	0	5	1	62	2	0	0	65	1	1	0	0	0	2	0	65	2	0	0	67	139	554
17:30:00	3	2	0	0	0	5	1	57	3	0	0	61	3	3	0	0	0	6	1	80	0	0	0	81	153	573
17:45:00	1	1	0	0	0	2	1	69	1	0	0	71	4	1	0	0	0	5	2	68	3	0	0	73	151	579
Grand Total	94	35	39	0	0	168	37	2436	76	0	0	2549	104	76	28	2	0	210	39	2783	82	1	0	2905	**5832**	-
Approach%	56%	20.8%	23.2%	0%		-	1.5%	95.6%	3%	0%		-	49.5%	36.2%	13.3%	1%		-	1.3%	95.8%	2.8%	0%		-	**-**	-
Totals %	1.6%	0.6%	0.7%	0%		2.9%	0.6%	41.8%	1.3%	0%		43.7%	1.8%	1.3%	0.5%	0%		3.6%	0.7%	47.7%	1.4%	0%		49.8%	**-**	-
Heavy	0	0	1	0		-	1	43	2	0		-	2	0	0	0		-	0	54	0	0		-	**-**	-
Heavy %	0%	0%	2.6%	0%		-	2.7%	1.8%	2.6%	0%		-	1.9%	0%	0%	0%		-	0%	1.9%	0%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 10:30 AM - 11:30 AM Weather: Broken Clouds (5.75 °C)

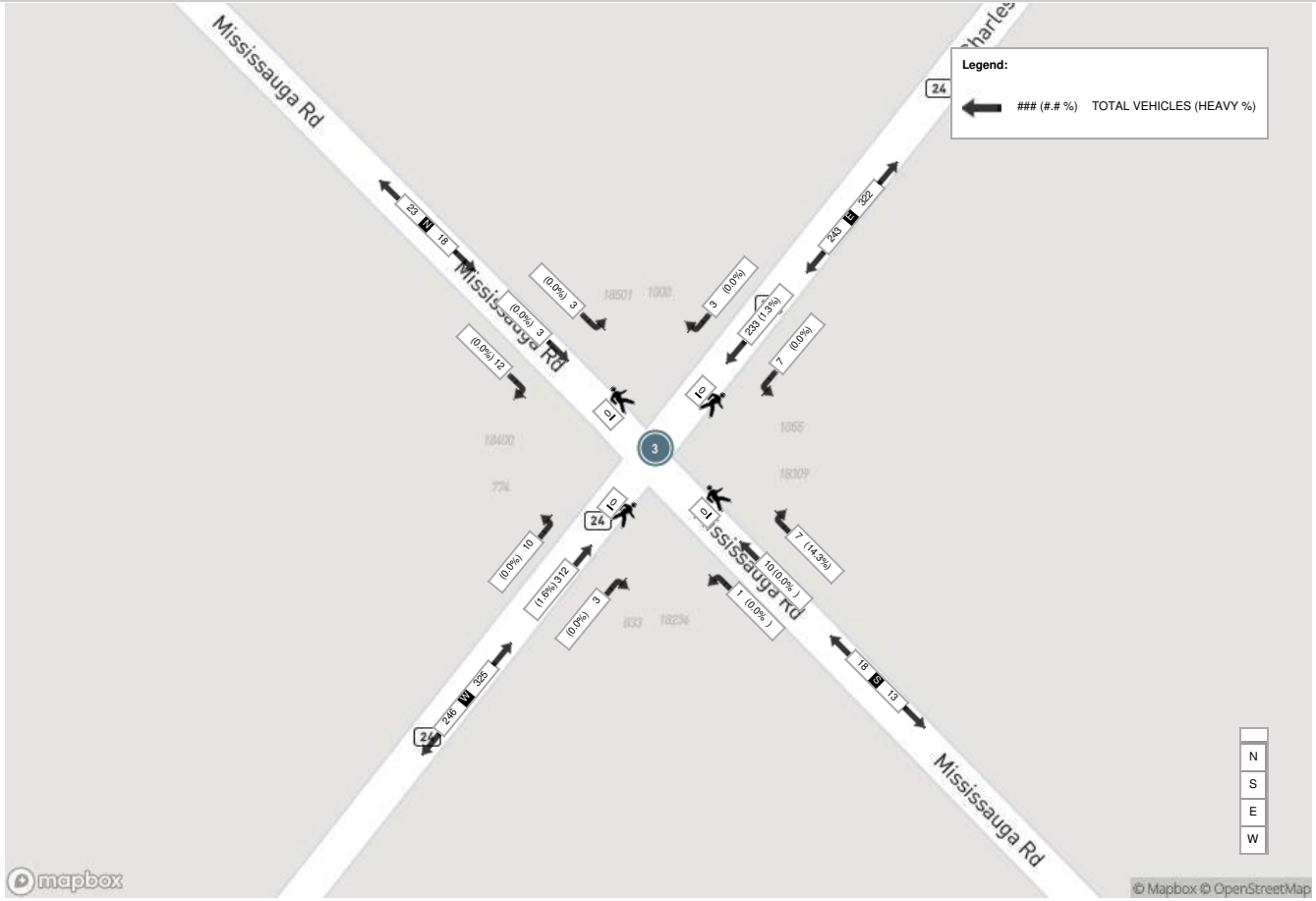
Start Time	N Approach MISSISSAUGA RD						E Approach CHARLESTON SIDEROAD						S Approach MISSISSAUGA RD						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
10:30:00	0	1	1	0	0	2	2	63	2	0	0	67	0	3	0	0	0	3	1	91	2	0	0	94	166
10:45:00	3	0	1	0	0	4	0	59	2	0	0	61	5	4	1	0	0	10	1	75	2	0	0	78	153
11:00:00	2	1	0	0	0	3	0	51	2	0	0	53	2	0	0	0	0	2	1	58	3	0	0	62	120
11:15:00	7	1	1	0	0	9	1	60	1	0	0	62	0	3	0	0	0	3	0	88	3	0	0	91	165
Grand Total	12	3	3	0	0	18	3	233	7	0	0	243	7	10	1	0	0	18	3	312	10	0	0	325	**604**
Approach%	66.7%	16.7%	16.7%	0%		-	1.2%	95.9%	2.9%	0%		-	38.9%	55.6%	5.6%	0%		-	0.9%	96%	3.1%	0%		-	**-**
Totals %	2%	0.5%	0.5%	0%		3%	0.5%	38.6%	1.2%	0%		40.2%	1.2%	1.7%	0.2%	0%		3%	0.5%	51.7%	1.7%	0%		53.8%	**-**
PHF	0.43	0.75	0.75	0		0.5	0.38	0.92	0.88	0		0.91	0.35	0.63	0.25	0		0.45	0.75	0.86	0.83	0		0.86	**-**
Heavy	0	0	0	0		0	0	3	0	0		3	1	0	0	0		1	0	5	0	0		5	**-**
Heavy %	0%	0%	0%	0%		0%	0%	1.3%	0%	0%		1.2%	14.3%	0%	0%	0%		5.6%	0%	1.6%	0%	0%		1.5%	**-**
Lights	12	3	3	0		18	3	230	7	0		240	6	10	1	0		17	3	307	10	0		320	**-**
Lights %	100%	100%	100%	0%		100%	100%	98.7%	100%	0%		98.8%	85.7%	100%	100%	0%		94.4%	100%	98.4%	100%	0%		98.5%	**-**
Single-Unit Trucks	0	0	0	0		0	0	1	0	0		1	1	0	0	0		1	0	4	0	0		4	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0.4%	0%	0%		0.4%	14.3%	0%	0%	0%		5.6%	0%	1.3%	0%	0%		1.2%	**-**
Buses	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	0	0	0	0		0	0	2	0	0		2	0	0	0	0		0	0	1	0	0		1	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0.9%	0%	0%		0.8%	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.3%	**-**
Aggregate Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Aggregate Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

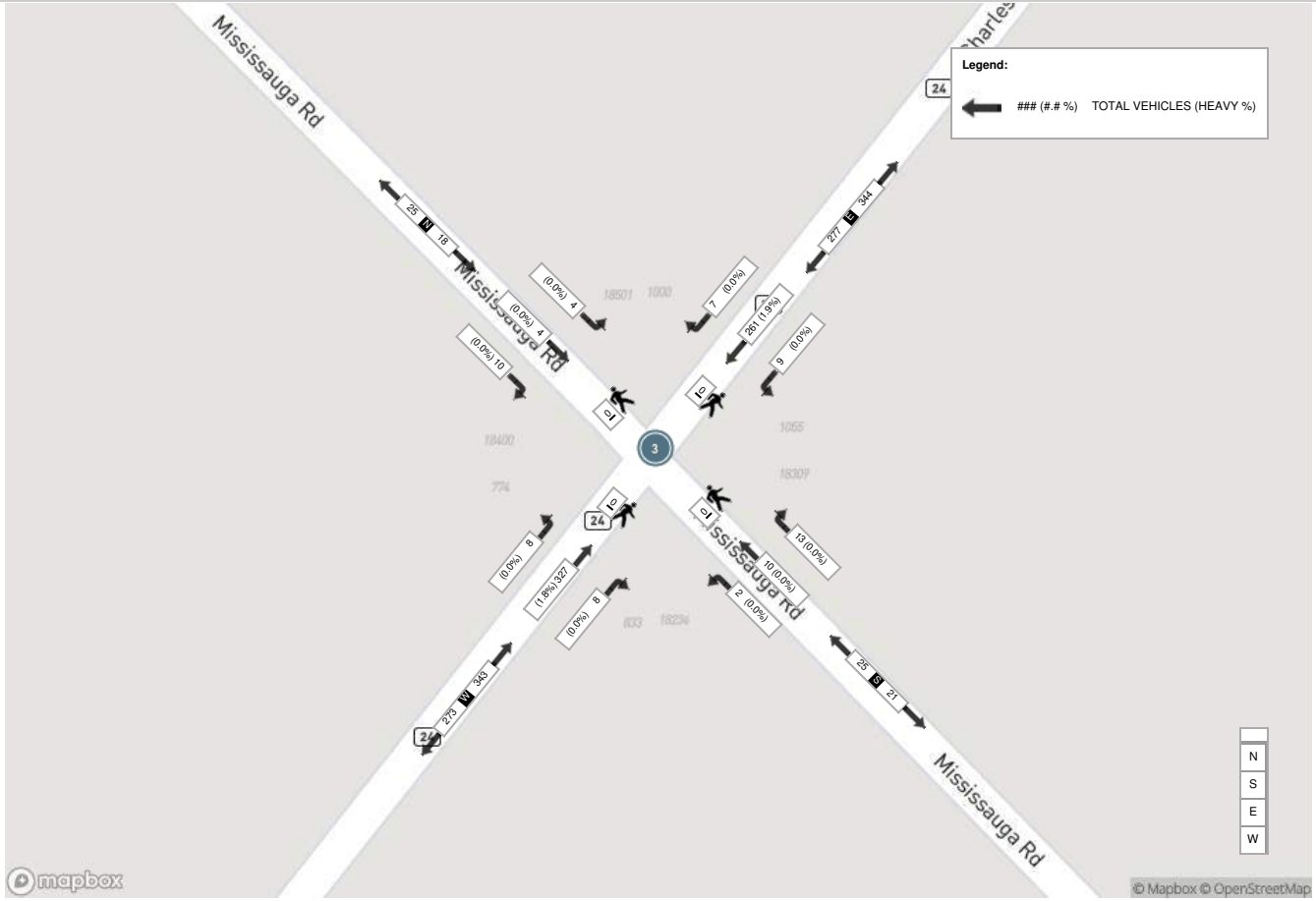
Peak Hour: 02:30 PM - 03:30 PM Weather: Light Rain (5.94 °C)

Start Time	N Approach MISSISSAUGA RD						E Approach CHARLESTON SIDEROAD						S Approach MISSISSAUGA RD						W Approach CHARLESTON SIDEROAD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
14:30:00	2	0	1	0	0	3	1	67	2	0	0	70	1	3	2	0	0	6	2	80	5	0	0	87	166
14:45:00	3	2	2	0	0	7	3	57	0	0	0	60	5	2	0	0	0	7	0	90	1	0	0	91	165
15:00:00	1	1	0	0	0	2	2	73	2	0	0	77	2	4	0	0	0	6	3	80	1	0	0	84	169
15:15:00	4	1	1	0	0	6	1	64	5	0	0	70	5	1	0	0	0	6	3	77	1	0	0	81	163
Grand Total	10	4	4	0	0	18	7	261	9	0	0	277	13	10	2	0	0	25	8	327	8	0	0	343	**663**
Approach%	55.6%	22.2%	22.2%	0%		-	2.5%	94.2%	3.2%	0%		-	52%	40%	8%	0%		-	2.3%	95.3%	2.3%	0%		-	**-**
Totals %	1.5%	0.6%	0.6%	0%		2.7%	1.1%	39.4%	1.4%	0%		41.8%	2%	1.5%	0.3%	0%		3.8%	1.2%	49.3%	1.2%	0%		51.7%	**-**
PHF	0.63	0.5	0.5	0		0.64	0.58	0.89	0.45	0		0.9	0.65	0.63	0.25	0		0.89	0.67	0.91	0.4	0		0.94	**-**
Heavy	0	0	0	0		0	0	5	0	0		5	0	0	0	0		0	0	6	0	0		6	**-**
Heavy %	0%	0%	0%	0%		0%	0%	1.9%	0%	0%		1.8%	0%	0%	0%	0%		0%	0%	1.8%	0%	0%		1.7%	**-**
Lights	10	4	4	0		18	7	256	9	0		272	13	10	2	0		25	8	321	8	0		337	**-**
Lights %	100%	100%	100%	0%		100%	100%	98.1%	100%	0%		98.2%	100%	100%	100%	0%		100%	100%	98.2%	100%	0%		98.3%	**-**
Single-Unit Trucks	0	0	0	0		0	0	5	0	0		5	0	0	0	0		0	0	3	0	0		3	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	1.9%	0%	0%		1.8%	0%	0%	0%	0%		0%	0%	0.9%	0%	0%		0.9%	**-**
Buses	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	3	0	0		3	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.9%	0%	0%		0.9%	**-**
Aggregate Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Aggregate Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**

Peak Hour: 10:30 AM - 11:30 AM **Weather: Broken Clouds (5.75 °C)**



Peak Hour: 02:30 PM - 03:30 PM **Weather: Light Rain (5.94 °C)**



Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & REGIONAL RD 136 (MAIN ST) / CATARACT RD
Date: Thu, Apr 21, 2022 Deployment Lead: Tasos Issaaakidis

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Turning Movement Count (2 . CHARLESTON SIDEROAD & REGIONAL RD 136 (MAIN ST) / CATARACT RD) CustID: 02412429 MioID:

Start Time	N Approach MAIN ST						E Approach CHARLESTON SIDE RD						S Approach CATARACT RD						W Approach CHARLESTON SIDE RD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	2	0	10	0	0	12	3	28	1	0	0	32	1	1	0	0	0	2	0	46	4	0	0	50	96	
06:15:00	2	0	12	0	0	14	2	20	0	0	0	22	1	0	0	0	0	1	0	53	0	0	0	53	90	
06:30:00	9	0	11	0	0	20	5	38	0	0	0	43	0	0	0	0	0	0	0	57	6	0	0	63	126	
06:45:00	9	0	16	0	0	25	4	33	1	0	0	38	1	0	0	0	0	1	2	68	4	0	0	74	138	450
07:00:00	4	0	17	0	0	21	3	33	0	0	0	36	0	0	0	0	0	0	0	44	4	0	0	48	105	459
07:15:00	5	0	23	0	0	28	5	39	0	0	0	44	1	0	0	0	0	1	1	76	3	0	0	80	153	522
07:30:00	4	1	13	0	0	18	3	41	0	0	0	44	1	0	0	0	0	1	3	81	8	0	0	92	155	551
07:45:00	6	1	10	0	0	17	3	44	1	0	0	48	1	1	3	0	0	5	3	73	6	0	0	82	152	565
08:00:00	4	0	15	0	0	19	12	43	2	0	0	57	1	0	1	0	0	2	1	79	7	0	0	87	165	625
08:15:00	9	2	10	0	0	21	6	39	1	0	0	46	1	1	2	0	0	4	0	62	7	0	0	69	140	612
08:30:00	6	5	15	0	0	26	5	53	0	0	0	58	0	3	1	0	0	4	2	57	7	0	0	66	154	611
08:45:00	8	3	7	0	0	18	10	58	0	0	0	68	2	1	0	0	0	3	1	56	14	0	0	71	160	619
09:00:00	5	1	8	0	0	14	6	54	0	0	0	60	2	2	0	0	0	4	1	56	6	0	0	63	141	595
09:15:00	8	2	6	0	0	16	14	51	1	0	0	66	0	1	3	0	0	4	0	58	10	0	0	68	154	609
09:30:00	8	4	7	0	0	19	12	42	2	0	0	56	5	0	1	0	0	6	3	56	6	0	0	65	146	601
09:45:00	5	0	8	0	0	13	7	54	2	0	0	63	0	1	0	0	0	1	0	58	8	0	0	66	143	584
10:00:00	7	1	10	0	0	18	8	38	0	0	0	46	0	1	0	0	0	1	0	54	9	0	0	63	128	571
10:15:00	4	3	5	0	0	12	12	42	1	0	0	55	2	1	0	0	0	3	3	67	7	0	0	77	147	564
10:30:00	3	1	9	0	0	13	5	53	2	0	0	60	0	3	1	0	0	4	2	51	8	0	0	61	138	556
10:45:00	6	2	7	0	0	15	7	26	0	0	0	33	0	2	2	0	0	4	0	54	6	0	0	60	112	525
11:00:00	5	1	7	0	0	13	8	45	1	0	0	54	0	0	0	0	0	0	3	48	7	0	0	58	125	522
11:15:00	5	1	6	0	0	12	5	38	0	0	0	43	1	2	2	0	0	5	2	45	6	0	0	53	113	488
11:30:00	5	2	13	0	0	20	4	48	0	0	0	52	2	2	0	0	0	4	1	46	9	0	0	56	132	482
11:45:00	6	4	5	0	0	15	2	42	1	0	0	45	1	0	1	0	0	2	2	49	6	0	0	57	119	489
BREAK																										
12:00:00	6	2	7	0	0	15	1	33	0	0	0	34	1	0	0	0	0	1	1	42	8	0	0	51	101	
12:15:00	15	1	16	0	0	32	6	48	2	0	0	56	2	4	2	0	0	8	1	41	10	0	0	52	148	
12:30:00	4	3	9	0	0	16	9	52	2	0	0	63	3	4	2	0	0	9	2	56	4	0	0	62	150	
12:45:00	9	1	5	0	0	15	10	49	1	0	0	60	3	1	3	0	0	7	0	55	16	0	0	71	153	552
13:00:00	7	0	6	0	0	13	5	48	2	0	0	55	0	1	1	0	0	2	2	47	7	0	0	56	126	577
13:15:00	7	0	4	0	0	11	3	55	0	0	0	58	1	3	3	0	0	7	1	54	11	0	0	66	142	571
13:30:00	5	2	7	0	0	14	7	54	2	0	0	63	4	0	2	0	0	6	1	36	6	0	0	43	126	547
13:45:00	5	3	5	0	0	13	13	44	4	0	0	61	3	1	2	0	0	6	0	47	3	0	0	50	130	524
14:00:00	1	2	4	0	0	7	9	53	0	0	0	62	1	3	0	0	0	4	2	70	12	0	0	84	157	555
14:15:00	5	2	8	0	0	15	5	51	6	0	0	62	0	2	1	0	0	3	1	54	7	0	0	62	142	555
14:30:00	11	2	5	0	0	18	11	70	2	0	0	83	6	0	1	0	0	7	1	48	15	0	0	64	172	601
14:45:00	12	3	7	0	0	22	8	58	2	0	0	68	1	6	1	0	0	8	5	54	10	0	0	69	167	638
15:00:00	5	1	6	0	0	12	5	68	1	0	0	74	1	0	1	0	0	2	3	53	16	0	0	72	160	641
15:15:00	8	4	8	0	0	20	8	68	3	0	0	79	1	1	1	0	0	3	0	54	13	0	0	67	169	668
15:30:00	13	2	8	0	0	23	15	66	2	0	0	83	1	2	4	0	0	7	4	68	10	0	0	82	195	691
15:45:00	12	1	9	0	0	22	20	74	3	0	0	97	4	1	1	0	0	6	3	64	10	0	0	77	202	726
16:00:00	9	1	8	0	0	18	12	85	2	0	0	99	2	4	2	0	0	8	2	53	8	0	0	63	188	754
16:15:00	5	3	5	0	0	13	21	85	2	0	0	108	1	1	0	0	0	2	1	57	5	0	0	63	186	771
16:30:00	11	2	5	0	0	18	13	88	0	0	0	101	2	6	2	0	0	10	1	61	17	0	0	79	208	784
16:45:00	8	1	7	0	0	16	8	91	2	0	0	101	1	3	2	0	0	6	1	68	8	0	0	77	200	782

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

17:00:00	4	1	11	0	0	16	16	74	3	0	0	93	2	4	1	0	0	7	1	51	11	0	0	63	179	773
17:15:00	10	1	6	0	0	17	15	75	1	0	0	91	0	3	2	0	0	5	1	47	9	0	0	57	170	757
17:30:00	11	2	6	0	0	19	10	81	0	0	0	91	2	3	1	0	0	6	3	73	10	0	0	86	202	751
17:45:00	7	3	7	0	0	17	19	70	3	0	0	92	2	1	2	0	0	5	2	52	11	0	0	65	179	730
Grand Total	325	77	419	0	0	821	400	2542	61	0	0	3003	67	76	54	0	0	197	69	2699	395	0	0	3163	**7184**	-
Approach%	39.6%	9.4%	51%	0%		-	13.3%	84.6%	2%	0%		-	34%	38.6%	27.4%	0%		-	2.2%	85.3%	12.5%	0%		-	**-**	-
Totals %	4.5%	1.1%	5.8%	0%		11.4%	5.6%	35.4%	0.8%	0%		41.8%	0.9%	1.1%	0.8%	0%		2.7%	1%	37.6%	5.5%	0%		44%	**-**	-
Heavy	40	3	32	0		-	35	355	5	0		-	3	2	3	0		-	3	380	45	0		-	**-**	-
Heavy %	12.3%	3.9%	7.6%	0%		-	8.8%	14%	8.2%	0%		-	4.5%	2.6%	5.6%	0%		-	4.3%	14.1%	11.4%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 07:15 AM - 08:15 AM Weather: Overcast Clouds (4.03 °C)

Start Time	N Approach MAIN ST						E Approach CHARLESTON SIDE RD						S Approach CATARACT RD						W Approach CHARLESTON SIDE RD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
07:15:00	5	0	23	0	0	28	5	39	0	0	0	44	1	0	0	0	0	1	1	76	3	0	0	80	153
07:30:00	4	1	13	0	0	18	3	41	0	0	0	44	1	0	0	0	0	1	3	81	8	0	0	92	155
07:45:00	6	1	10	0	0	17	3	44	1	0	0	48	1	1	3	0	0	5	3	73	6	0	0	82	152
08:00:00	4	0	15	0	0	19	12	43	2	0	0	57	1	0	1	0	0	2	1	79	7	0	0	87	165
Grand Total	19	2	61	0	0	82	23	167	3	0	0	193	4	1	4	0	0	9	8	309	24	0	0	341	**625**
Approach%	23.2%	2.4%	74.4%	0%		-	11.9%	86.5%	1.6%	0%		-	44.4%	11.1%	44.4%	0%		-	2.3%	90.6%	7%	0%		-	**-**
Totals %	3%	0.3%	9.8%	0%		13.1%	3.7%	26.7%	0.5%	0%		30.9%	0.6%	0.2%	0.6%	0%		1.4%	1.3%	49.4%	3.8%	0%		54.6%	**-**
PHF	0.79	0.5	0.66	0		0.73	0.48	0.95	0.38	0		0.85	1	0.25	0.33	0		0.45	0.67	0.95	0.75	0		0.93	**-**
Heavy	2	0	4	0		6	3	25	0	0		28	0	0	0	0		0	0	35	2	0		37	**-**
Heavy %	10.5%	0%	6.6%	0%		7.3%	13%	15%	0%	0%		14.5%	0%	0%	0%	0%		0%	0%	11.3%	8.3%	0%		10.9%	**-**
Lights	17	2	57	0		76	20	142	3	0		165	4	1	4	0		9	8	274	22	0		304	**-**
Lights %	89.5%	100%	93.4%	0%		92.7%	87%	85%	100%	0%		85.5%	100%	100%	100%	0%		100%	100%	88.7%	91.7%	0%		89.1%	**-**
Single-Unit Trucks	1	0	1	0		2	3	4	0	0		7	0	0	0	0		0	0	8	0	0		8	**-**
Single-Unit Trucks %	5.3%	0%	1.6%	0%		2.4%	13%	2.4%	0%	0%		3.6%	0%	0%	0%	0%		0%	0%	2.6%	0%	0%		2.3%	**-**
Buses	0	0	2	0		2	0	0	0	0		0	0	0	0	0		0	0	0	2	0		2	**-**
Buses %	0%	0%	3.3%	0%		2.4%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	8.3%	0%		0.6%	**-**
Articulated Trucks	0	0	0	0		0	0	11	0	0		11	0	0	0	0		0	0	16	0	0		16	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	6.6%	0%	0%		5.7%	0%	0%	0%	0%		0%	0%	5.2%	0%	0%		4.7%	**-**
Aggregate Trucks	1	0	1	0		2	0	10	0	0		10	0	0	0	0		0	0	11	0	0		11	**-**
Aggregate Trucks %	5.3%	0%	1.6%	0%		2.4%	0%	6%	0%	0%		5.2%	0%	0%	0%	0%		0%	0%	3.6%	0%	0%		3.2%	**-**
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%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**

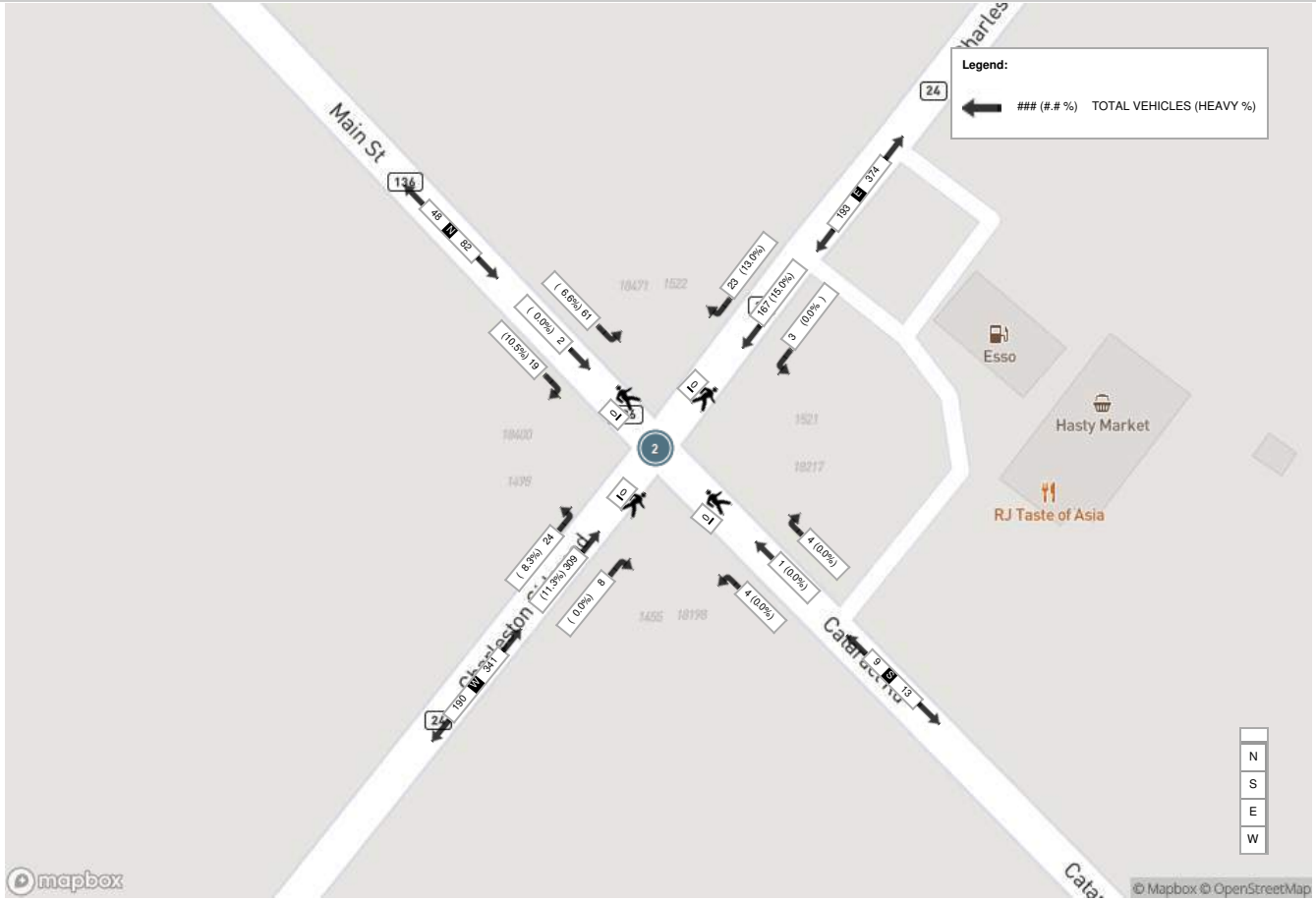
TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 03:45 PM - 04:45 PM Weather: Light Rain (8.66 °C)

Start Time	N Approach MAIN ST						E Approach CHARLESTON SIDE RD						S Approach CATARACT RD						W Approach CHARLESTON SIDE RD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
15:45:00	12	1	9	0	0	22	20	74	3	0	0	97	4	1	1	0	0	6	3	64	10	0	0	77	202
16:00:00	9	1	8	0	0	18	12	85	2	0	0	99	2	4	2	0	0	8	2	53	8	0	0	63	188
16:15:00	5	3	5	0	0	13	21	85	2	0	0	108	1	1	0	0	0	2	1	57	5	0	0	63	186
16:30:00	11	2	5	0	0	18	13	88	0	0	0	101	2	6	2	0	0	10	1	61	17	0	0	79	208
Grand Total	37	7	27	0	0	71	66	332	7	0	0	405	9	12	5	0	0	26	7	235	40	0	0	282	**784**
Approach%	52.1%	9.9%	38%	0%		-	16.3%	82%	1.7%	0%		-	34.6%	46.2%	19.2%	0%		-	2.5%	83.3%	14.2%	0%		-	**-**
Totals %	4.7%	0.9%	3.4%	0%		9.1%	8.4%	42.3%	0.9%	0%		51.7%	1.1%	1.5%	0.6%	0%		3.3%	0.9%	30%	5.1%	0%		36%	**-**
PHF	0.77	0.58	0.75	0		0.81	0.79	0.94	0.58	0		0.94	0.56	0.5	0.63	0		0.65	0.58	0.92	0.59	0		0.89	**-**
Heavy	2	0	2	0		4	4	21	1	0		26	1	0	0	0		1	0	26	4	0		30	**-**
Heavy %	5.4%	0%	7.4%	0%		5.6%	6.1%	6.3%	14.3%	0%		6.4%	11.1%	0%	0%	0%		3.8%	0%	11.1%	10%	0%		10.6%	**-**
Lights	35	7	25	0		67	62	311	6	0		379	8	12	5	0		25	7	209	36	0		252	**-**
Lights %	94.6%	100%	92.6%	0%		94.4%	93.9%	93.7%	85.7%	0%		93.6%	88.9%	100%	100%	0%		96.2%	100%	88.9%	90%	0%		89.4%	**-**
Single-Unit Trucks	0	0	2	0		2	2	7	0	0		9	1	0	0	0		1	0	8	0	0		8	**-**
Single-Unit Trucks %	0%	0%	7.4%	0%		2.8%	3%	2.1%	0%	0%		2.2%	11.1%	0%	0%	0%		3.8%	0%	3.4%	0%	0%		2.8%	**-**
Buses	0	0	0	0		0	1	1	1	0		3	0	0	0	0		0	0	2	0	0		2	**-**
Buses %	0%	0%	0%	0%		0%	1.5%	0.3%	14.3%	0%		0.7%	0%	0%	0%	0%		0%	0%	0.9%	0%	0%		0.7%	**-**
Articulated Trucks	0	0	0	0		0	0	11	0	0		11	0	0	0	0		0	0	13	1	0		14	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	3.3%	0%	0%		2.7%	0%	0%	0%	0%		0%	0%	5.5%	2.5%	0%		5%	**-**
Aggregate Trucks	2	0	0	0		2	1	2	0	0		3	0	0	0	0		0	0	3	3	0		6	**-**
Aggregate Trucks %	5.4%	0%	0%	0%		2.8%	1.5%	0.6%	0%	0%		0.7%	0%	0%	0%	0%		0%	0%	1.3%	7.5%	0%		2.1%	**-**
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%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**

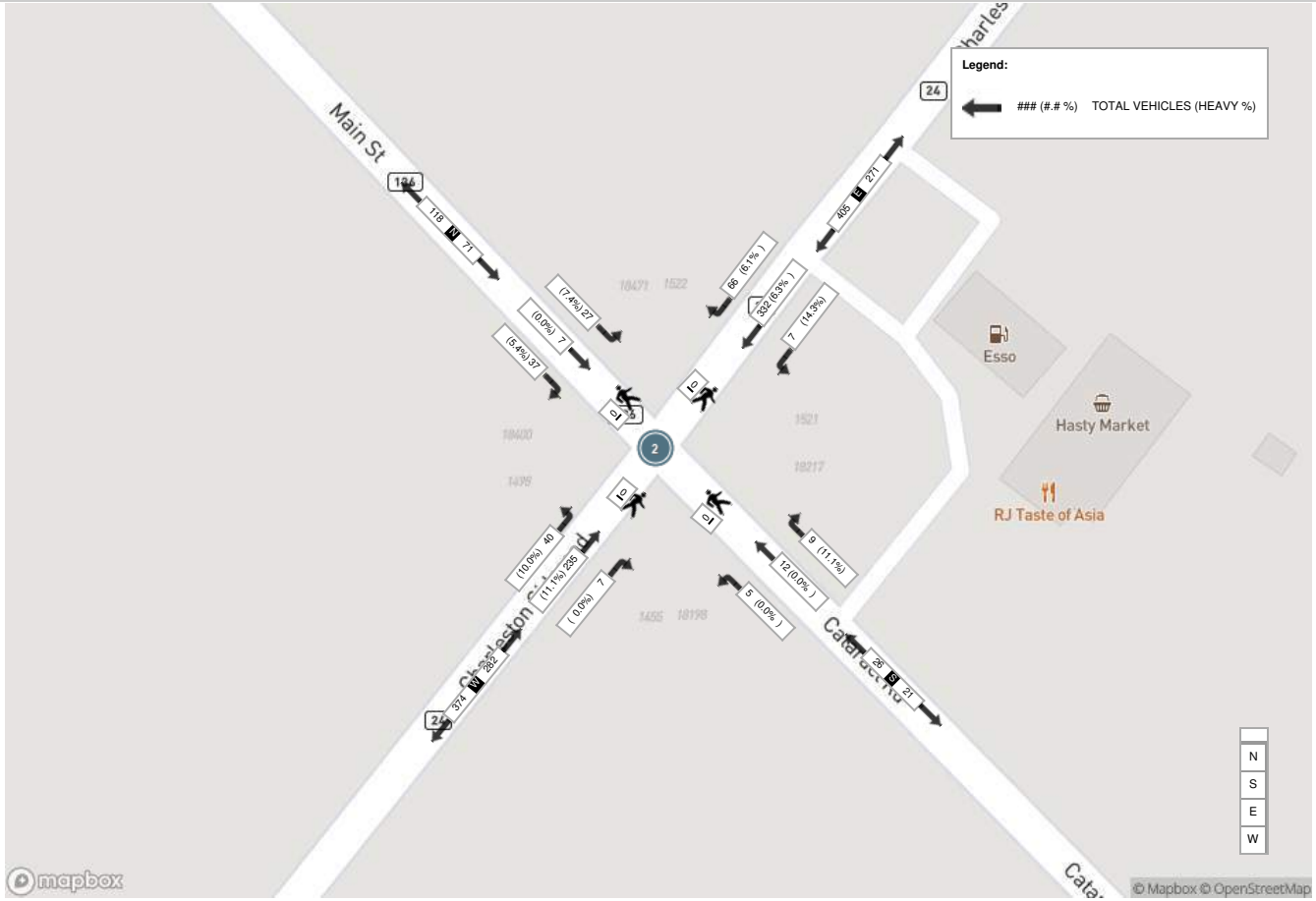
TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 07:15 AM - 08:15 AM **Weather: Overcast Clouds (4.03 °C)**



TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 03:45 PM - 04:45 PM Weather: Light Rain (8.66 °C)



Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & REGIONAL RD 136 (MAIN ST) / CATARACT RD
Date: Sat, Apr 23, 2022 Deployment Lead: Tasos Issaaakidis

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Turning Movement Count (2 . CHARLESTON SIDEROAD & REGIONAL RD 136 (MAIN ST) / CATARACT RD) CustID: 02412429 MioID:

Start Time	N Approach MAIN ST						E Approach CHARLESTON SIDE RD						S Approach CATARACT RD						W Approach CHARLESTON SIDE RD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	0	0	3	0	0	3	2	6	0	0	0	8	1	0	0	0	0	1	0	13	0	0	0	13	25	
06:15:00	0	0	4	0	0	4	1	8	0	0	0	9	0	0	0	0	0	0	0	9	0	0	0	9	22	
06:30:00	0	0	1	0	0	1	1	9	0	0	0	10	0	0	1	0	0	1	0	20	0	0	0	20	32	
06:45:00	2	0	2	0	0	4	3	12	0	0	0	15	0	0	0	0	0	0	0	16	1	0	0	17	36	115
07:00:00	1	0	1	0	0	2	2	14	0	0	0	16	0	0	0	0	0	0	0	22	4	0	0	26	44	134
07:15:00	2	0	3	0	0	5	0	16	0	0	0	16	1	0	0	0	0	1	1	18	3	0	0	22	44	156
07:30:00	4	0	9	0	0	13	3	22	0	0	0	25	1	1	1	0	0	3	0	28	1	0	0	29	70	194
07:45:00	3	0	4	0	0	7	2	24	0	0	0	26	1	2	0	0	0	3	0	36	2	0	0	38	74	232
08:00:00	1	0	7	0	0	8	3	22	0	0	0	25	0	0	0	0	0	0	0	33	2	0	0	35	68	256
08:15:00	4	0	8	0	0	12	3	31	0	0	0	34	1	0	0	0	0	1	1	47	3	0	0	51	98	310
08:30:00	3	0	10	0	0	13	4	39	0	0	0	43	0	1	0	0	0	1	0	42	5	0	0	47	104	344
08:45:00	1	0	5	0	0	6	6	34	0	0	0	40	2	1	0	0	0	3	0	31	8	0	0	39	88	358
09:00:00	4	0	5	1	0	10	6	28	0	0	0	34	0	1	0	0	0	1	1	50	5	0	0	56	101	391
09:15:00	6	0	3	0	0	9	6	50	2	0	0	58	3	0	0	0	0	3	1	45	4	0	0	50	120	413
09:30:00	4	0	3	0	0	7	4	42	2	0	0	48	3	2	0	0	0	5	1	42	2	0	0	45	105	414
09:45:00	7	0	3	0	0	10	10	59	3	0	0	72	2	1	0	0	0	3	0	46	6	0	0	52	137	463
10:00:00	3	6	3	0	0	12	10	52	1	0	0	63	3	4	0	0	0	7	1	37	5	0	0	43	125	487
10:15:00	3	2	7	0	0	12	5	40	2	0	0	47	2	0	2	0	0	4	0	56	3	0	0	59	122	489
10:30:00	10	0	8	0	0	18	5	54	4	0	0	63	0	1	1	0	0	2	2	86	4	0	0	92	175	559
10:45:00	11	1	10	0	0	22	5	48	1	0	0	54	0	3	1	0	0	4	3	68	12	0	0	83	163	585
11:00:00	6	1	7	0	0	14	6	48	2	0	0	56	1	1	1	0	0	3	0	55	7	0	0	62	135	595
11:15:00	3	1	9	0	0	13	6	59	3	0	0	68	3	1	0	0	0	4	0	80	8	0	0	88	173	646
11:30:00	6	2	10	0	0	18	11	73	0	0	0	84	4	1	0	0	0	5	0	60	10	0	0	70	177	648
11:45:00	4	0	7	0	0	11	9	61	1	0	0	71	3	0	0	0	0	3	1	65	12	0	0	78	163	648
BREAK																										
12:00:00	3	3	11	0	0	17	8	63	0	0	0	71	1	6	1	0	0	8	4	64	10	0	0	78	174	
12:15:00	6	1	7	0	0	14	5	69	3	0	0	77	2	3	2	0	0	7	0	63	9	0	0	72	170	
12:30:00	4	2	10	0	0	16	6	52	2	0	0	60	3	1	2	0	0	6	2	72	10	0	0	84	166	
12:45:00	9	4	5	0	0	18	10	62	1	0	0	73	1	1	3	0	0	5	0	66	10	0	0	76	172	682
13:00:00	8	0	9	0	0	17	7	55	3	0	0	65	2	4	0	0	0	6	2	79	16	0	0	97	185	693
13:15:00	7	2	13	0	0	22	11	56	2	0	0	69	1	0	1	0	0	2	3	54	7	0	0	64	157	680
13:30:00	12	3	9	0	0	24	11	55	2	0	0	68	3	3	2	0	0	8	0	66	9	0	0	75	175	689
13:45:00	11	2	8	0	0	21	6	59	3	0	0	68	1	0	2	0	0	3	0	64	12	0	0	76	168	685
14:00:00	6	3	4	0	0	13	10	53	3	0	0	66	0	2	1	0	0	3	2	42	8	0	0	52	134	634
14:15:00	7	1	11	0	0	19	6	53	2	0	0	61	0	2	3	0	0	5	2	72	8	0	0	82	167	644
14:30:00	6	2	4	0	0	12	4	64	2	0	0	70	2	2	1	0	0	5	1	72	10	0	0	83	170	639
14:45:00	5	3	8	0	0	16	8	56	1	0	0	65	3	2	1	0	0	6	2	87	6	0	0	95	182	653
15:00:00	4	1	5	0	0	10	14	69	3	0	0	86	2	2	0	0	0	4	3	79	5	0	0	87	187	706
15:15:00	7	3	12	0	0	22	7	63	3	0	0	73	2	0	1	0	0	3	2	62	9	0	0	73	171	710
15:30:00	8	2	14	0	0	24	4	55	1	0	0	60	0	2	1	0	0	3	3	71	12	0	0	86	173	713
15:45:00	11	5	2	0	0	18	11	81	2	0	0	94	3	2	0	0	0	5	2	49	4	0	0	55	172	703
16:00:00	7	0	4	0	0	11	6	51	3	0	0	60	4	2	1	0	0	7	4	55	9	0	0	68	146	662
16:15:00	7	1	6	0	0	14	6	66	4	0	0	76	2	4	2	0	0	8	0	64	3	0	0	67	165	656
16:30:00	7	4	6	0	0	17	9	39	4	0	0	52	2	2	4	0	0	8	2	65	1	0	0	68	145	628
16:45:00	6	3	7	0	0	16	10	51	0	0	0	61	1	1	3	0	0	5	2	70	5	0	0	77	159	615

17:00:00	5	2	5	0	0	12	6	66	0	0	0	72	3	2	1	0	0	6	2	43	9	0	0	54	144	613
17:15:00	9	0	10	0	0	19	5	55	3	0	0	63	2	0	0	0	0	2	1	52	9	0	0	62	146	594
17:30:00	4	3	8	0	0	15	4	60	0	0	0	64	3	1	1	0	0	5	5	70	8	0	0	83	167	616
17:45:00	2	3	6	0	0	11	8	61	4	0	0	73	2	0	3	0	0	5	1	69	8	0	0	78	167	624
Grand Total	249	66	316	1	0	632	295	2265	72	0	0	2632	76	64	43	0	0	183	57	2555	304	0	0	2916	**6363**	-
Approach%	39.4%	10.4%	50%	0.2%		-	11.2%	86.1%	2.7%	0%		-	41.5%	35%	23.5%	0%		-	2%	87.6%	10.4%	0%		-	**-**	-
Totals %	3.9%	1%	5%	0%		9.9%	4.6%	35.6%	1.1%	0%		41.4%	1.2%	1%	0.7%	0%		2.9%	0.9%	40.2%	4.8%	0%		45.8%	**-**	-
Heavy	2	1	9	0		-	2	42	0	0		-	0	2	1	0		-	1	51	3	0		-	**-**	-
Heavy %	0.8%	1.5%	2.8%	0%		-	0.7%	1.9%	0%	0%		-	0%	3.1%	2.3%	0%		-	1.8%	2%	1%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: CHARLESTON SIDEROAD & REGIONAL RD 136 (MAIN ST) / CATARACT RD
Date: Sat, Apr 23, 2022 Deployment Lead: Tasos Issaaakidis

TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 11:00 AM - 12:00 PM Weather: Broken Clouds (5.75 °C)

Start Time	N Approach MAIN ST						E Approach CHARLESTON SIDE RD						S Approach CATARACT RD						W Approach CHARLESTON SIDE RD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
11:00:00	6	1	7	0	0	14	6	48	2	0	0	56	1	1	1	0	0	3	0	55	7	0	0	62	135
11:15:00	3	1	9	0	0	13	6	59	3	0	0	68	3	1	0	0	0	4	0	80	8	0	0	88	173
11:30:00	6	2	10	0	0	18	11	73	0	0	0	84	4	1	0	0	0	5	0	60	10	0	0	70	177
11:45:00	4	0	7	0	0	11	9	61	1	0	0	71	3	0	0	0	0	3	1	65	12	0	0	78	163
Grand Total	19	4	33	0	0	56	32	241	6	0	0	279	11	3	1	0	0	15	1	260	37	0	0	298	**648**
Approach%	33.9%	7.1%	58.9%	0%		-	11.5%	86.4%	2.2%	0%		-	73.3%	20%	6.7%	0%		-	0.3%	87.2%	12.4%	0%		-	**-**
Totals %	2.9%	0.6%	5.1%	0%		8.6%	4.9%	37.2%	0.9%	0%		43.1%	1.7%	0.5%	0.2%	0%		2.3%	0.2%	40.1%	5.7%	0%		46%	**-**
PHF	0.79	0.5	0.83	0		0.78	0.73	0.83	0.5	0		0.83	0.69	0.75	0.25	0		0.75	0.25	0.81	0.77	0		0.85	**-**
Heavy	0	0	1	0		1	0	6	0	0		6	0	0	0	0		0	0	6	2	0		8	**-**
Heavy %	0%	0%	3%	0%		1.8%	0%	2.5%	0%	0%		2.2%	0%	0%	0%	0%		0%	0%	2.3%	5.4%	0%		2.7%	**-**
Lights	19	4	32	0		55	32	235	6	0		273	11	3	1	0		15	1	254	35	0		290	**-**
Lights %	100%	100%	97%	0%		98.2%	100%	97.5%	100%	0%		97.8%	100%	100%	100%	0%		100%	100%	97.7%	94.6%	0%		97.3%	**-**
Single-Unit Trucks	0	0	1	0		1	0	3	0	0		3	0	0	0	0		0	0	5	2	0		7	**-**
Single-Unit Trucks %	0%	0%	3%	0%		1.8%	0%	1.2%	0%	0%		1.1%	0%	0%	0%	0%		0%	0%	1.9%	5.4%	0%		2.3%	**-**
Buses	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	0	0	0	0		0	0	3	0	0		3	0	0	0	0		0	0	1	0	0		1	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	1.2%	0%	0%		1.1%	0%	0%	0%	0%		0%	0%	0.4%	0%	0%		0.3%	**-**
Aggregate Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Aggregate Trucks %	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		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**

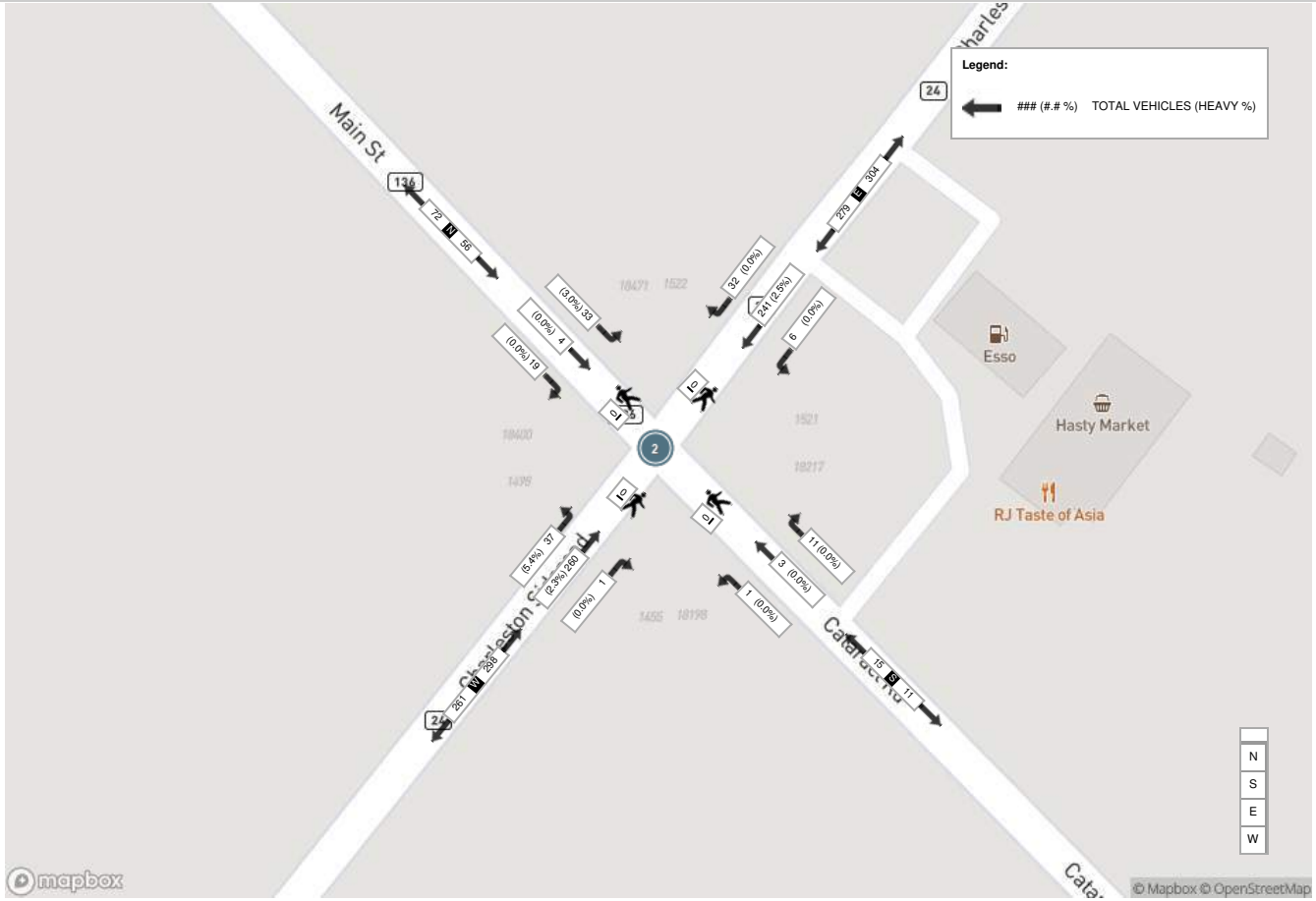
TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 02:45 PM - 03:45 PM Weather: Light Rain (5.94 °C)

Start Time	N Approach MAIN ST						E Approach CHARLESTON SIDE RD						S Approach CATARACT RD						W Approach CHARLESTON SIDE RD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
14:45:00	5	3	8	0	0	16	8	56	1	0	0	65	3	2	1	0	0	6	2	87	6	0	0	95	182
15:00:00	4	1	5	0	0	10	14	69	3	0	0	86	2	2	0	0	0	4	3	79	5	0	0	87	187
15:15:00	7	3	12	0	0	22	7	63	3	0	0	73	2	0	1	0	0	3	2	62	9	0	0	73	171
15:30:00	8	2	14	0	0	24	4	55	1	0	0	60	0	2	1	0	0	3	3	71	12	0	0	86	173
Grand Total	24	9	39	0	0	72	33	243	8	0	0	284	7	6	3	0	0	16	10	299	32	0	0	341	**713**
Approach%	33.3%	12.5%	54.2%	0%		-	11.6%	85.6%	2.8%	0%		-	43.8%	37.5%	18.8%	0%		-	2.9%	87.7%	9.4%	0%		-	**-**
Totals %	3.4%	1.3%	5.5%	0%		10.1%	4.6%	34.1%	1.1%	0%		39.8%	1%	0.8%	0.4%	0%		2.2%	1.4%	41.9%	4.5%	0%		47.8%	**-**
PHF	0.75	0.75	0.7	0		0.75	0.59	0.88	0.67	0		0.83	0.58	0.75	0.75	0		0.67	0.83	0.86	0.67	0		0.9	**-**
Heavy	0	1	1	0		2	0	3	0	0		3	0	0	0	0		0	0	9	0	0		9	**-**
Heavy %	0%	11.1%	2.6%	0%		2.8%	0%	1.2%	0%	0%		1.1%	0%	0%	0%	0%		0%	0%	3%	0%	0%		2.6%	**-**
Lights	24	8	38	0		70	33	240	8	0		281	7	6	3	0		16	10	290	32	0		332	**-**
Lights %	100%	88.9%	97.4%	0%		97.2%	100%	98.8%	100%	0%		98.9%	100%	100%	100%	0%		100%	100%	97%	100%	0%		97.4%	**-**
Single-Unit Trucks	0	0	1	0		1	0	3	0	0		3	0	0	0	0		0	0	5	0	0		5	**-**
Single-Unit Trucks %	0%	0%	2.6%	0%		1.4%	0%	1.2%	0%	0%		1.1%	0%	0%	0%	0%		0%	0%	1.7%	0%	0%		1.5%	**-**
Buses	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	4	0	0		4	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	1.3%	0%	0%		1.2%	**-**
Aggregate Trucks	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Aggregate Trucks %	0%	11.1%	0%	0%		1.4%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
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%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**

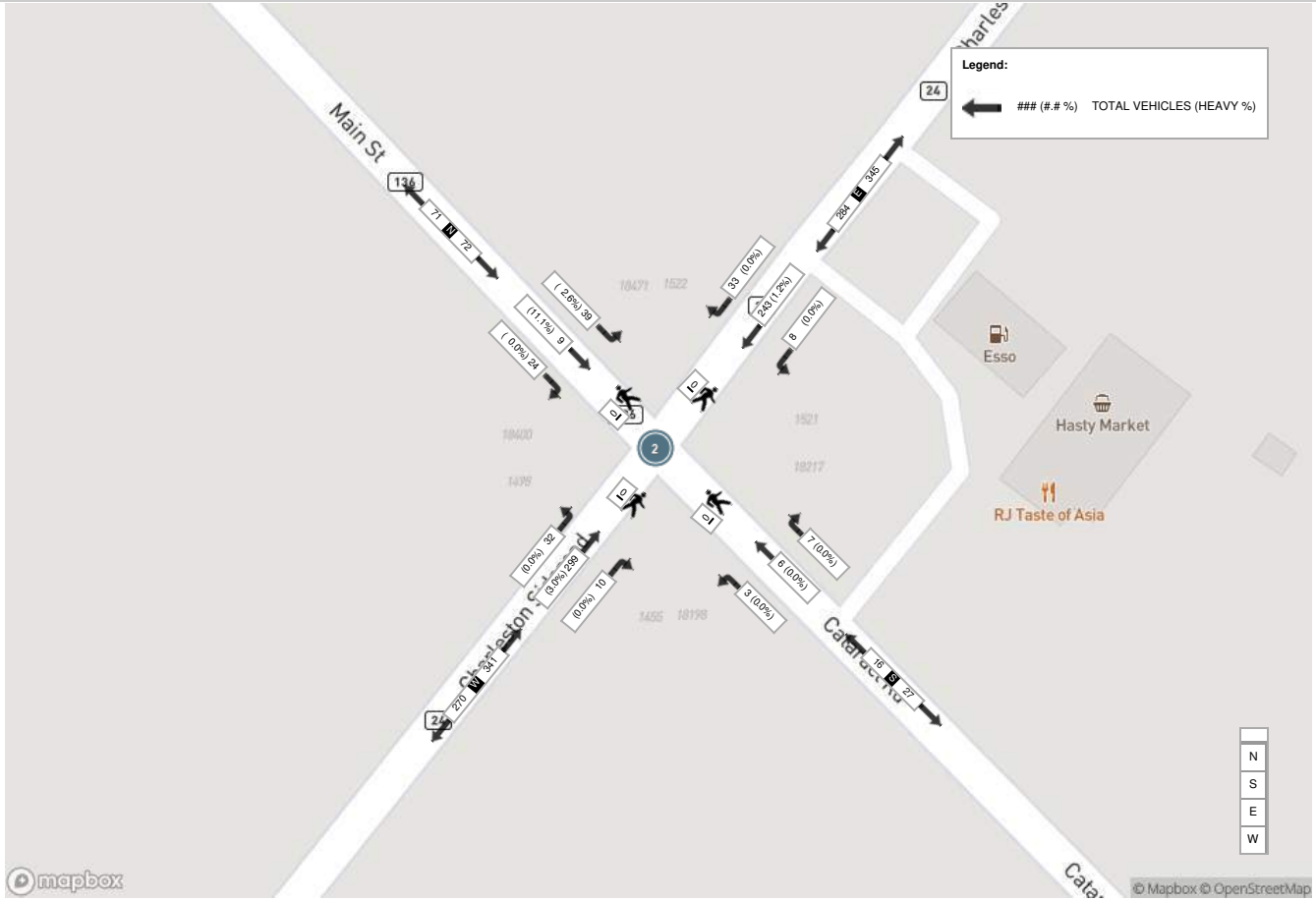
TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 11:00 AM - 12:00 PM Weather: Broken Clouds (5.75 °C)



TYLin
200 8800 DUFFERIN STREET
VAUGHAN ONTARIO, L4K 0C5
CANADA

Peak Hour: 02:45 PM - 03:45 PM Weather: Light Rain (5.94 °C)



GENERIC SIGNAL TIMING SHEET

ACTUATED [X] PRE-TIMED [ ] SIGNAL TO BE MAINTAINED BY Peel Region

LOCATION: Highway 10 at Charleston Side Road SIGNAL TO BE OPERATED BY: MTO

MAINSTREET (HWY): Highway 10 TIMING DEVELOPED BY: MTO

DATE TIMING DEVELOPED : 2018-09-26

GENERIC TIMING IDENTIFIED HERE SHALL BE TRANSCRIBED ONTO "OFFICIAL" TIMING SHEETS FOR THE TRAFFIC SIGNAL CONTROLLER BEING USED AT THIS SIGNALIZED INTERSECTION. A COPY OF THE "OFFICIAL" LOCAL TIMING SHEETS AND COORDINATION SHEETS IF USED, SHALL BE ATTACHED TO THIS FORM AND FILED IN THE MTO REGIONAL TRAFFIC OFFICE

OPERATIONAL NOTES:

1. All Prot/Perm left turn movements shall be followed by parent through movements without exception
2. If serving F2 and F6 the signal must cycle to F4 and/or F8 prior to serving a call for F1 and/or F5 if these left turn movements are protected/permissive.
3. If serving F4 and F8, the signal must cycle to F2 and/or F6 prior to serving a call for F3 and /or F7 if these left turn movements are protected/permissive.
4. Through Movements shall lag left turn movements unless otherwise specified.
5. 70 km/h operating speed used for Highwy 10 calculations, 60 km/h for RR 24.

FUNCTION/OPERATION	MOVEMENT (FAZE)							
	NB LEFT	NB THRU	WB LEFT	WB THRU	SB LEFT	SB THRU	EB LEFT	EB THRU
PERMITTED MOVEMENTS	X	X	X	X	X	X	X	X
RED LOCK								
AMBER LOCK								
VEHICLE RECALL								
PEDESTRIAN RECALL		X				X		
VEHICLE MAX RECALL								
OVERLAP A								
OVERLAP B								
PROT/PERM LEFT TURN ARROW	X		X		X		X	
PROT/PERM FAST FLASH ADVANCE GREEN								
FULLY PROTECTED LEFT TURN								
DISPLAY AMBER ON STARTUP		X				X		
PLACE PED CALLS ON STARTUP		X		X		X		X
PLACE VEHICLE CALLS ON STARTUP	X	X	X	X	X	X	X	X
REST IN WALK								
MOVEMENTS MUST GAP OUT SIMULTANEOUSLY		X		X		X		X
DOUBLE ENTRY		X		X		X		X
EXCLUSIVE (SEPERATE) PHASING BY APPORACH								

Region of Peel
Working for you

FIELD COPY

Intersection Name	Road Code	Int. #	Sys #	Rev.
Hwy. 10 @ Charleston	00000013	9939	0	9

Controller Make	Model	Firmware Rev. No.
McCain	2070ATC	

*- Start From Main Menu 0

Revision

NO	Date Y	Date M	Date D	Description	Field Chg by
9	18			Implement Timing Provided by MTO	GUILD

*- Start From Main Menu

PHASE DESCRIPTION

Ph1	Hwy. 10 - S/B L.T.	Ph5	Hwy. 10 - N/B L.T.
Ph2	Hwy. 10 - N/B	PH6	Hwy. 10 - S/B
Ph3	Charleston - W/B L.T.	Ph7	Charleston - E/B L.T.
Ph4	Charleston - E/B	Ph8	Charleston - W/B

CONFIGURATION SU phase 2 & 6 jumpered to recall main street ped

Port Protocol.....:	Terminal
Port 2 Enable.....:	X
Telemetry Address.....:	0
System Detector address....:	0
Telem response delay.....:	8700
Duplex - Half or Full.....:	Full
Modem Data Rate (BPS).....:	19.2 k
Data, Parity, Stop.....:	8,N,1

CONFIGURATION SUBMENU - controller sequence

	..1	..2	..3	..4	..5	..6
R1	1	2	3	4	9	10
R2	5	6	7	8	11	12

CONFIGURATIUON SUBMENU - PHASES IN USE

Phase:	1	2	3	4	5	6	7	8
Phase in use :	X	X	X	X	X	X	X	X
Exclusive Ped :	0	0	0	0	0	0	0	0

CONTROLLER SUBMENU - TIMING DATA

Phase:	1	2	3	4	5	6	7	8
Minimum Green..... :	7	20	7	10	7	20	7	10
Walk..... :	0	21	0	22	0	21	0	22
Pedestrian Clearance. :	0	16	0	17	0	16	0	17
Veh. Ext. :	3	4.4	3	3	3	4.4	3	3
Veh. Ext. 2 :	0	0	0	0	0	0	0	0
Max. Ext. :	0	0	0	0	0	0	0	0
Maximum No 1..... :	10	55	7	20	10	55	7	20
Maximum No 2..... :	0	67	0	25	19	67	0	25
Maximum No 3..... :	0	0	0	0	0	0	0	0
Yellow .... :	3	5.0	3	4.5	3	5.0	3	4.5
Red Clr..... :	0	2.4	0	2.4	0	2.4	0	2.4
Detector Delay...	5	0	10	10	5	0	10	10

CONTROLLER SUBMENU - RECALL DATA

Phase:	1	2	3	4	5	6	7	8
Locking Memory :	0	0	0	0	0	0	0	0
Vehicle Recall :	0	X	0	0	0	X	0	0
Ped Recall	0	X	0	0	0	X	0	0
Recall to Max	0	0	0	0	0	0	0	0
Soft Recall	0	0	0	0	0	0	0	0
Don't Rest Here	0	0	0	0	0	0	0	0
Ped Dark n/call	0	0	0	0	0	0	0	0

CONTROLLER SUBMENU - START/FLASH DATA

Phase:	1	2	3	4	5	6	7	8
Power Start	0	X	0	0	0	X	0	0
External Start:	0	X	0	0	0	X	0	0
Power start All Red Time	0	0	0	0	0	0	0	0
Power Start Flash time	0	15	0	0	0	15	0	0
Out of Flash Yellow	0	X	0	0	0	X	0	0
Out of Flash All Red	0	0	0	0	0	0	0	0

CONTROLLER SUBMENU - OPTION DATA

Phase:	1	2	3	4	5	6	7	8
Guar Passage :	0	0	0	X	0	0	0	X
Nonactuated 1 :	0	0	0	0	0	0	0	0
Nonactuated 2	0	0	0	0	0	0	0	0
Dual Entry	0	X	0	X	0	X	0	X
Cond Service	X	0	X	0	X	0	X	0
Rest in Walk	0	X	0	0	0	X	0	0
Flashing Walk	0	0	0	0	0	0	0	0
Phase Omit..... :	2	0	4	0	6	0	8	0
Phase - Yellow..... :	0	0	0	0	0	0	0	0

Enable Programming options Dual Entry..... X

NIC/TOD - NIC PROGRAM STEPS * - 5 - 5

Step	PGM	Time	Pattern	Override
1	1	00:00	0	
2	1	05:30	1	
3	1	09:30	2	
4	1	15:00	~~3~~	
5	1	19:00	2	
6	2	00:00	0	

NIC/TOD - TOD PROGRAM STEPS * - 5 - 6

TOD PROG Step 1
DAY PGM NUM....1
Step Begins....00:00

PHASE	1	2	3	4	5	6	7	8
MAX 2 ENABLE	.	.	.	.	.	.	.	.
MAX 3 ENABLE	.	.	.	.	.	.	.	.
VEH RECALL	.	.	.	.	.	.	.	.
VEH MAX RECALL	.	.	.	.	.	.	.	.
PED RECALL	.	.	.	.	.	.	.	.
PHASE OMIT	.	.	.	.	.	.	.	.

PATTERN 2

TOD PROG Step 2
DAY PGM NUM....1
Step Begins....05:30

PHASE	1	2	3	4	5	6	7	8
MAX 2 ENABLE	.	X	.	X	.	X	.	X
MAX 3 ENABLE	.	.	.	.	.	.	.	.
VEH RECALL	.	.	.	.	.	.	.	.
VEH MAX RECALL	.	.	.	.	.	.	.	.
PED RECALL	.	.	.	.	.	.	.	.
PHASE OMIT	.	.	.	.	.	.	.	.

PATTERN 1

TOD PROG Step 3
DAY PGM NUM....1
Step Begins....09:30

PHASE	1	2	3	4	5	6	7	8
MAX 2 ENABLE	.	.	.	.	.	.	.	.
MAX 3 ENABLE	.	.	.	.	.	.	.	.
VEH RECALL	.	.	.	.	.	.	.	.
VEH MAX RECALL	.	.	.	.	.	.	.	.
PED RECALL	.	.	.	.	.	.	.	.
PHASE OMIT	.	.	.	.	.	.	.	.

PATTERN 2

TOD PROG Step 4
DAY PGM NUM....1
Step Begins....15:00

PHASE	1	2	3	4	5	6	7	8
MAX 2 ENABLE	.	X	.	X	X	X	.	X
MAX 3 ENABLE	.	.	.	.	.	.	.	.
VEH RECALL	.	.	.	.	.	.	.	.
VEH MAX RECALL	.	.	.	.	.	.	.	.
PED RECALL	.	.	.	.	.	.	.	.
PHASE OMIT	.	.	.	.	.	.	.	.

PATTERN 3

TOD PROG Step 5
DAY PGM NUM....1
Step Begins....19:00

PHASE	1	2	3	4	5	6	7	8
MAX 2 ENABLE	.	.	.	.	.	.	.	.
MAX 3 ENABLE	.	.	.	.	.	.	.	.
VEH RECALL	.	.	.	.	.	.	.	.
VEH MAX RECALL	.	.	.	.	.	.	.	.
PED RECALL	.	.	.	.	.	.	.	.
PHASE OMIT	.	.	.	.	.	.	.	.

PATTERN 2

TOD PROG Step 6
DAY PGM NUM....2
Step Begins....00:00

PHASE	1	2	3	4	5	6	7	8
MAX 2 ENABLE	.	.	.	.	.	.	.	.
MAX 3 ENABLE	.	.	.	.	.	.	.	.
VEH RECALL	.	.	.	.	.	.	.	.
VEH MAX RECALL	.	.	.	.	.	.	.	.
PED RECALL	.	.	.	.	.	.	.	.
PHASE OMIT	.	.	.	.	.	.	.	.

NIC/TOD - WEEKLY PROGRAMS *-5-2

WEEK	SUN	MON	TUE	WED	THU	FRI	SAT
1	2	1	1	1	1	1	2
2							
3							
4							
5							
6							
7							
8							
9							
10							

comments: MAX II Active in AM & PM
05:30 to 09:30
15:00 to 19:00

Authorized Signature: R. Laing Date: OCT. 10/ 18

PLEASE IMPLEMENT THESE TIMING WHEN LOOPS FAILED.

GENERIC SIGNAL TIMING SHEET

ACTUATED ☐ PRE-TIMED ☒ SIGNAL TO BE MAINTAINED BY Peel Region

LOCATION: Highway 10 at Charleston Side Road SIGNAL TO BE OPERATED BY: MTO

MAINSTREET (HWY): Highway 10 TIMING DEVELOPED BY: MTO

DATE TIMING DEVELOPED : 2018-09-26

GENERIC TIMING IDENTIFIED HERE SHALL BE TRANSCRIBED ONTO "OFFICIAL" TIMING SHEETS FOR THE TRAFFIC SIGNAL CONTROLLER BEING USED AT THIS SIGNALIZED INTERSECTION. A COPY OF THE "OFFICIAL" LOCAL TIMING SHEETS AND COORDINATION SHEETS IF USED, SHALL BE ATTACHED TO THIS FORM AND FILED IN THE MTO REGIONAL TRAFFIC OFFICE

OPERATIONAL NOTES:

1. All Prot/Perm left turn movements shall be followed by parent through movements without exception
2. If serving F2 and F6 the signal must cycle to F4 and/or F8 prior to serving a call for F1 and/or F5 if these left turn movements are protected/permissive.
3. If serving F4 and F8, the signal must cycle to F2 and/or F6 prior to serving a call for F3 and /or F7 if these left turn movements are protected/permissive.
4. Through Movements shall lag left turn movements unless otherwise specified.
5. 70 km/h operating speed used for Highwy 10 calculations, 60 km/h for RR 24.

FUNCTION/OPERATION	MOVEMENT (FAZE)							
	NB LEFT	NB THRU	WB LEFT	WB THRU	SB LEFT	SB THRU	EB LEFT	EB THRU
PERMITTED MOVEMENTS	X	X	X	X	X	X	X	X
RED LOCK								
AMBER LOCK								
VEHICLE RECALL	X		X	X	X		X	X
PEDESTRIAN RECALL		X				X		
VEHICLE MAX RECALL								
OVERLAP A								
OVERLAP B								
PROT/PERM LEFT TURN ARROW	X		X		X		X	
PROT/PERM FAST FLASH ADVANCE GREEN								
FULLY PROTECTED LEFT TURN								
DISPLAY AMBER ON STARTUP		X				X		
PLACE PED CALLS ON STARTUP		X		X		X		X
PLACE VEHICLE CALLS ON STARTUP	X	X	X	X	X	X	X	X
REST IN WALK								
MOVEMENTS MUST GAP OUT SIMULTANEOUSLY		X		X		X		X
DOUBLE ENTRY		X		X		X		X
EXCLUSIVE (SEPERATE) PHASING BY APPORACH								

INTERVAL TIMES	MOVEMENT (FAZE)							
	NB LEFT	NB THRU	WB LEFT	WB THRU	SB LEFT	SB THRU	EB LEFT	EB THRU
WALK		21		22		21		22
FLASHING DON'T WALK		16		17		16		17
MINIMUM GREEN	7.0	50.0	7.0	18.0	7.0	50.0	7.0	18.0
VEHICLE EXTENSION (PASSAGE TIME)	3.0	4.4	3.0	3.0	3.0	4.4	3.0	3.0
MAXIMUM GREEN (INCLUDES MIN GREEN)	10.0	60.0	7.0	25.0	10.0	60.0	7.0	25.0
MAXIMUM GREEN 2 (ALTERNATE MAX GREEN)	19.0	67.0		25.0		67.0		25.0
AMBER CLEARANCE	3.0	5.0	3.0	4.5	3.0	5.0	3.0	4.5
ALL RED CLEARANCE		2.4		2.4		2.4		2.4
MAX GAP (VEH. EXTENSION)	3.0	4.4	3.0	3.0	3.0	4.4	3.0	3.0
MIN GAP (VEH. EXTENSION)	3.0	4.4	3.0	3.0	3.0	4.4	3.0	3.0
REDUCE GAP BY								
REDUCE GAP EVERY								
MAX INITIAL GREEN TIME (VARIABLE INIT)		25				25		
TIME ADDED/VEHICLE (VARIABLE INIT)		1				1		

DETECTOR SETUP	MOVEMENT (FAZE)							
	NB LEFT	NB THRU	WB LEFT	WB THRU	SB LEFT	SB THRU	EB LEFT	EB THRU
DELAY TIME ON PRESENCE DETECTION	5.0		10.0	10.0	5.0		10.0	10.0
DELAY ON LONG DISTANCE DETECTION								
CARRY-OVER ON PRESENCE DETECTION								
CARRY-OVER ON LONG DISTANCE DETECTION								

PRE-EMPTION	MOVEMENT (FAZE)							
	NB LEFT	NB THRU	WB LEFT	WB THRU	SB LEFT	SB THRU	EB LEFT	EB THRU
1ST EMERG. PRE-EMPT MOVEMENTS		X				X		
1ST EMERG. PRE-EMPT DELAY TIME								
1ST EMERG. PRE-EMPT CLEARANCE TIME								
2ND EMERG. PRE-EMPT MOVEMENTS				X				X
2ND EMERG. PRE-EMPT DELAY TIME								
2ND EMERG. PRE-EMPT CLEARANCE TIME								
RR PRE-EMPT TRACK CLEARANCE MOVEMENTS								
RR PRE-EMPT CLEARANCE TIME								
RR PRE-EMPT DELAY TIME								
RR PRE-EMPT LIMITED SERVICE MOVEMENTS								

TIME OF DAY OPERATIONS	TIME OF DAY		DAY OF WEEK							MOVEMENT (FAZE)							
	START	END	S	M	T	W	T	F	S	NB LEFT	NB THRU	WB LEFT	WB THRU	SB LEFT	SB THRU	EB LEFT	EB THRU
PHASE OMIT																	
MAX RECALL	05:30	09:30		X	X	X	X	X			X		X		X		X
MAX RECALL	15:00	19:00		X	X	X	X	X		X	X		X		X		X
PED RECALL																	
MIN RECALL																	
MAX GREEN 2																	
REST IN WALK																	
AMBER LOCK																	
RED LOCK																	

GENERIC SIGNAL TIMING SHEET

ACTUATED [X] PRE-TIMED [ ] SIGNAL TO BE MAINTAINED BY Peel Region

LOCATION: Highway 10 at Charleston Side Road SIGNAL TO BE OPERATED BY: MTO

MAINSTREET (HWY): Highway 10 TIMING DEVELOPED BY: MTO

DATE TIMING DEVELOPED : 2018-09-26

GENERIC TIMING IDENTIFIED HERE SHALL BE TRANSCRIBED ONTO "OFFICIAL" TIMING SHEETS FOR THE TRAFFIC SIGNAL CONTROLLER BEING USED AT THIS SIGNALIZED INTERSECTION. A COPY OF THE "OFFICIAL" LOCAL TIMING SHEETS AND COORDINATION SHEETS IF USED, SHALL BE ATTACHED TO THIS FORM AND FILED IN THE MTO REGIONAL TRAFFIC OFFICE

OPERATIONAL NOTES:

1. All Prot/Perm left turn movements shall be followed by parent through movements without exception
2. If serving F2 and F6 the signal must cycle to F4 and/or F8 prior to serving a call for F1 and/or F5 if these left turn movements are protected/permissive.
3. If serving F4 and F8, the signal must cycle to F2 and/or F6 prior to serving a call for F3 and /or F7 if these left turn movements are protected/permissive.
4. Through Movements shall lag left turn movements unless otherwise specified.
5. 70 km/h operating speed used for Highwy 10 calculations, 60 km/h for RR 24.

FUNCTION/OPERATION	MOVEMENT (FAZE)							
	NB LEFT	NB THRU	WB LEFT	WB THRU	SB LEFT	SB THRU	EB LEFT	EB THRU
PERMITTED MOVEMENTS	X	X	X	X	X	X	X	X
RED LOCK								
AMBER LOCK								
VEHICLE RECALL								
PEDESTRIAN RECALL		X				X		
VEHICLE MAX RECALL								
OVERLAP A								
OVERLAP B								
PROT/PERM LEFT TURN ARROW	X		X		X		X	
PROT/PERM FAST FLASH ADVANCE GREEN								
FULLY PROTECTED LEFT TURN								
DISPLAY AMBER ON STARTUP		X				X		
PLACE PED CALLS ON STARTUP		X		X		X		X
PLACE VEHICLE CALLS ON STARTUP	X	X	X	X	X	X	X	X
REST IN WALK								
MOVEMENTS MUST GAP OUT SIMULTANEOUSLY		X		X		X		X
DOUBLE ENTRY		X		X		X		X
EXCLUSIVE (SEPERATE) PHASING BY APPORACH								

INTERVAL TIMES	MOVEMENT (FAZE)							
	NB LEFT	NB THRU	WB LEFT	WB THRU	SB LEFT	SB THRU	EB LEFT	EB THRU
WALK		21		22		21		22
FLASHING DON'T WALK		16		17		16		17
MINIMUM GREEN	7.0	20.0	7.0	10.0	7.0	20.0	7.0	10.0
VEHICLE EXTENSION (PASSAGE TIME)	3.0	4.4	3.0	3.0	3.0	4.4	3.0	3.0
MAXIMUM GREEN (INCLUDES MIN GREEN)	10.0	55.0	7.0	20.0	10.0	55.0	7.0	20.0
MAXIMUM GREEN 2 (ALTERNATE MAX GREEN)	19.0	67.0		25.0		67.0		25.0
AMBER CLEARANCE	3.0	5.0	3.0	4.5	3.0	5.0	3.0	4.5
ALL RED CLEARANCE		2.4		2.4		2.4		2.4
MAX GAP (VEH. EXTENSION)	3.0	4.4	3.0	3.0	3.0	4.4	3.0	3.0
MIN GAP (VEH. EXTENSION)	3.0	4.4	3.0	3.0	3.0	4.4	3.0	3.0
REDUCE GAP BY								
REDUCE GAP EVERY								
MAX INITIAL GREEN TIME (VARIABLE INIT)		25				25		
TIME ADDED/VEHICLE (VARIABLE INIT)		1				1		

DETECTOR SETUP	MOVEMENT (FAZE)							
	NB LEFT	NB THRU	WB LEFT	WB THRU	SB LEFT	SB THRU	EB LEFT	EB THRU
DELAY TIME ON PRESENCE DETECTION	5.0		10.0	10.0	5.0		10.0	10.0
DELAY ON LONG DISTANCE DETECTION								
CARRY-OVER ON PRESENCE DETECTION								
CARRY-OVER ON LONG DISTANCE DETECTION								

PRE-EMPTION	MOVEMENT (FAZE)							
	NB LEFT	NB THRU	WB LEFT	WB THRU	SB LEFT	SB THRU	EB LEFT	EB THRU
1ST EMERG. PRE-EMPT MOVEMENTS		X				X		
1ST EMERG. PRE-EMPT DELAY TIME								
1ST EMERG. PRE-EMPT CLEARANCE TIME								
2ND EMERG. PRE-EMPT MOVEMENTS				X				X
2ND EMERG. PRE-EMPT DELAY TIME								
2ND EMERG. PRE-EMPT CLEARANCE TIME								
RR PRE-EMPT TRACK CLEARANCE MOVEMENTS								
RR PRE-EMPT CLEARANCE TIME								
RR PRE-EMPT DELAY TIME								
RR PRE-EMPT LIMITED SERVICE MOVEMENTS								

TIME OF DAY OPERATIONS	TIME OF DAY		DAY OF WEEK							MOVEMENT (FAZE)							
	START	END	S	M	T	W	T	F	S	NB LEFT	NB THRU	WB LEFT	WB THRU	SB LEFT	SB THRU	EB LEFT	EB THRU
PHASE OMIT																	
MAX RECALL																	
PED RECALL																	
MIN RECALL																	
MAX GREEN 2	05:30	09:30		X	X	X	X	X			X		X		X		X
MAX GREEN 2	15:00	19:00		X	X	X	X	X		X	X		X		X		X
REST IN WALK																	
AMBER LOCK																	
RED LOCK																	

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

Database Date	**August 1, 2001**		**Prepared Date**	**May 7, 2021**	
Database Rev	**1**		**Completed By**	**MA**	
Timing Card / Field rev	**1**		**Checked By**	**BL**	
Location	**Charleston Sideroad @ Main Street/Cataract Road**				

Phase #	Street Name - Direction	Vehicle Minimum (s)	Pedestrian Minimum (s)		Amber (s)	All Red (s)	TIME PERIOD (s) SPLITS = Green + Amber + All Red MAX = Green Only		
			WALK	FDWALK			AM MAX	OFF MAX	PM MAX
1	Not In Use	-	-	-	-	-	-	-	-
2	Charleston Sideroad - E/W	20	8	16	4.6	2.0	40	40	40
3	Not In Use	-	-	-	-	-	-	-	-
4	Main Street/Cataract Road - N/S	16	8	16	4.6	2.0	30	30	30
5	Not In Use	-	-	-	-	-	-	-	-
6	Not In Use	-	-	-	-	-	-	-	-
7	Not In Use	-	-	-	-	-	-	-	-
8	Not In Use	-	-	-	-	-	-	-	-

Note: Phase 2 is set to min. recall

System Control

No

Semi-Actuated Mode

No

TIME (M-F)	PEAK	CYCLE LENGTH (s)	OFFSET (s)
FREE	AM	0	0
FREE	OFF	0	0
FREE	PM	0	0

INTERVAL TIMES	MOVEMENT (FAZE)							
	NB LEFT	NB THRU	WB LEFT	WB THRU	SB LEFT	SB THRU	EB LEFT	EB THRU
WALK		21		22		21		22
FLASHING DON'T WALK		16		17		16		17
MINIMUM GREEN	7.0	20.0	7.0	10.0	7.0	20.0	7.0	10.0
VEHICLE EXTENSION (PASSAGE TIME)	3.0	4.4	3.0	3.0	3.0	4.4	3.0	3.0
MAXIMUM GREEN (INCLUDES MIN GREEN)	10.0	55.0	7.0	20.0	10.0	55.0	7.0	20.0
MAXIMUM GREEN 2 (ALTERNATE MAX GREEN)	19.0	67.0		25.0		67.0		25.0
AMBER CLEARANCE	3.0	5.0	3.0	4.5	3.0	5.0	3.0	4.5
ALL RED CLEARANCE		2.4		2.4		2.4		2.4
MAX GAP (VEH. EXTENSION)	3.0	4.4	3.0	3.0	3.0	4.4	3.0	3.0
MIN GAP (VEH. EXTENSION)	3.0	4.4	3.0	3.0	3.0	4.4	3.0	3.0
REDUCE GAP BY								
REDUCE GAP EVERY								
MAX INITIAL GREEN TIME (VARIABLE INIT)		25				25		
TIME ADDED/VEHICLE (VARIABLE INIT)		1				1		

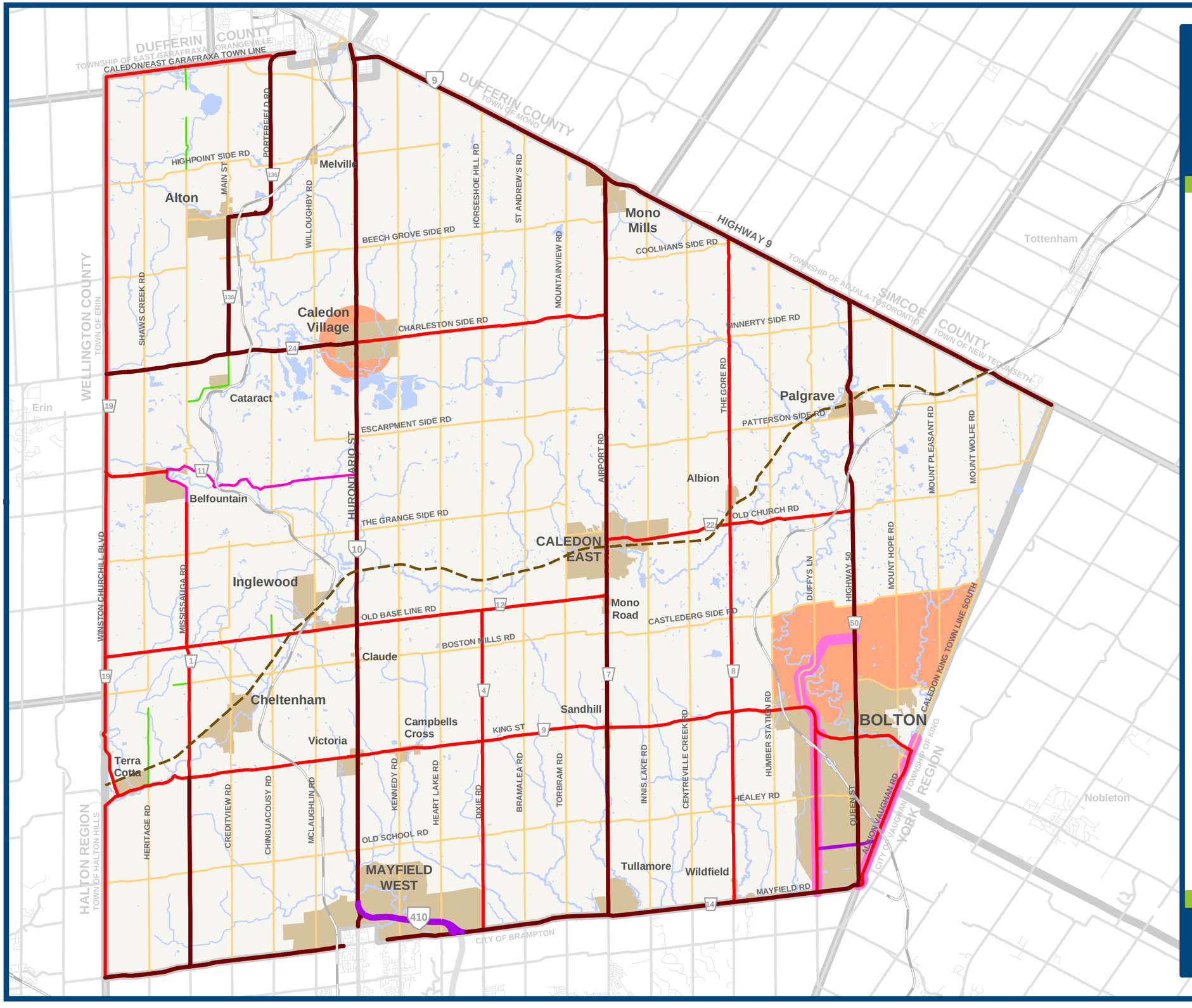
DETECTOR SETUP	MOVEMENT (FAZE)							
	NB LEFT	NB THRU	WB LEFT	WB THRU	SB LEFT	SB THRU	EB LEFT	EB THRU
DELAY TIME ON PRESENCE DETECTION	5.0		10.0	10.0	5.0		10.0	10.0
DELAY ON LONG DISTANCE DETECTION								
CARRY-OVER ON PRESENCE DETECTION								
CARRY-OVER ON LONG DISTANCE DETECTION								

PRE-EMPTION	MOVEMENT (FAZE)							
	NB LEFT	NB THRU	WB LEFT	WB THRU	SB LEFT	SB THRU	EB LEFT	EB THRU
1ST EMERG. PRE-EMPT MOVEMENTS		X				X		
1ST EMERG. PRE-EMPT DELAY TIME								
1ST EMERG. PRE-EMPT CLEARANCE TIME								
2ND EMERG. PRE-EMPT MOVEMENTS				X				X
2ND EMERG. PRE-EMPT DELAY TIME								
2ND EMERG. PRE-EMPT CLEARANCE TIME								
RR PRE-EMPT TRACK CLEARANCE MOVEMENTS								
RR PRE-EMPT CLEARANCE TIME								
RR PRE-EMPT DELAY TIME								
RR PRE-EMPT LIMITED SERVICE MOVEMENTS								

TIME OF DAY OPERATIONS	TIME OF DAY		DAY OF WEEK							MOVEMENT (FAZE)							
	START	END	S	M	T	W	T	F	S	NB LEFT	NB THRU	WB LEFT	WB THRU	SB LEFT	SB THRU	EB LEFT	EB THRU
PHASE OMIT																	
MAX RECALL																	
PED RECALL																	
MIN RECALL																	
MAX GREEN 2	05:30	09:30		X	X	X	X	X			X		X		X		X
MAX GREEN 2	15:00	19:00		X	X	X	X	X		X	X		X		X		X
REST IN WALK																	
AMBER LOCK																	
RED LOCK																	

APPENDIX C

Access Spacing Excerpts from TAC Chapter 9 and Peel RCS



Schedule J

LONG RANGE ROAD NETWORK

- Provincial Freeway
- High Capacity Arterial
- Medium Capacity Arterial
- Low Capacity Arterial
- Collector
- East-West Industrial Collector
- Local
- Trailway
- Proposed Bolton Arterial Route (BAR)

- Transportation Study Area
- Settlement

- Provincial Road
- Regional Road
- Railway

Base Data Source: Town of Caledon

0 0.5 1 2 3 4 5 km

SAVED: 2 April 2018

FILE: S:\POLICY SECTION\GIS\official_plan\mxd\9-april_2018

SAVED BY: bloverock

April 2018 Office Consolidation

5.11.2.5 Aggregate Traffic

5.11.2.5.1 Haul routes for new aggregate operations shall only be located, except as provided for in Section 5.11.2.5.2, on the High Capacity Arterials as are identified on Schedule J to this Plan and on Charleston Sideroad, Old Church Road between Regional Road 7 and Regional Road 50 and King Street between Highway 10 and Regional Road 50. Use of other roads for haul routes by existing aggregate operations can continue.

5.11.2.5.2 Access to a new or expanded aggregate operation should be via an existing entrance onto a road identified in Section 5.11.2.5.1 either directly or through the use of an inter-pit road. Where this is not possible, access via a new entrance onto a road identified in Section 5.11.2.5.1 may be considered. Access onto a road that is not a road identified in Section 5.11.2.5.1 will only be considered where there is no practical alternative and subject to satisfying the requirements of Sections 5.11.2.4.2(b) and 5.11.2.4.4(c). Such access may only be considered subject to the road being improved to a standard considered appropriate by the road authority.

Any required improvement shall be a condition of planning application approval and recommended to the appropriate authority to be a condition on the issuance of any access permit. The Applicant shall prepare a Road Improvement Study for approval by the applicable road authority to indicate the measures proposed to minimize the impacts of any road improvement. This Road Improvement Study shall include the following:

a) Existing road right-of-way characteristics, particularly vertical alignments, should be maintained as closely as possible, subject to safety considerations with an understanding that many of these roads possess inherent traffic calming characteristics;

b) Existing trees and other vegetation within the road right-of-way shall be retained wherever possible, including any scrub-like settings. Introduction of manicured boulevards as "landscaping elements" should be avoided;

c) Wood, wire, stump, and stone fence lines shall be retained wherever possible as historical landscape remnants and incorporated as "new" design elements;

d) Traditional open grassed ditches shall be used at every reasonable opportunity; and,

e) New lighting elements, such as poles or standards and luminaires shall be as unobtrusive as possible within the road right-of-way and lighting should be directed downward and shielded.

5.11.2.5.3 The identification of roads upon which haul routes shall be located in Section 5.11.2.5.1 shall be reviewed and updated as necessary by the Town of Caledon. As part of this review, the Town of Caledon will work with adjacent municipalities and the Region of Peel to minimize impacts from traffic from outside of the Town of Caledon.

9.4.2.1 Arterials

Along signalized arterial roads, vehicular traffic volumes are generally high. It is therefore desirable to provide spacing between signalized intersections that is consistent with the desired vehicular traffic progression speed and signal cycle lengths. By spacing the intersections uniformly, based on known or assumed running speeds and appropriate cycle lengths, signal progression in both directions can be achieved. Progression allows platoons of vehicles to travel through successive intersections without stopping. For a progression speed of about 50 km/h and a cycle length of 60 s, the corresponding desired spacing between signalized intersections is approximately 400 m. As speeds increase, the optimal intersection spacing increases proportionately.

Where an arterial corridor must accommodate a variety of road users (e.g., vehicles, cyclists, and pedestrians), vehicle operations and the consequent intersection designs must balance the various needs while recognizing that the priority of arterial roadways is generally servicing vehicular traffic movement.

A typical minimum intersection spacing along arterial roadways is 200 m, generally only applicable in areas of intense existing development or restrictive physical controls where feasible alternatives do not exist. The 200 m spacing allows for minimum lengths of back to back storage for left turning vehicles at the adjacent intersections.

The close spacing does not permit signal progression; therefore, it is normally preferable not to signalize the intersection that interferes with progression along a major arterial. Intersection spacing at or near the 200 m minimum is normally only acceptable along minor arterials, where optimizing traffic mobility is not as important as along major arterials.

Where intersection spacing along an arterial does not permit an adequate level of traffic service, many alternatives can be considered to improve traffic flow. These include, but are not limited to:

- Converting two-way to one-way operation
- Implementing cul-de-sacs for minor connecting roads
- Introducing channelization to restrict turning movements at selected intersections to right turns only.

The designer's options may be substantially limited by the policies of the local jurisdiction.

On divided arterial roads, a right-in, right-out intersection without a median opening may be permitted at least 100 m from an adjacent all-directional intersection. The distance is measured between the closest edges of pavement of the adjacent intersecting roads.

In retrofit situations, the desired spacing of intersections along an arterial is sometimes compromised in consideration of other design controls, such as the nature of existing adjacent development and the associated access needs.

9.4.2.2 Collectors

The typical minimum spacing between adjacent intersections along a collector road is 60 m.

9.4.2.3 Locals

Along local roads, the minimum spacing between four-legged intersections is normally 60 m. Where the adjacent intersections are three-legged, a minimum spacing of 40 m is acceptable.

on such actions given to arterial roads (because of their importance for mobility) and with less attention given to collector and local streets. Typically in past access control practice, no distinctions were made as to the character of the roads (other than their functional class).The scope of access control measures depends on the road's functional class, reflecting the blend of mobility and property access intended for the road context. The roads addressed in the RCS are all classified as arterial and all of them are important for movement of through traffic (traffic with neither origin nor destination adjacent to the road).

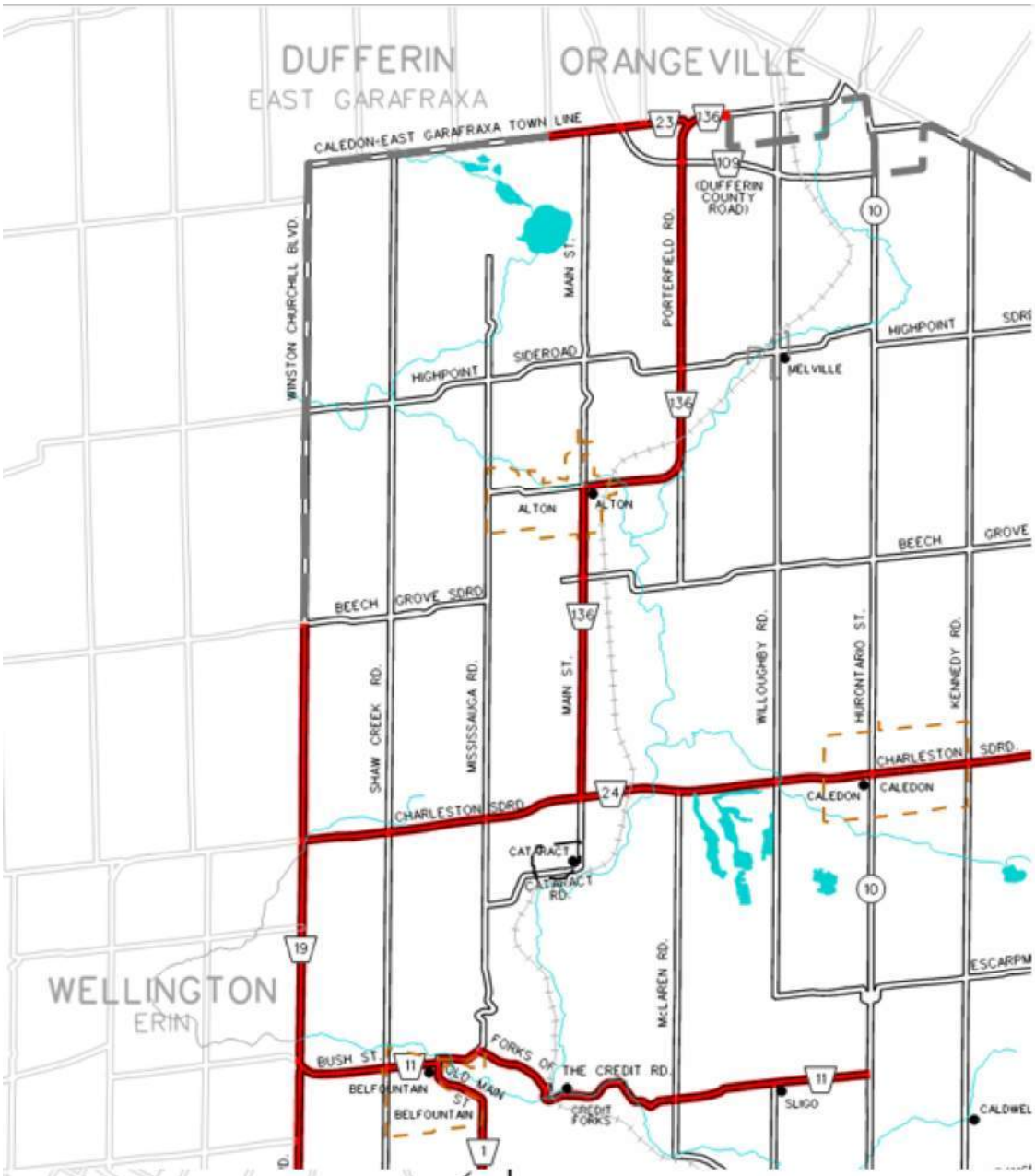
To more effectively consider road character in our access control approach and to address growth and development over time we referenced block dimensions in other successful urban places. This approach reaffirmed that as land uses develop, intersection spacing should decrease. Our new access control approach aligns with the block dimensions of successful places; approximately 150 m x 75 m, closely corresponding to the existing block dimensions in Port Credit, Mississauga and downtown Brampton, among others.

Minimum Spacing Between (metres)	Rural Road	Industrial Connector	Suburban Connector	Commercial Connector	Rural Main Street	Urban Main Street
Full to Full	600	450	300	300	150	150
Full to Left-In/Right-In/Right-Out	ISR	225	150	150	75	75
Left-In/Right-In/Right-Out to Left-In/Right-In/Right-Out	ISR	225	150	150	75	75

Table 1: Median Opening Spacing (from RCS Section 3: Access Control, Table 2)

Legend: ISR – Individual Site Review

Note: Spacing measured from curb extension to curb extension (See Figures 24-26 in RCS Section 3).
All spacing to be verified by a Transportation Impact Assessment and/or sightline analysis.



LEGEND

KING'S HIGHWAY — 10

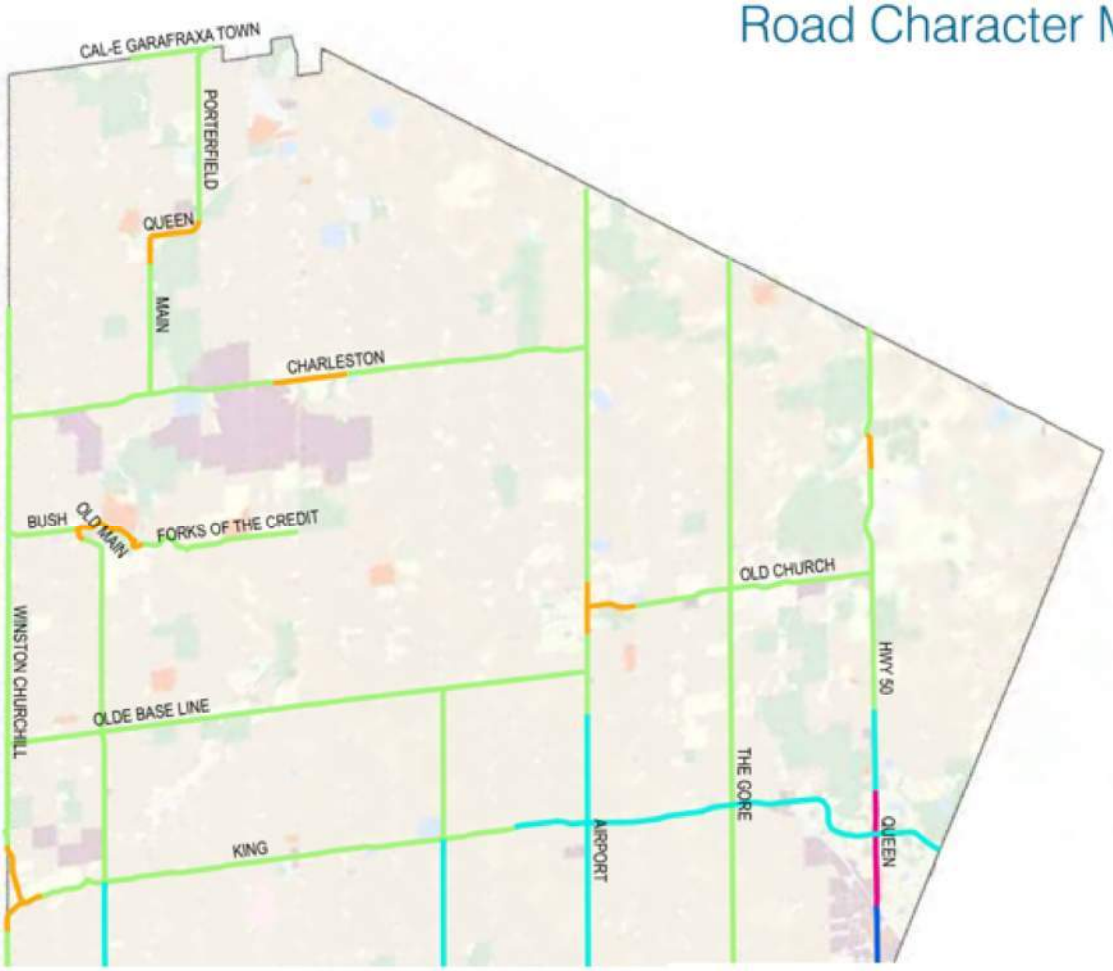
REGIONAL ROAD — 1

SCALE 1000 0 1000 2000 3000 4000 5000 METRES

Region of Peel
Working for you

SCALE:	DATE REVISED:
AS SHOWN	April 2010
DRAWN BY:	DWG. NAME:
P.W.	REGION ROAD MAP NAD83

Road Character Map



5.0 Road Character Map

The Road Character Map shows Regional Roads and their associated road typologies. Further detail is provided in the Road Character Matrix.

The RCS map will be updated approximately every 5 years, or when there is greater certainty regarding changes in land use or transportation plans, including the GTA West Corridor.

- Rural Road
- Rural Main Street
- Urban Main Street
- Suburban Connector
- Commercial Connector
- Industrial Connector

APPENDIX D

Site Visit and Sightline Details

Caledon Quarry Site Visit Summary

On November 16, 2021, the Caledon Quarry site was visited to assess the sight lines of potential access locations based on Intersection sight distance (ISD) and stopping sight distance (SSD).

A review of the TAC manual provided the ISD and SSD distances that were used during the site investigation.

Left Turn ISD	**90 kph**	**100 kph**
Passenger Car	190 m	210 m
Single-Unit Truck	240 m	265 m
Combination Truck	290 m	320 m
Right Turn ISD		
Passenger Car	165 m	185 m
Single-Unit Truck	215 m	240 m
Combination Truck	265 m	295 m
Left/Right Turn SSD		
Passenger Car	160 m	185 m

Source TAC eqn 9.9.1, table 9.9.4, table 9.9.6

ISD values are derived from equation 9.9.1 in the TAC manual which is a function of design speed and time gap for minor vehicle. TAC only provides SSD values for passenger vehicles but notes in paragraph 2.5.3.1 that truck SSD is generally longer due to additional distance required to stop but also generally have a longer sightline due to cabin position.

The 100kph combination truck stopping distance was measured on site for most conservative analysis.

The following figure shows the approximate location where each set of measurements were taken.

The following is the data collected from the site visit. Images were taken with cellphones but due to the distance, lighting conditions, and technology limitations the quality of the images is not the best. The original photos are saved at *G:\Projects\2020\10042 - Long Par 5 Haul Route Assessment and TIS\02 Input Data\09 Site Visit 11.17.2021*

1. **Mississauga Road south access**

The right turn ISD does not meet the truck standards for both design speeds due to a crest in the road at approximately 200m. With the access location moved further to the North, it will improve the sight distance for right turn ISD. All other sightlines met the required standard.

Movement	Distance (m)	Image
Right turn ISD	Available 210 Only meets passenger car ISD	
Right turn SSD	185	

Left turn ISD	320	
Left turn SSD	185	

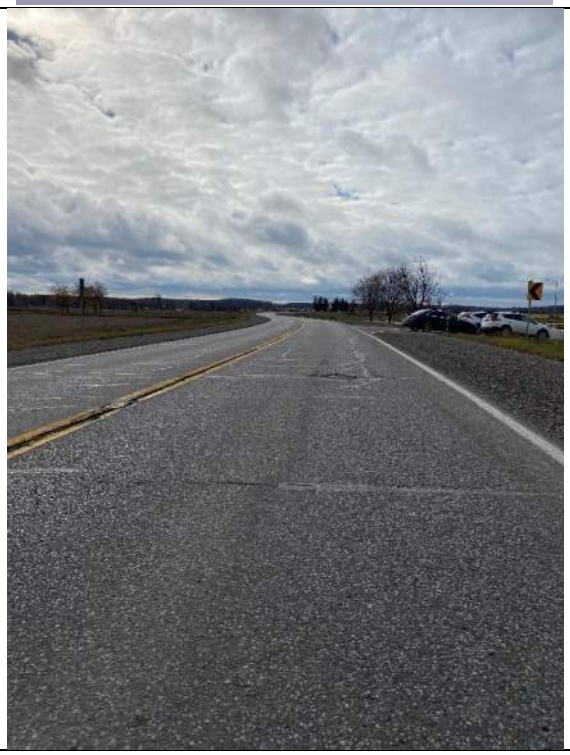
2. Mississauga Road north access

For the alternative north access on Mississauga Road, only the right turn ISD was checked due to limited sightline at the proposed south access. Right turn ISD meets All other sightline distances were deemed acceptable based on the measurements recorded from the southern proposed access

Movement	Distance (m)	Image
Right turn ISD	295	

3. Charleston sideroad access

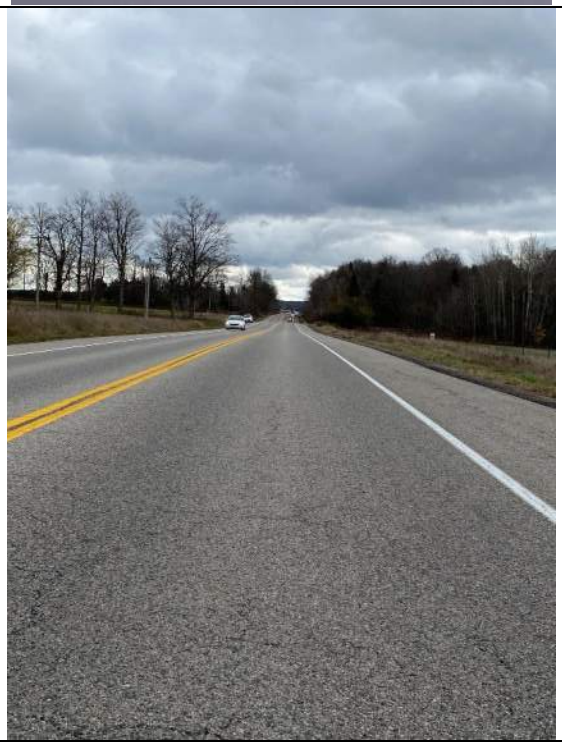
All sightline distances from the Charleston Sideroad access meet the required standards. It was observed that some road signs cause slight visual obstructions for due to the horizontal curve. It is recommended to clear all landscape or other obstructions near the edge of the property as driver's sightline may go through the property line in the future.

Movement	Distance (m)	Image
Right turn ISD	295	
Right turn SSD	185	

Left turn ISD	320	
Left turn SSD	185	

4. Main Street north access

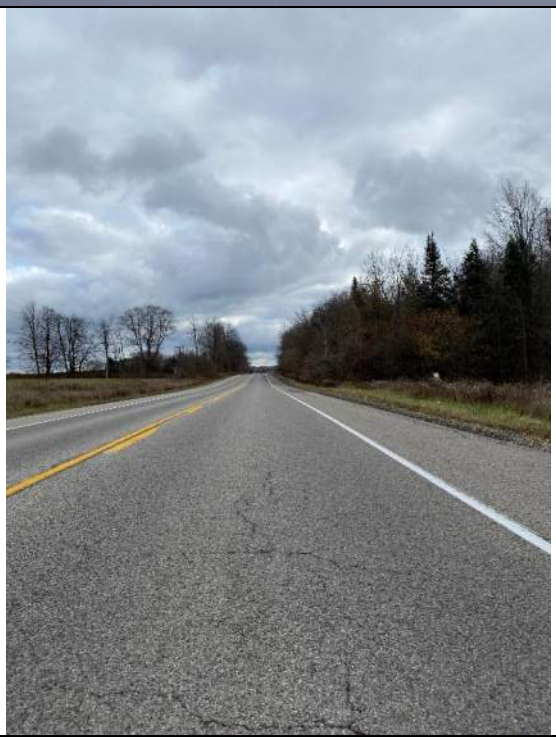
Right turn ISD only meets standard for single unit truck due to crest in road. All other sightline distances meet the required standard.

Movement	Distance (m)	Image
Right turn ISD	Available 270 Only meets the single unit truck sightline distance requirement	
Right turn SSD	185	

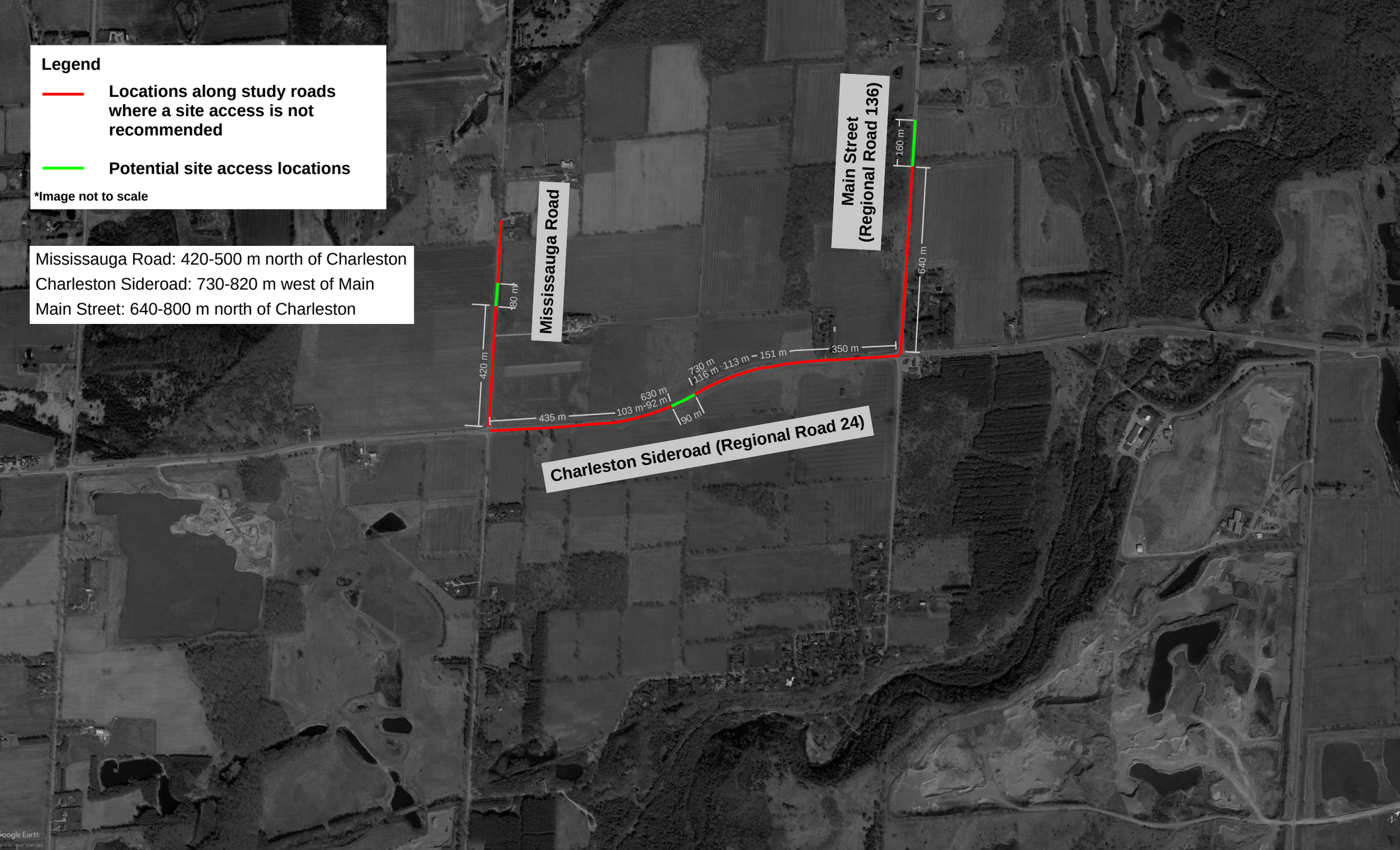
Left turn ISD	320	
Left turn SSD	185	

5. Main Street south access

All sightline distances meet the required standard

Movement	Distance (m)	Image
Right turn ISD	295	
Right turn SSD	185	

Left turn ISD	320	
Left turn SSD	185	


Legend
Locations along study roads where a site access is not recommended
Potential site access locations
*Image not to scale
Mississauga Road: 420-500 m north of Charleston
Charleston Sideroad: 730-820 m west of Main
Main Street: 640-800 m north of Charleston
Mississauga Road
Main Street (Regional Road 136)
Charleston Sideroad (Regional Road 24)
80 m
420 m
435 m
630 m
103 m
92 m
730 m
116 m
113 m
151 m
350 m
90 m
640 m
160 m
Google Earth

APPENDIX E

Signal Warrant Results

Traffic Signal Warrant - Input Sheet
Justification 7 - Projected Volumes

Based Ontario Traffic Manual Book 12 - Traffic Signals (March 2012)

Project and Scenario Summary

Project:	Caledon Quarry			**Project No.:**	10042
				Date:	2023-07-27
Horizon:	Future Total	**Horizon Year:**	2032	**Analyst:**	AB

Study Intersection Summary

Major Street:	Charleston SR (RR 24)	**Direction:**	East/West
Minor Street:	Site Access	**Direction:**	North/South

Intersection Details for Warrant Parameters

Flow Conditions:	Free Flow (Rural)	**Number of Lanes:**	1
Number of Legs:	Three ("T" Intersection)	**Intersection Type:**	New

Notes: "Free Flow" is used when the operating speed is greater than or equal to 70km/h, "Restricted Flow" otherwise.
The Number of Lanes greater than 1 only needs to be for one direction along the major road.
An intersection is considered "New" if at least 1-leg is added to an existing intersection.

Input Volumes and Average Hourly Volume Determination

Peak Hour	Major: Charleston SR (RR 24)						Minor: Site Access						Pedestrians Crossing Major
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
AM	5	404	0	0	380	40	0	0	0	53	0	7	0
PM	10	518	0	0	490	45	0	0	0	58	0	7	0
AHV[1]	**4**	**231**	**0**	**0**	**218**	**21**	**0**	**0**	**0**	**28**	**0**	**4**	**0**

1. The AHV is determined by the availability of the peak hour estimates. If both the AM and PM Peak Hour Volume estimate is available then AHV = $(AM_{PHV} + PM_{PHV}) / 4$. In the case that only one estimate is available then AHV = $AM_{PHV} / 2$ **or** AHV = $PM_{PHV} / 2$.

Determination of Justification Volumes (Based on AHV)

Justification 1A: All Approach Lanes	506
Justification 1B: Minor Street Both Approaches	32

Justification 2A: Major Street Both Approaches	474
Justification 2B: Traffic Crossing Major Street	28

Note: The crossing volume is defined as the sum of:

(1) Left turns from both minor street approaches:			28
(2) The heaviest through volume from the minor street:			0
(3) 50% of the heavier left turn movement from major street when both of the following criteria are met:			0
(a) The left turn volume > 120 vph	4	FALSE	
(b) The left turn volume plus the opposing volume > 720 vph	222	FALSE	
(4) Pedestrians crossing the major street:			0
		Total	**28**

TYLin

Traffic Signal Warrant - Output Sheet
Justification 7 - Projected Volumes

Based Ontario Traffic Manual Book 12 - Traffic Signals (March 2012)

Project and Scenario Summary

Project:	Caledon Quarry			**Project No.:**	10042
				Date:	2023-07-27
Horizon:	Future Total	**Horizon Year:**	2032	**Analyst:**	AB

Study Intersection Summary

Major Street:	Charleston SR (RR 24)	**Direction:**	East/West
Minor Street:	Site Access	**Direction:**	North/South

Summary of Base Justification Thresholds

Justification	1 Approach Lane		2 or More Approach Lanes	
	Free Flow	Restricted Flow	Free Flow	Restricted Flow
1A: All Approach Lanes	**480**	720	600	900
1B: Minor Street Both Approaches	**120**	170	120	170
2A: Major Street Both Approaches	**480**	720	600	900
2B: Traffic Crossing Major Street	**50**	75	50	75

The above values are taken from Table 12 and Table 13 from OTM Book 12 (March 2012).
The grey shaded values are provided for reference only, and are not applicable to the study intersection.

Adjusted Justification Thresholds for Study Intersection Conditions

Justification	Base Threshold	New Intersection	"T" Intersection	Final Threshold
1A: All Approach Lanes	480	150%	-	**720**
1B: Minor Street Both Approaches	120	150%	150%	**270**
2A: Major Street Both Approaches	480	150%	-	**720**
2B: Traffic Crossing Major Street	50	150%	-	**75**

The above adjustments are taken from OTM Book 12 (March 2012) the "T" Intersection adjustment only applies to Justification 1B, and is a 50% increase on the threshold when the study intersection is a "T' intersection. Otherwise a value of 100% is used.

Warrant Calculation

Justification	Study Intersection Justification Volume	Justification Threshold	Percentage Warrant	Warrant Met?
1A: All Approach Lanes	506	**720**	70%	**No**
1B: Minor Street Both Approaches	32	**270**	12%	
2A: Major Street Both Approaches	474	**720**	66%	**No**
2B: Traffic Crossing Major Street	28	**75**	37%	

Notes: In the case of Justification 7 based on AHV both Warrant 1 and 2 must be met 100%, which requires both the A and B part of each warrant being equal to 100%.
When calculating the percentage, any value greater than 100% is expressed as 100%.

Based on OTM Book 12's Signal Warrant Justification 7 and the estimated AHV for the subject study intersection a signal is:

Not Warranted

Traffic Signal Warrant - Input Sheet
Justification 7 - Projected Volumes

Based Ontario Traffic Manual Book 12 - Traffic Signals (March 2012)

Project and Scenario Summary

Project:	Caledon Quarry - PCE			**Project No.:**	10042
				Date:	2023-07-27
Horizon:	Future Total	**Horizon Year:**	2032	**Analyst:**	AB

Study Intersection Summary

Major Street:	Charleston SR (RR 24)	**Direction:**	East/West
Minor Street:	Site Access	**Direction:**	North/South

Intersection Details for Warrant Parameters

Flow Conditions:	Free Flow (Rural)	**Number of Lanes:**	1
Number of Legs:	Three ("T" Intersection)	**Intersection Type:**	New

Notes: "Free Flow" is used when the operating speed is greater than or equal to 70km/h, "Restricted Flow" otherwise.
The Number of Lanes greater than 1 only needs to be for one direction along the major road.
An intersection is considered "New" if at least 1-leg is added to an existing intersection.

Input Volumes and Average Hourly Volume Determination

Peak Hour	Major: Charleston SR (RR 24)						Minor: Site Access						Pedestrians Crossing Major
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
AM	6	444	0	0	467	69	0	0	0	96	0	9	0
PM	11	559	0	0	529	74	0	0	0	87	0	8	0
AHV[1]	**4**	**251**	**0**	**0**	**249**	**36**	**0**	**0**	**0**	**46**	**0**	**4**	**0**

1. The AHV is determined by the availability of the peak hour estimates. If both the AM and PM Peak Hour Volume estimate is available then AHV = $(AM_{PHV} + PM_{PHV}) / 4$. In the case that only one estimate is available then AHV = $AM_{PHV} / 2$ **or** AHV = $PM_{PHV} / 2$.

Determination of Justification Volumes (Based on AHV)

Justification 1A: All Approach Lanes	590
Justification 1B: Minor Street Both Approaches	50

Justification 2A: Major Street Both Approaches	540
Justification 2B: Traffic Crossing Major Street	46

Note: The crossing volume is defined as the sum of:

(1) Left turns from both minor street approaches:			46
(2) The heaviest through volume from the minor street:			0
(3) 50% of the heavier left turn movement from major street when both of the following criteria are met:			0
(a) The left turn volume > 120 vph	4	FALSE	
(b) The left turn volume plus the opposing volume > 720 vph	253	FALSE	
(4) Pedestrians crossing the major street:			0
		Total	**46**

Traffic Signal Warrant - Output Sheet
Justification 7 - Projected Volumes

Based Ontario Traffic Manual Book 12 - Traffic Signals (March 2012)

Project and Scenario Summary

Project:	Caledon Quarry - PCE			**Project No.:**	10042
				Date:	2023-07-27
Horizon:	Future Total	**Horizon Year:**	2032	**Analyst:**	AB

Study Intersection Summary

Major Street:	Charleston SR (RR 24)	**Direction:**	East/West
Minor Street:	Site Access	**Direction:**	North/South

Summary of Base Justification Thresholds

Justification	1 Approach Lane		2 or More Approach Lanes	
	Free Flow	Restricted Flow	Free Flow	Restricted Flow
1A: All Approach Lanes	**480**	720	600	900
1B: Minor Street Both Approaches	**120**	170	120	170
2A: Major Street Both Approaches	**480**	720	600	900
2B: Traffic Crossing Major Street	**50**	75	50	75

The above values are taken from Table 12 and Table 13 from OTM Book 12 (March 2012).
The grey shaded values are provided for reference only, and are not applicable to the study intersection.

Adjusted Justification Thresholds for Study Intersection Conditions

Justification	Base Threshold	New Intersection	"T" Intersection	Final Threshold
1A: All Approach Lanes	480	150%	-	**720**
1B: Minor Street Both Approaches	120	150%	150%	**270**
2A: Major Street Both Approaches	480	150%	-	**720**
2B: Traffic Crossing Major Street	50	150%	-	**75**

The above adjustments are taken from OTM Book 12 (March 2012) the "T" Intersection adjustment only applies to Justification 1B, and is a 50% increase on the threshold when the study intersection is a "T' intersection. Otherwise a value of 100% is used.

Warrant Calculation

Justification	Study Intersection Justification Volume	Justification Threshold	Percentage Warrant	Warrant Met?
1A: All Approach Lanes	590	**720**	82%	**No**
1B: Minor Street Both Approaches	50	**270**	19%	
2A: Major Street Both Approaches	540	**720**	75%	**No**
2B: Traffic Crossing Major Street	46	**75**	61%	

Notes: In the case of Justification 7 based on AHV both Warrant 1 and 2 must be met 100%, which requires both the A and B part of each warrant being equal to 100%.
When calculating the percentage, any value greater than 100% is expressed as 100%.

Based on OTM Book 12's Signal Warrant Justification 7 and the estimated AHV for the subject study intersection a signal is:

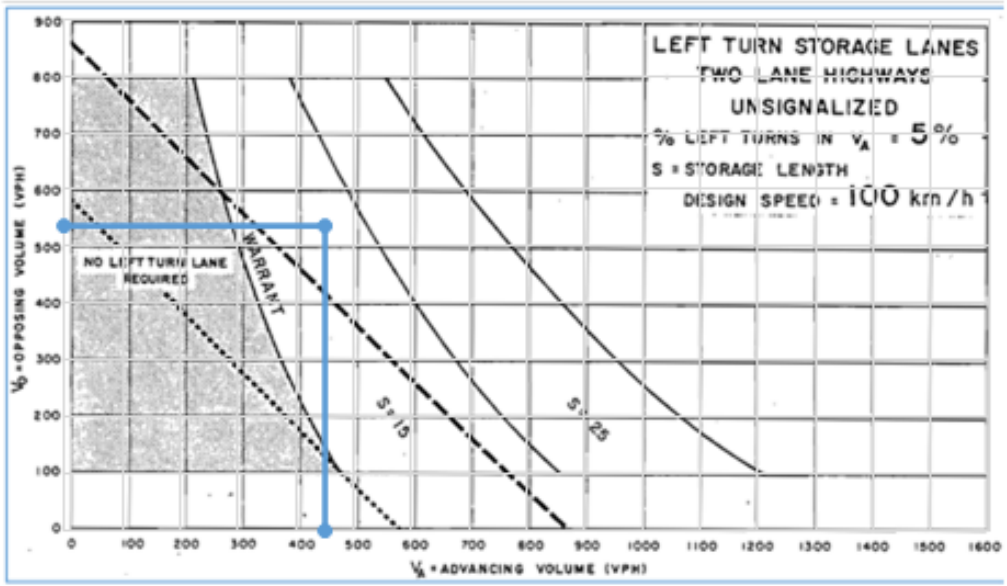
Not Warranted

APPENDIX F

Left-Turn Warrant Results

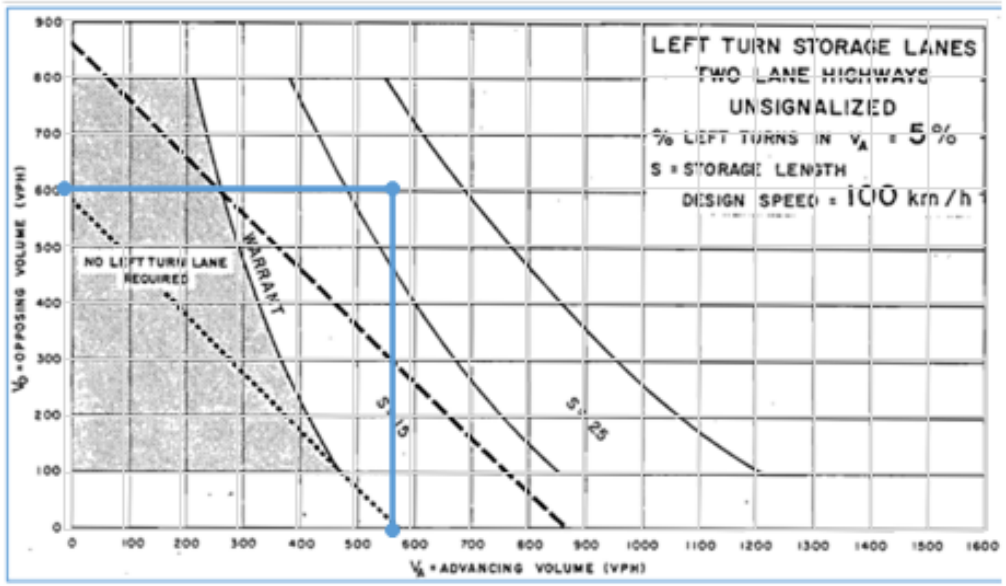
Eastbound Left-Turn AM Peak Hour

AM	Peak Period
EB	Analysis Approach
5	%LT
100_5	Scenario
450	Advancing Volumes
536	Opposing Volumes



Eastbound Left-Turn PM Peak Hour

PM	Peak Period
EB	Analysis Approach
5	%LT
100_5	Scenario
570	Advancing Volumes
603	Opposing Volumes



APPENDIX G

TAC Chapter 9 Excerpts and Peel Region Standard Drawings

Right-turn taper lengths are a function of design speed and are calculated based on the ratios presented in **Table 9.14.1**. Lane widths (w) vary (see **Chapter 4**). Some agencies use reduced taper ratios in constrained urban environments where lower speeds are desired and where property constraints exist.

Table 9.14.1: Right-Turn Tapers without Auxiliary Lanes

Design Speed (km/h) (through roadway)	Taper Ratio	Taper Length for w = 3.5 (m)	Horizontal Curve[a] (R)
50	15:1	53	500
60	18:1	63	750
70	21:1	74	1,000
80	24:1	84	1,200

Note : a) Flat radii as indicated can be used rather than tangent alignment for right-turn tapers.

The taper can be a straight line or a larger radius curve (see **Table 9.14.1** for suggested horizontal curve values); curves are typically used in an urban environment where curb and gutter is provided and straight tapers in a rural environment where curb and gutter is not used.

Shortened taper lengths may be considered for intersections on curve to provide a visible break from the through lanes. On high-speed roads, the taper length should generally conform to that discussed in **Chapter 10**.

9.14.4 DESIGN ELEMENTS FOR RIGHT-TURN TAPERS WITH AUXILIARY LANES

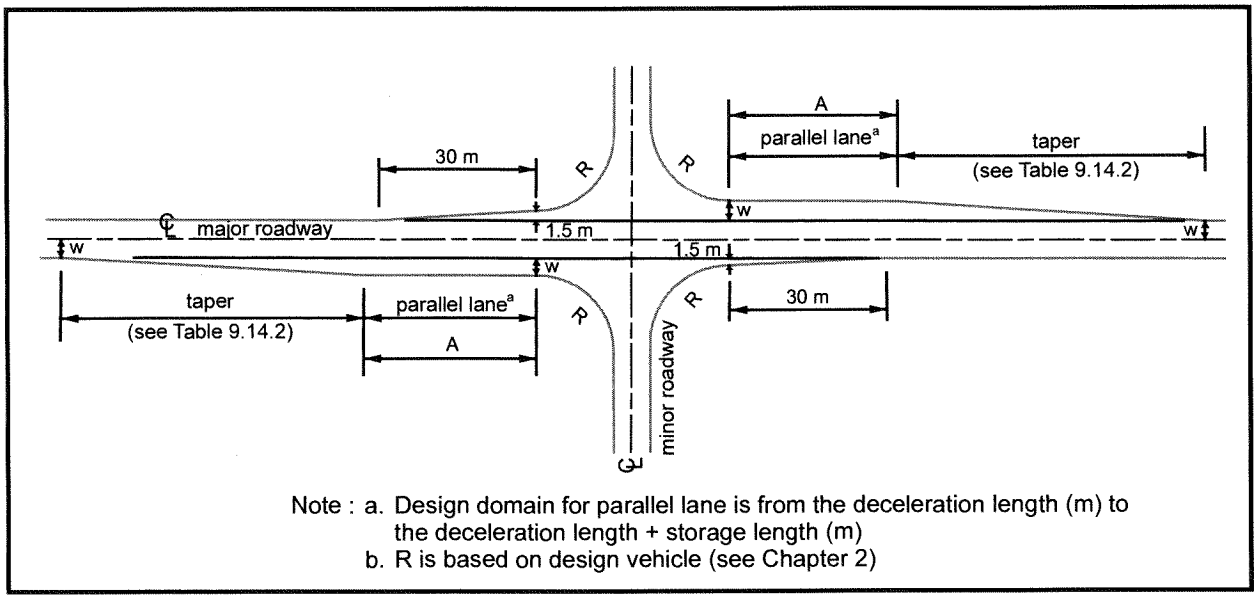
The length of an auxiliary lane is based on deceleration and storage requirements. Deceleration should occur exclusively within the auxiliary lane, although in an urban environment, deceleration (up to 15 km/h) over the bay taper is normally tolerable (especially in a peak-hour condition).

Suggested taper and parallel lengths are shown in **Table 9.14.2** and illustrated in **Figure 9.14.4**. Adjustments for intersections on curves are discussed in **Section 18.8**.

Table 9.14.2: Right-Turn Taper with Parallel Deceleration Lane Design

Design Speed (km/h)	Taper Ratio[a] Design Domain	Radius for Reverse[a] Curves (m)	Parallel Lane Length[b] Design Domain
50	11:1–17:1	90–150	35–75
60	14:1–17:1	150	40–90
70	17:1–20:1	150–220	50–110
80[c]	17:1–24:1	150–300	60–130

Notes:
a) Taper may be straight line or may be symmetrical reverse curves; length is derived from design values calculated for a 3 s lane change criterion for the appropriate operating speed.
b) Additional parallel lane length may be required for storage.
c) For higher design speeds, refer to **Chapter 10**.



Note : a. Design domain for parallel lane is from the deceleration length (m) to the deceleration length + storage length (m)
b. R is based on design vehicle (see Chapter 2)

Figure 9.14.3: Right-Turn with Parallel Deceleration Lane Design

Auxiliary lanes can be developed using reverse curves or straight line tapers; reverse curves are typically used in an urban environment with curb and gutter. On high-speed roads, the taper length to the auxiliary lane should generally conform to that discussed in **Chapter 10**. Where auxiliary lanes are used for the storage of turning vehicles at unsignalized intersections, the length of the lane in addition to deceleration length and exclusive of taper is usually based on the number of vehicles that are likely to accumulate in two minutes. The storage length required is calculated by the following formula and can be used for right- or left-turning vehicles:

$$S = \frac{NL}{30} \qquad (9.14.1)$$

Where:

S = Storage length (m)

N = Design volume of turning vehicles (v/h)

L = Length (m) occupied by each vehicle (see **Chapter 2**)

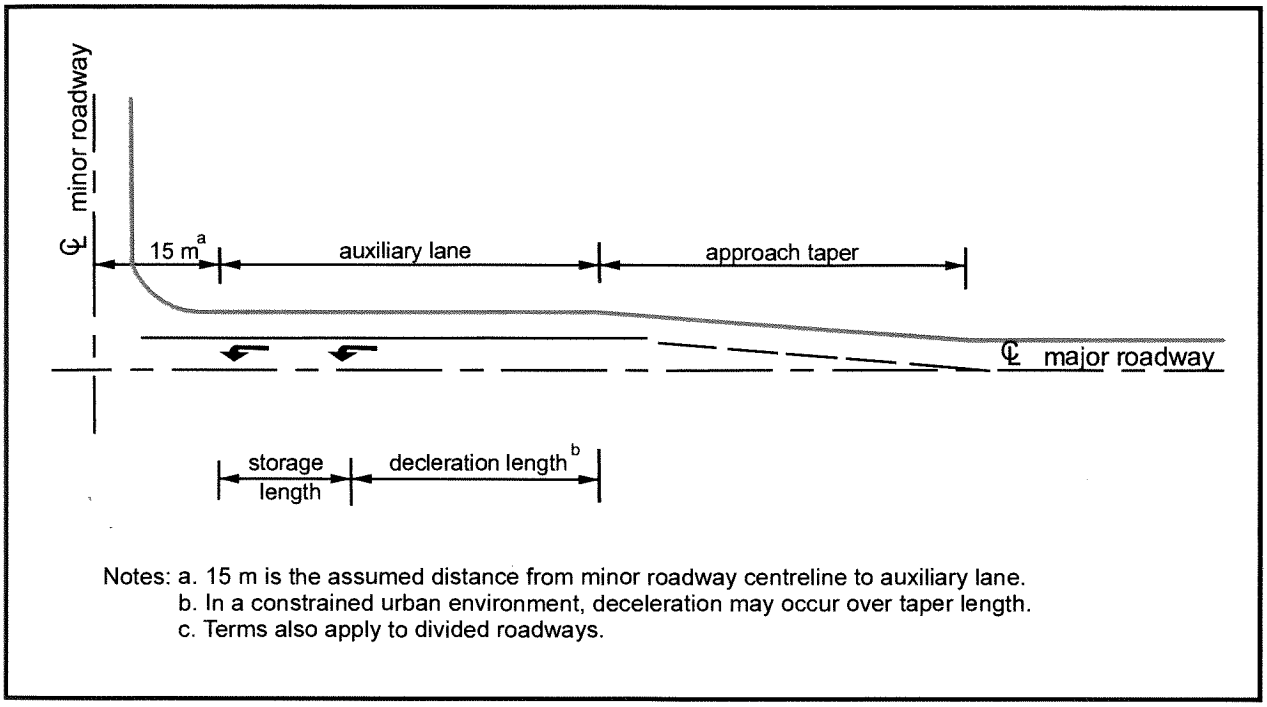
At signalized intersections, the storage lane length should accommodate about 1.5 times the average number of vehicles to be stored per cycle for roadways with design speeds of 60 km/h or less, and about twice the average number of vehicles for design speeds greater than 60 km/h.

The storage length calculated above should be checked against capacity analysis to ensure an acceptable level of service. The required storage for two-lane operation is one half that for a single-lane operation.

Where there is a possibility that an auxiliary lane may be used for either storage or deceleration, the length is determined for both conditions and the total is used in design. For urban and suburban roads, the right-turn lane length tends to be used mainly for storage during peak hours (typically slower peak

The tapers can be made smooth by using horizontal curves at the beginning and end of transitions. The radii of the horizontal curves typically vary from about 500 m for tapers at a design speed of 50 km/h, to 3,000 m for tapers at a design speed of 120 km/h.

Where space to develop tapers is limited, the taper length could also be based on running speed rather than design speed. Gradual approach and departure tapers are particularly important for the higher design speeds. It is also desirable to provide decision sight distance for the taper areas to enhance safe operation. Combinations of minimum sight distance and minimum taper ratios should be avoided.



Notes: a. 15 m is the assumed distance from minor roadway centreline to auxiliary lane.
b. In a constrained urban environment, deceleration may occur over taper length.
c. Terms also apply to divided roadways.

Figure 9.17.1: Left-Turn Lane, Pictorial Description of Terms

Table 9.17.1: Approach and Departure Taper Ratios and Lengths for Left Turns at Intersections

Design Speed (km/h)	Design Domain for Taper Ratio	Horizontal Curve to Smooth Taper R (m)
50	8:1 – 30:1	500
60	15:1 – 36:1	750
70	15:1 – 42:1	1,000
80	15:1 – 48:1	1,200
90	27:1 – 54:1	1,500
100	30:1 – 60:1	2,000
110	33:1 – 66:1	2,500
120	36:1 – 72:1	3,000

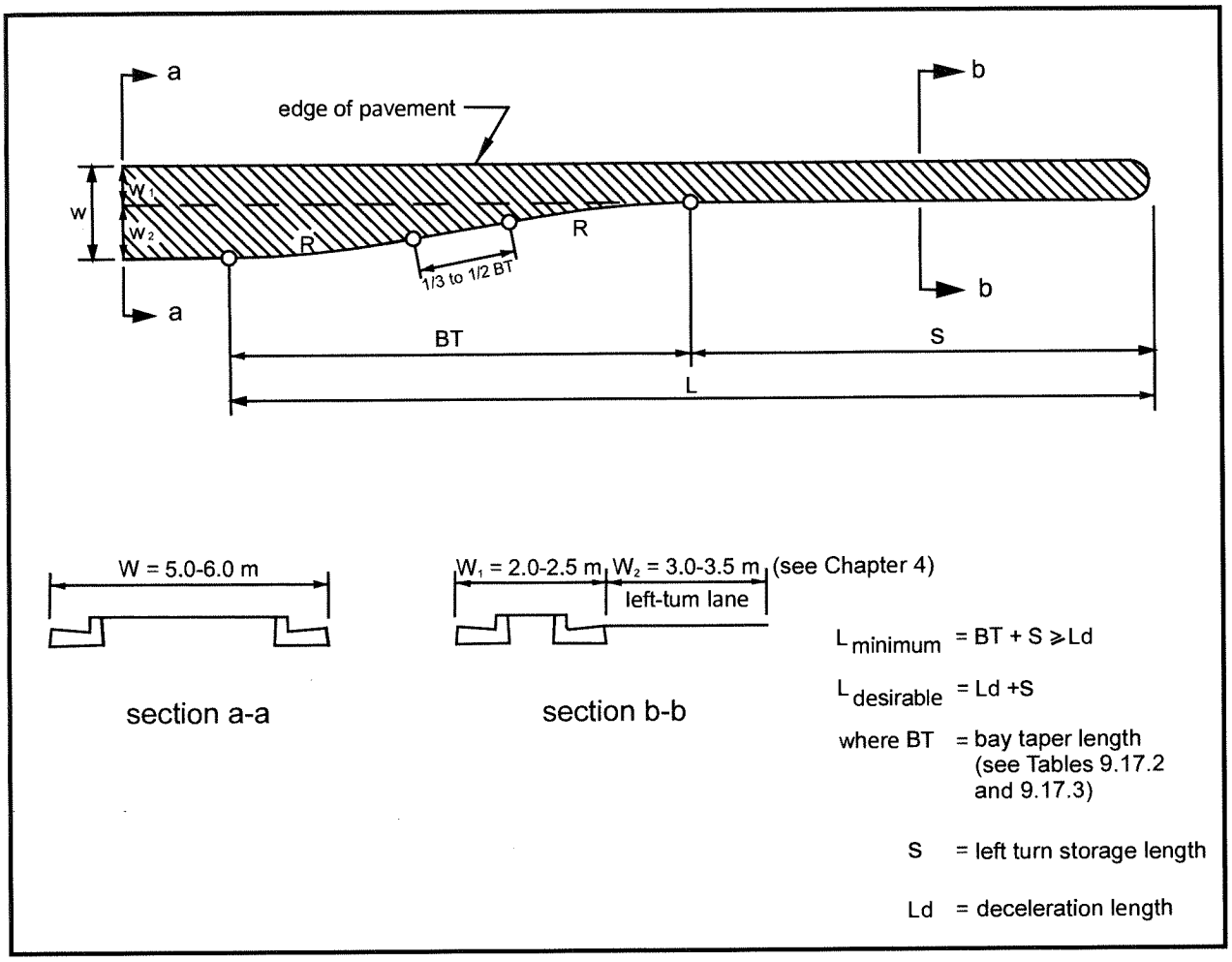


Figure 9.17.4: Left-Turn Lane and Taper with Symmetrical Reverse Curves

Bay taper designs are a function of design speed and the width of the left-turn auxiliary lane. **Table 9.17.2** provides suggested straight-line bay taper ratios for a range of design speeds. **Table 9.17.3** provides suggested taper ratios and radii for bay tapers designed using symmetrical reverse curves. Both tables are applicable to tangent main line alignments. Where the main line alignment is on curve, adjustments to the bay taper may be required.

Table 9.17.2: Bay Tapers Straight Line

Design Speed (km/h)	Taper Ratio Design Domain
50	10:1
60	10:1–12:1
70	10:1–18:1
80	13:1–20:1

Note: For higher design speeds, the 80 km/h design speed dimensions are used and the storage length is increased to provide deceleration length.

Table 9.17.3: Bay Tapers Symmetrical Reverse Curves

Design Speed (km/h)	Taper Ratio Design Domain	Radii (m)
50	10:1	90–150
60	10:1–12:1	150
70	10:1–18:1	150–220
80	13:1–20:1	150–300

Note: For higher design speeds, the 80 km/h design speed dimensions are used and the storage length is increased to provide deceleration length.

9.17.4.2 Deceleration Requirements

In the design of left-turn auxiliary lanes, it is important to consider the deceleration requirements. The minimum deceleration length is based on the distance needed for the driver to brake comfortably to come to a full stop at the intersection. Desirably, the distance needed for deceleration is provided by the auxiliary lane, exclusive of storage requirements. In urban conditions, it is often not feasible to provide both the deceleration distance and storage length due to other considerations, such as intersection spacing, access needs, and other physical controls. In these cases, the taper length may be used for deceleration distance. The deceleration distances for a range of speeds are provided in **Chapter 2**.

9.17.4.3 Storage Length

The storage length is normally designed to accommodate not only left-turning vehicles. It is also made sufficiently long so that vehicles queued in the through lanes do not block the entrance to the turning lane. As a minimum, the auxiliary lane length should be determined by checking that the storage length plus the bay taper length is equal to the deceleration length required for the design speed. Ideally, however, storage length should be provided in addition to deceleration length.

The storage length required to accommodate the left-turning vehicles depends on the number of left-turning vehicles approaching the intersection and whether or not the intersection is, or will be, signalized.

For an unsignalized intersection, storage length can be calculated using the equation outlined in Section 9.14. If the intersection is to be signalized, either initially or in the future, the turn lane provided is normally sufficiently long to store the left-turning traffic and to clear the equivalent per-lane volume of traffic stored on the through lanes, during unsaturated flow conditions. Additional storage length must be provided for larger design vehicles. The minimum storage length that should be provided is 15 m (see Section 9.17.2).

9.17.4.4 Run-out Lane

The run-out lane terminates the bypass lane on the far side of the intersection. The width of the parallel section of the run-out lane is the same as that of the bypass lane. The taper length varies with the design speed and is the same as that applied to the acceleration lane (see **Chapter 10**). The run-out lane is shown in **Figure 9.17.2** and **Figure 9.17.3**.

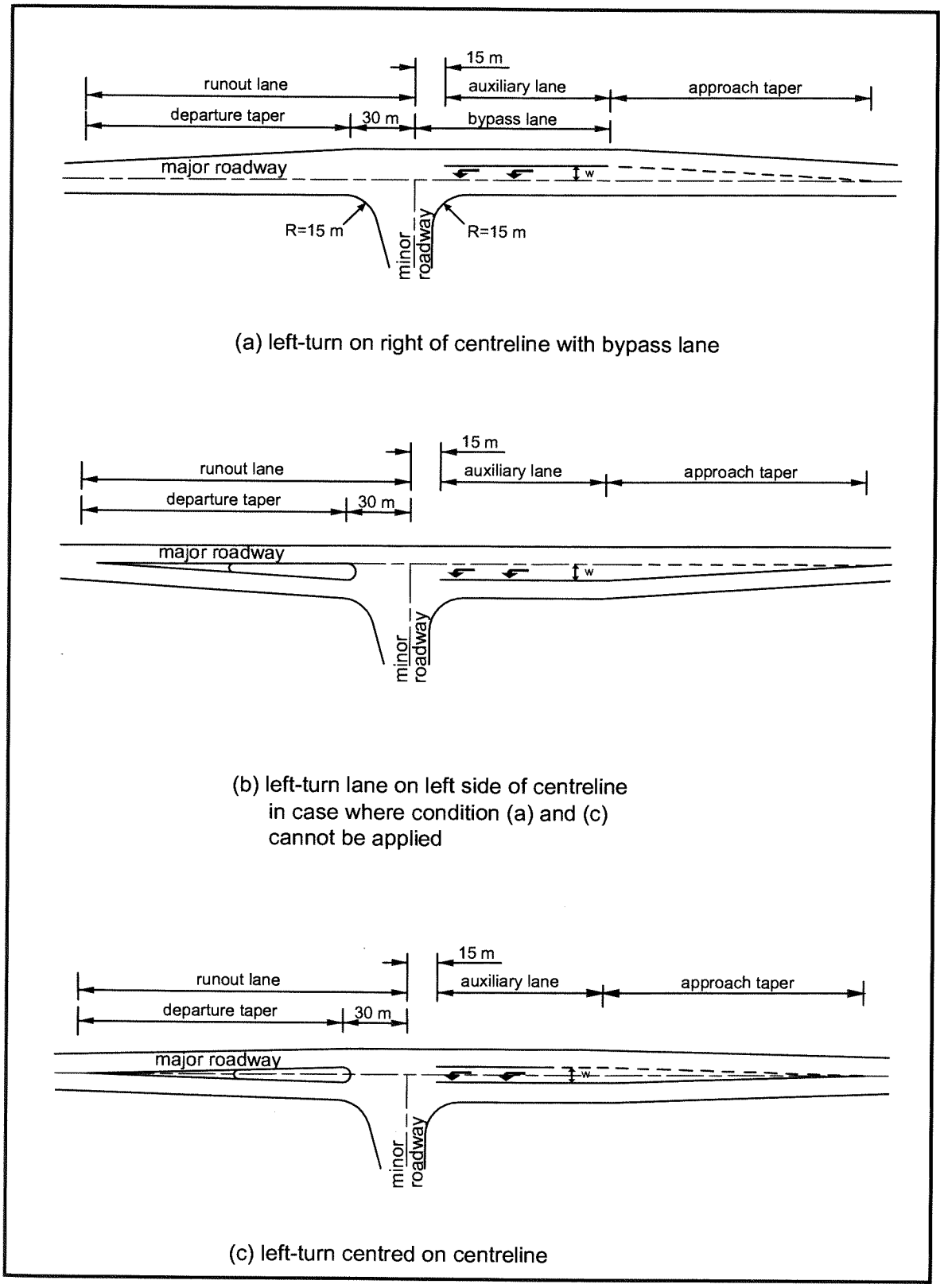
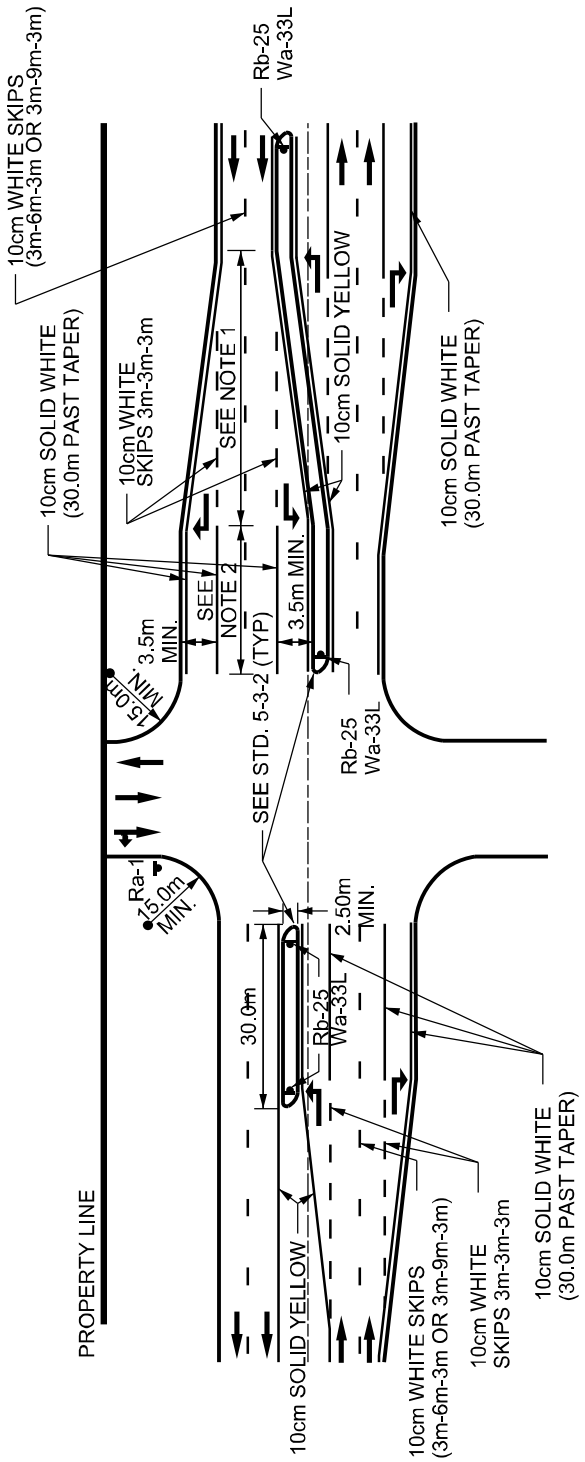


Figure 9.17.2: Left-Turn Lanes at T-Intersections



NOTES

1. THE TAPER LENGTH IS BASED ON DESIGN SPEED OF THE ROADWAY UTILIZING THE TAC MANUAL AND THE ONTARIO TRAFFIC MANUAL
2. THE MINIMUM STORAGE IS 30.0 METERS, HOWEVER ACTUAL LENGTH WILL BE DETERMINED BASED ON PROPOSED TURNING VOLUMES
3. ALL PERMANENT LINE PAINTING APPLICATIONS SHALL BE DONE WITH DURABLE, THERMOPLASTIC PAINT
4. PROPOSED DESIGN AND LOCATION OF ALL ISLANDS SHALL BE VERIFIED AND DESIGNED USING PROPER TURNING TEMPLATES

Region of Peel
Working for you

PUBLIC WORKS
STANDARD DRAWING

REV. DATE: JUNE 2016

TYPICAL DESIGN FOR A FULL MOVES ACCESS

APPROVED BY	DRAWN BY
G.K./S.L.	C.B.
STD. DWG. NUMBER	SCALE
5-1-6	N.T.S.

5.6 Design Criteria for Access

Design criteria for access are summarized in the following table and the four supporting diagrams:

- Table 6: Design Criteria for Access.
- Figure 31: Typical Layout for Right-In/ Right-Out Access (with Median Island).
- Figure 32: Typical Layout for Right-In/ Right-Out Access (without Median Island).
- Figure 33: Typical Layout for Full Moves Median Opening.
- Figure 34: Typical Layout for Left-In, Right-In/Right-Out Access.

Design Criteria (metres)		Rural Road	Industrial Connector	Suburban Connector	Commercial Connector	Rural Main Street	Urban Main Street
Access Width (AW)		ISR	9.0 min	9.0 min	9.0 min	ISR	ISR
Access Throat Length (TL)		ISR	i	i	i	ISR	ISR
Corner Radius, Min (CR)		5.0***	9.0***	9.0***	9.0***	5.0***	5.0***
Median Barrier Length, Min (BL)		30.0*	30.0*	30.0*	30.0*	N/A	N/A
Left Turn Lane Transition (LT)		TAC	TAC	TAC	TAC	TAC	TAC
Left Turn Lane Storage, Min (LS)		30.0	30.0/vol	30.0/vol	30.0/vol	30.0	30.0
Right Turn Lane Transition (RT)		TAC	TAC	TAC	TAC	N/A	N/A
Right Turn Lane Storage, Min (RS)		30.0/vol	30.0/vol	30.0/vol	30.0/vol	N/A	N/A
Auxiliary Lane Width, Min (AW)	L	3.5 **	3.5**	3.5**	3.5**	3.5**	3.5**
	R	3.25***	3.25***	3.25***	3.25***	3.25***	3.25***
Pedestrians		Design of all accesses must consider pedestrians and the continuity of existing or planned Active Transportation facilities.					

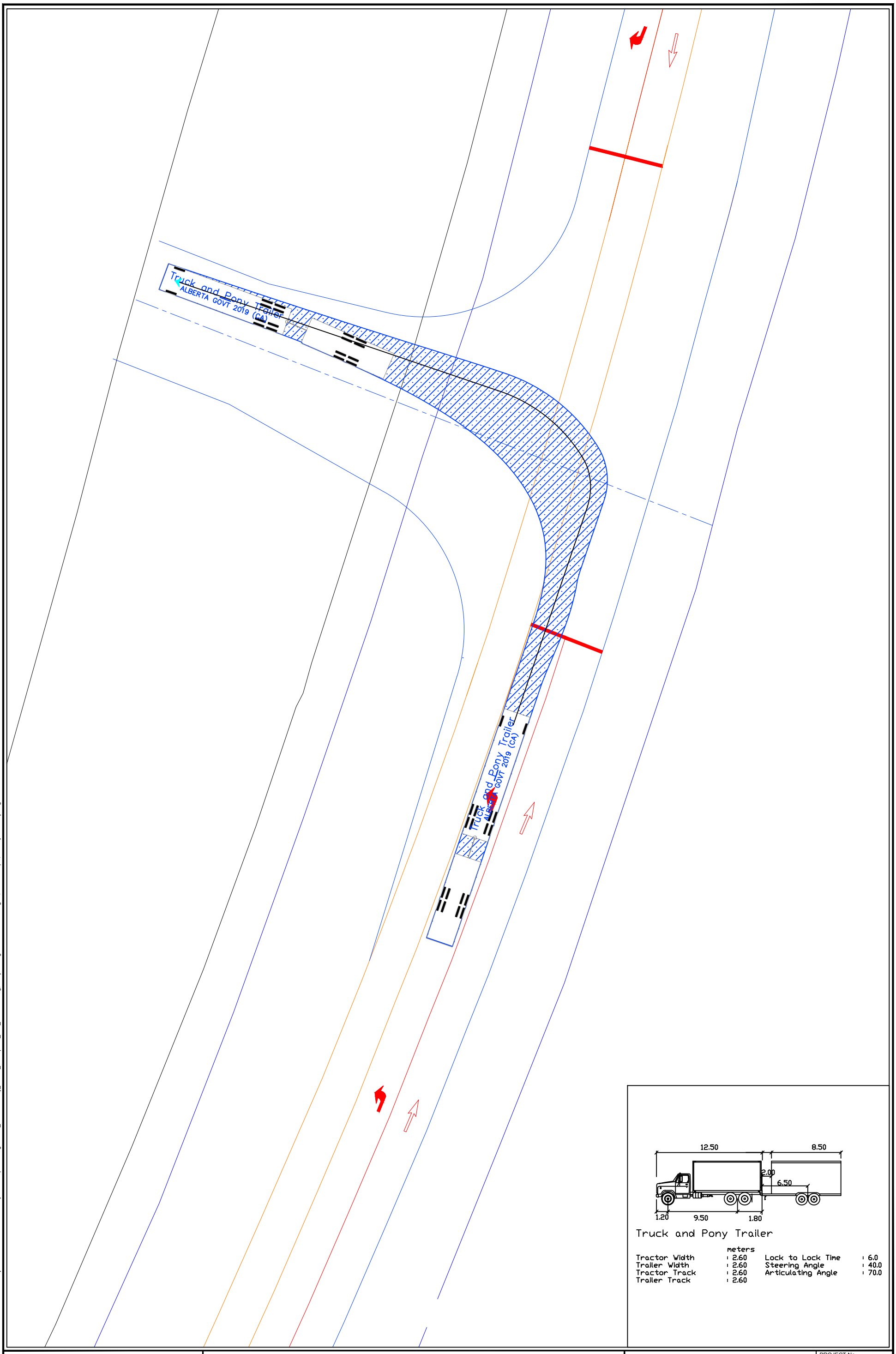
Table 6: Design Criteria for Access

NOTES: * 30m on either side of access control as per current by-law.
** Match through-lane if less or determined based on design vehicle needs.
*** Pending Design Vehicle Needs.
i) Conditional based on needs as identified in Transportation Impact Assessment or at the discretion of the Region. Minimum 30m from curb, except for single residential lots.

LEGEND: TAC: Transition length based on design speed of roadway utilizing the TAC Manual and geometric design standards.
Vol: Determined based on projected turning volumes ISR: Individual Sight Review
N/A: Not Applicable L: Left Turn R: Right Turn

APPENDIX H

Truck Swept Path Analysis at Future Site Access



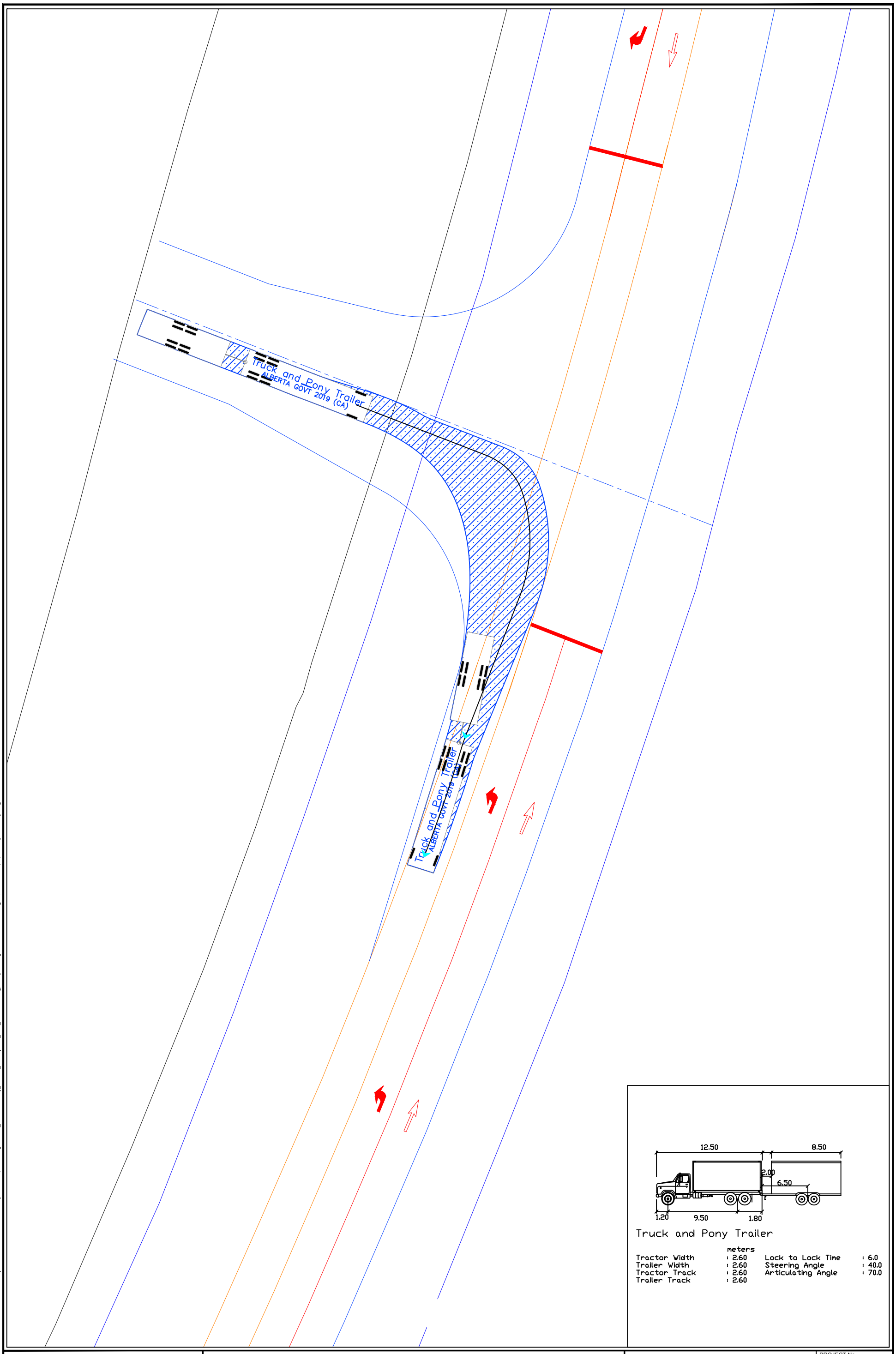
Truck and Pony Trailer

	meters		
Tractor Width	: 2.60	Lock to Lock Time	: 6.0
Trailer Width	: 2.60	Steering Angle	: 40.0
Tractor Track	: 2.60	Articulating Angle	: 70.0
Trailer Track	: 2.60		

TYLin

CALEDON QUARRY - SWEPT PATH ANALYSIS
EASTBOUND LEFT INBOUND MANEUVER

SCALE: NTS		PROJECT No. 10042
DATE: JULY 2023		
DESIGNED BY: AX	N	FIGURE No. 01
CHECKED BY: MD		



Truck and Pony Trailer

	meters		
Tractor Width	: 2.60	Lock to Lock Time	: 6.0
Trailer Width	: 2.60	Steering Angle	: 40.0
Tractor Track	: 2.60	Articulating Angle	: 70.0
Trailer Track	: 2.60		

TYLin

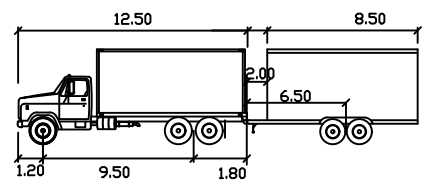
CALEDON QUARRY - SWEPT PATH ANALYSIS
SOUTHBOUND RIGHT OUTBOUND MANEUVER

SCALE: NTS		PROJECT No. 10042
DATE: JULY 2023		
DESIGNED BY: AX	N	FIGURE No. 02
CHECKED BY: MD		

File : C:\Users\alan.xaykongsa\OneDrive - T.Y. Lin International\Project Files\10042-Caledon Quarry\04 Conceptual Design\10042_CaledonQuarry_Access_Concept flat_25m_20230731.dwg, Layout : Fig 2 - VMD Date :Aug 09, 2023 - 1:36pm, Edit By : alan.xaykongsa

Truck and Pony Trailer
ALBERTA GOVT 2019 (CA)

Truck and Pony Trailer
ALBERTA GOVT 2019 (CA)



Truck and Pony Trailer

	meters		
Tractor Width	: 2.60	Lock to Lock Time	: 6.0
Trailer Width	: 2.60	Steering Angle	: 40.0
Tractor Track	: 2.60	Articulating Angle	: 70.0
Trailer Track	: 2.60		

TYLin

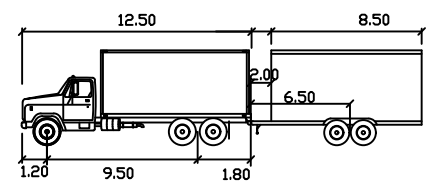
CALEDON QUARRY - SWEPT PATH ANALYSIS
WESTBOUND RIGHT INBOUND MANEUVER

SCALE: NTS		PROJECT No. 10042
DATE: JULY 2023		
DESIGNED BY: AX	N	FIGURE No. 03
CHECKED BY: MD		

File : C:\Users\alan.xaykongsa\OneDrive - T.Y. Lin International\Project Files\10042-Caledon Quarry\04 Conceptual Design\10042_CaledonQuarry_Access_Concept flat_25m_20230731.dwg Layout : Fig 3 - VMD Date :Aug 09, 2023 - 1:36pm, Edit By : alan.xaykongsa

Truck and Pony Trailer
ALBERTA GOVT 2019 (CA)

Truck and Pony Trailer
ALBERTA GOVT 2019 (CA)



Truck and Pony Trailer

	meters		
Tractor Width	: 2.60	Lock to Lock Time	: 6.0
Trailer Width	: 2.60	Steering Angle	: 40.0
Tractor Track	: 2.60	Articulating Angle	: 70.0
Trailer Track	: 2.60		

TYLin

CALEDON QUARRY - SWEPT PATH ANALYSIS
SOUTHBOUND LEFT OUTBOUND MANEUVER

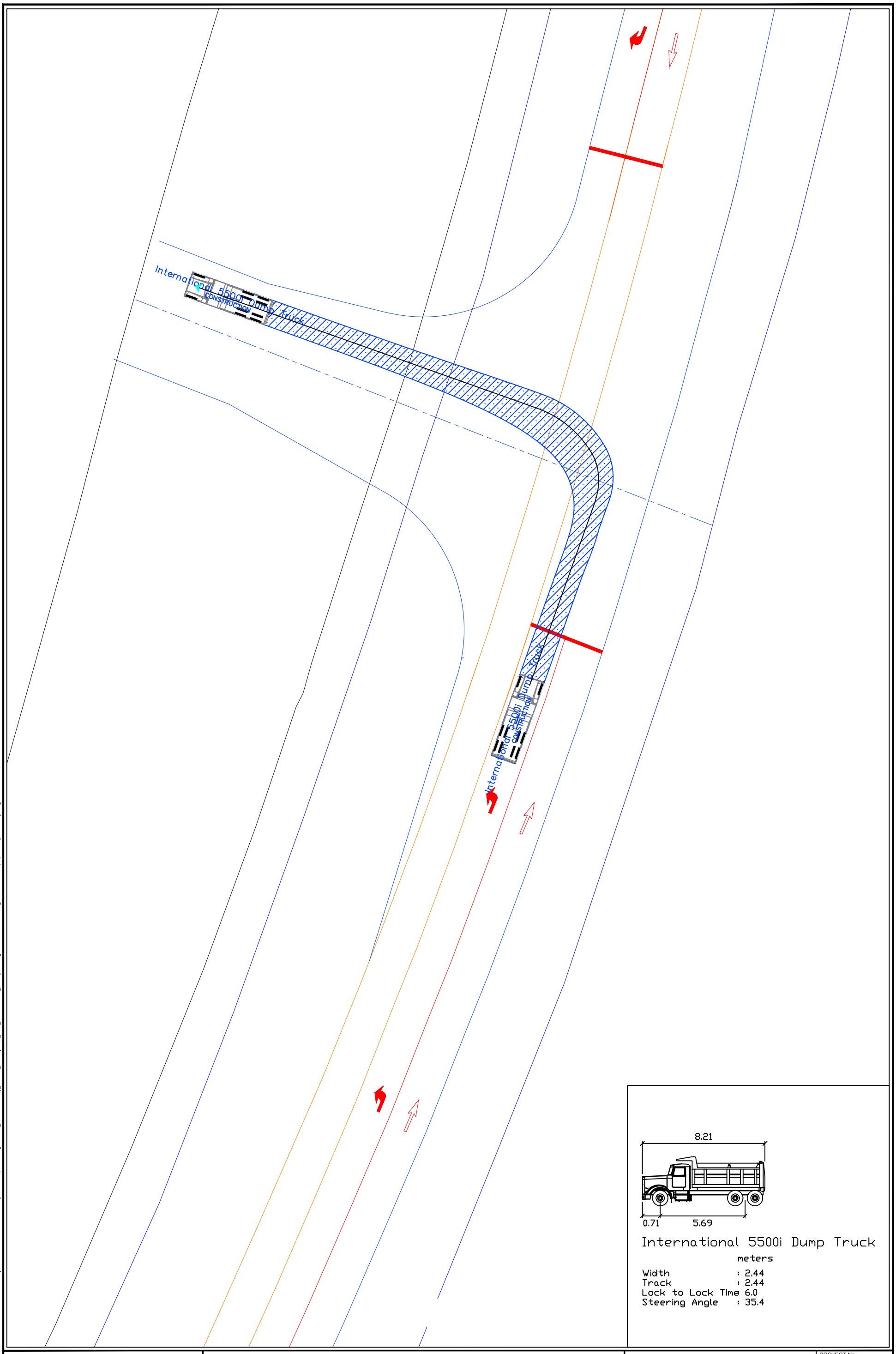
SCALE:	NTS
DATE:	JULY 2023
DESIGNED BY:	AX
CHECKED BY:	MD

N

PROJECT No. 10042

FIGURE No. 04

File : C:\Users\alan.xaykongsa\OneDrive - T.Y. Lin International\Project Files\10042-Caledon Quarry\04 Conceptual Design\10042_CaledonQuarry_Access_Concept flat_25m_20230731.dwg Layout : Fig 4 - VMD Date:Aug 09, 2023 - 1:37pm, Edit By: alan.xaykongsa



International 5500i Dump Truck

	meters
Width	: 2.44
Track	: 2.44
Lock to Lock Time	6.0
Steering Angle	: 35.4

TYLin

CALEDON QUARRY - SWEPT PATH ANALYSIS
EASTBOUND LEFT INBOUND MANEUVER

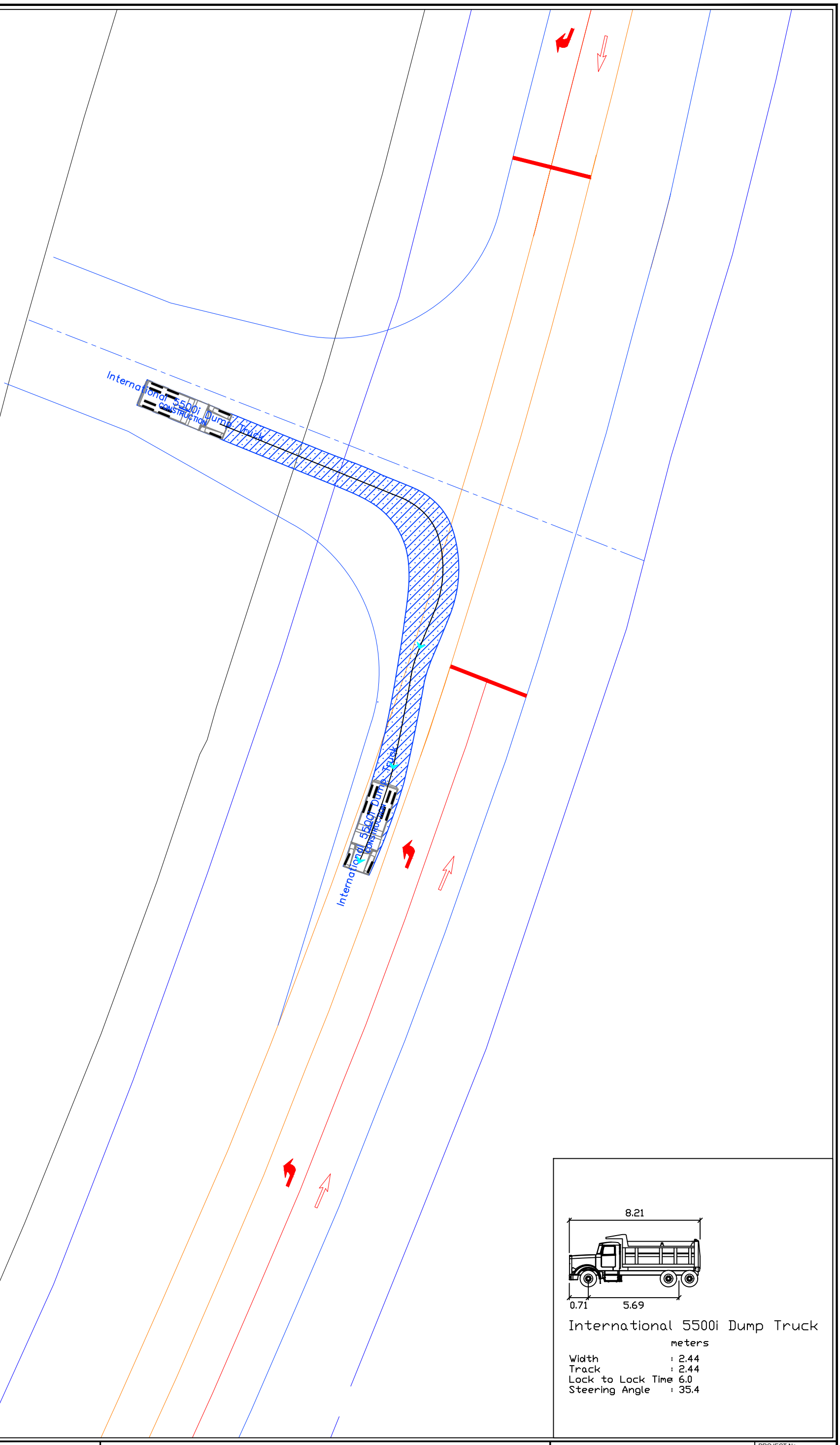
SCALE:	NTS
DATE:	JULY 2023
DESIGNED BY:	AX
CHECKED BY:	MD

N

PROJECT No. 10042

FIGURE No. 05

File : C:\Users\alan.xaykongsa\OneDrive - T.Y. Lin International\Project Files\10042-Caledon Quarry\04 Conceptual Design\10042_CaledonQuarry_Access_Concept flat_25m_20230731.dwg, Layout : Fig 5 - VMD Date :Aug 09, 2023 - 1:37pm, Edit By : alan.xaykongsa



International 5500i Dump Truck

	meters
Width	: 2.44
Track	: 2.44
Lock to Lock Time	6.0
Steering Angle	: 35.4

TYLin

CALEDON QUARRY - SWEPT PATH ANALYSIS
SOUTHBOUND RIGHT OUTBOUND MANEUVER

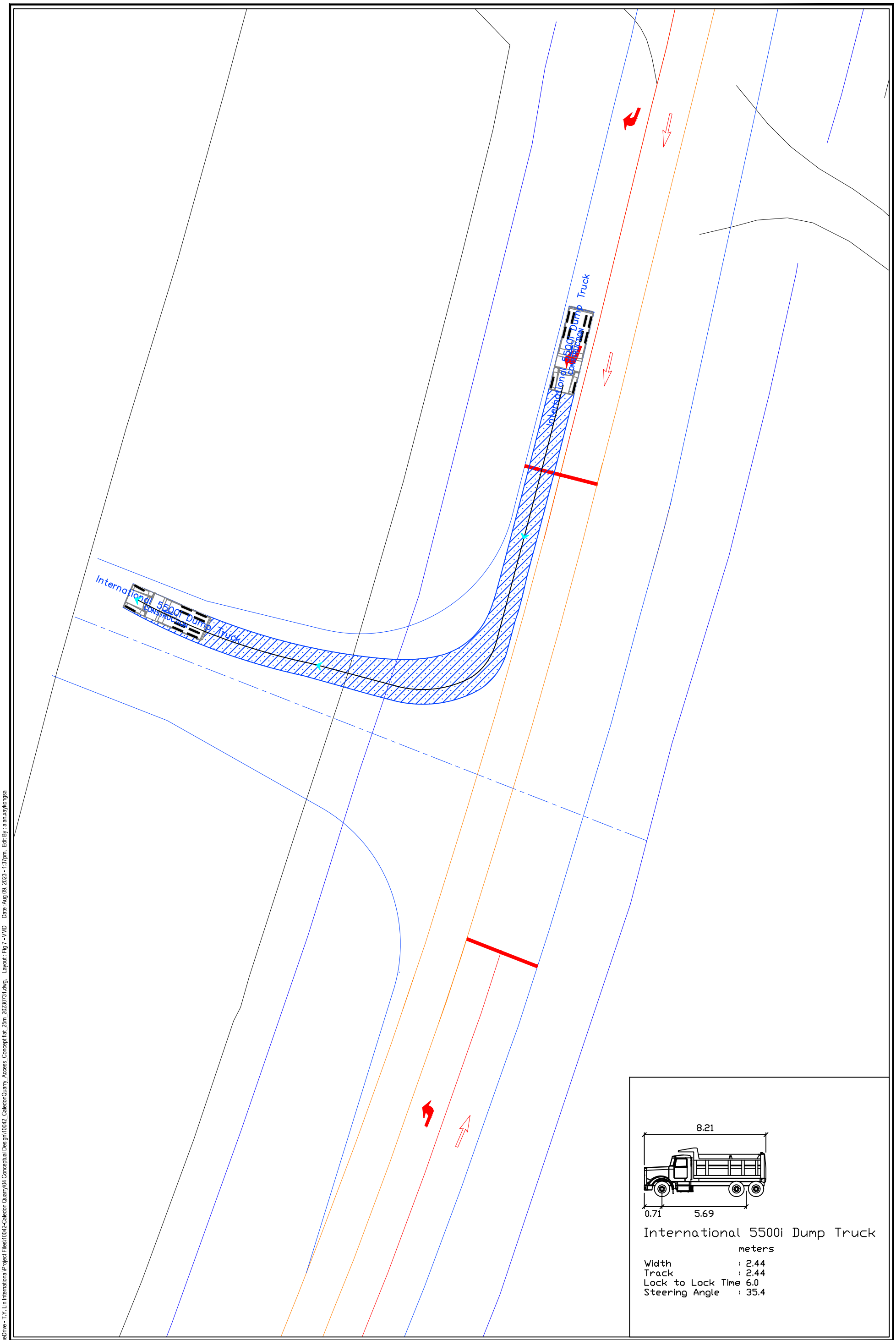
SCALE:	NTS
DATE:	JULY 2023
DESIGNED BY:	AX
CHECKED BY:	MD

N

PROJECT No. 10042

FIGURE No. 06

File : C:\Users\alan.xaykongsa\OneDrive - T.Y. Lin International\Project Files\10042-Caledon Quarry\04 Conceptual Design\10042_CaledonQuarry_Access_Concept flat_25m_20230731.dwg, Layout : Fig 6 - VMD Date :Aug 09, 2023 - 1:37pm, Edit By : alan.xaykongsa



8.21

0.71 5.69

International 5500i Dump Truck

meters

Width	: 2.44
Track	: 2.44
Lock to Lock Time	6.0
Steering Angle	: 35.4

TYLin

CALEDON QUARRY - SWEPT PATH ANALYSIS
WESTBOUND RIGHT INBOUND MANEUVER

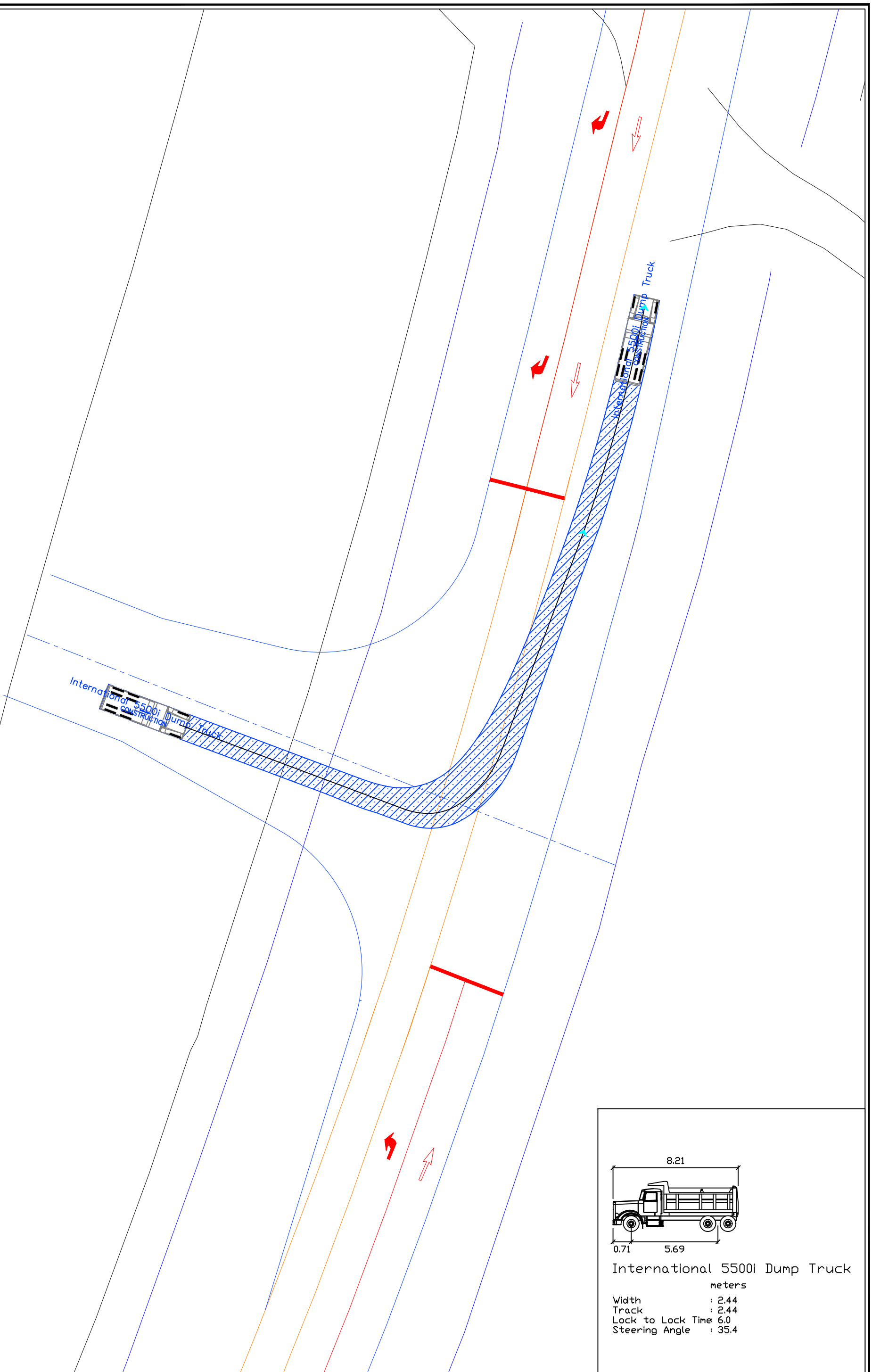
SCALE:	NTS
DATE:	JULY 2023
DESIGNED BY:	AX
CHECKED BY:	MD

N

PROJECT No. 10042

FIGURE No. 07

File : C:\Users\alan.xaykongsa\OneDrive - T.Y. Lin International\Project Files\10042-Caledon Quarry\04 Conceptual Design\10042_CaledonQuarry_Access_Concept flat_25m_20230731.dwg Layout : Fig 7 - VMD Date :Aug 09, 2023 - 1:37pm, Edit By : alan.xaykongsa



TYLin

CALEDON QUARRY - SWEPT PATH ANALYSIS
SOUTHBOUND LEFT OUTBOUND MANEUVER

SCALE:	NTS
DATE:	JULY 2023
DESIGNED BY:	AX
CHECKED BY:	MD
N	
PROJECT No.	10042
FIGURE No.	08

File : C:\Users\alan.xaykongsa\OneDrive - T.Y. Lin International\Project Files\10042-Caledon Quarry\04 Conceptual Design\10042_CaledonQuarry_Access_Concept flat_25m_20230731.dwg Layout : Fig 8 - VMD Date :Aug 09, 2023 - 1:37pm, Edit By : alan.xaykongsa

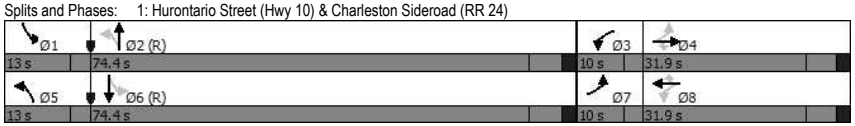
APPENDIX I

Synchro Capacity Analysis Reports

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	58	158	204	124	185	31	139	793	59	1383
Future Volume (vph)	58	158	204	124	185	31	139	793	59	1383
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	7.0	20.0
Minimum Split (s)	10.0	17.9	17.9	10.0	17.9	17.9	10.0	44.4	10.0	44.4
Total Split (s)	10.0	31.9	31.9	10.0	31.9	31.9	13.0	74.4	13.0	74.4
Total Split (%)	7.7%	24.7%	24.7%	7.7%	24.7%	24.7%	10.1%	57.5%	10.1%	57.5%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	5.0	3.0	5.0
All-Red Time (s)	0.0	2.4	2.4	0.0	2.4	2.4	0.0	2.4	0.0	2.4
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	1.0	4.9	4.9	1.0	4.9	4.9	1.0	5.4	1.0	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	34.3	21.4	21.4	34.5	23.4	23.4	92.0	79.0	88.4	74.4
Actuated g/C Ratio	0.27	0.17	0.17	0.27	0.18	0.18	0.71	0.61	0.68	0.58
v/c Ratio	0.22	0.64	0.52	0.45	0.64	0.10	0.65	0.49	0.17	0.74
Control Delay	35.8	61.1	13.8	41.2	58.9	0.6	32.2	16.2	7.7	24.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.8	61.1	13.8	41.2	58.9	0.6	32.2	16.2	7.7	24.3
LOS	D	E	B	D	E	A	C	B	A	C
Approach Delay		34.6			47.1			18.3		23.6
Approach LOS		C			D			B		C

Intersection Summary			
Cycle Length: 129.3			
Actuated Cycle Length: 129.3			
Offset: 85 (66%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 85			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 25.8		Intersection LOS: C	
Intersection Capacity Utilization 78.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Hurontario Street (Hwy 10) & Charleston Sideroad (RR 24)



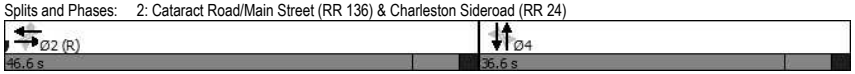
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	158	204	124	185	31	139	793	92	59	1383	58
Future Volume (vph)	58	158	204	124	185	31	139	793	92	59	1383	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	4.9	4.9	1.0	4.9	4.9	1.0	5.4		1.0	5.4	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1690	1575	1555	1772	1700	1384	1534	3086		1484	3539	
Flt Permitted	0.45	1.00	1.00	0.45	1.00	1.00	0.08	1.00		0.27	1.00	
Satd. Flow (perm)	792	1575	1555	846	1700	1384	128	3086		415	3539	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	61	166	215	131	195	33	146	835	97	62	1456	61
RTOR Reduction (vph)	0	0	156	0	0	27	0	6	0	0	2	0
Lane Group Flow (vph)	61	166	59	131	195	6	146	926	0	62	1515	0
Heavy Vehicles (%)	8%	22%	5%	3%	13%	18%	19%	16%	20%	23%	2%	15%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	25.6	20.0	20.0	28.4	21.4	21.4	85.0	75.8		77.9	71.7	
Effective Green, g (s)	29.6	22.0	22.0	32.0	23.4	23.4	87.0	77.8		81.9	73.7	
Actuated g/C Ratio	0.23	0.17	0.17	0.25	0.18	0.18	0.67	0.60		0.63	0.57	
Clearance Time (s)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4		3.0	7.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4		3.0	4.4	
Lane Grp Cap (vph)	234	267	264	273	307	250	219	1856		330	2017	
v/s Ratio Prot	0.02	0.11		c0.03	c0.11		c0.06	0.30		0.01	c0.43	
v/s Ratio Perm	0.04		0.04	0.09		0.00	0.38			0.11		
v/c Ratio	0.26	0.62	0.22	0.48	0.64	0.02	0.67	0.50		0.19	0.75	
Uniform Delay, d1	40.1	49.8	46.3	39.7	49.0	43.6	23.8	14.7		9.5	20.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	4.4	0.4	1.3	4.3	0.0	7.5	1.0		0.3	2.6	
Delay (s)	40.6	54.2	46.7	41.1	53.3	43.6	31.2	15.6		9.8	23.5	
Level of Service	D	D	D	D	D	D	C	B		A	C	
Approach Delay (s)		48.7			47.9			17.7			23.0	
Approach LOS		D			D			B			C	

Intersection Summary					
HCM 2000 Control Delay	27.2	HCM 2000 Level of Service		C	
HCM 2000 Volume to Capacity ratio	0.69				
Actuated Cycle Length (s)	129.3	Sum of lost time (s)		12.3	
Intersection Capacity Utilization	78.6%	ICU Level of Service		D	
Analysis Period (min)	15				
c Critical Lane Group					

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	38	328	6	313	43	6	6	52	9
Future Volume (vph)	38	328	6	313	43	6	6	52	9
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		2		2			4		4
Permitted Phases	2		2		2	4		4	
Detector Phase	2	2	2	2	2	4	4	4	4
Switch Phase									
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	16.0	16.0	16.0	16.0
Minimum Split (s)	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6
Total Split (s)	46.6	46.6	46.6	46.6	46.6	36.6	36.6	36.6	36.6
Total Split (%)	56.0%	56.0%	56.0%	56.0%	56.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
Act Effct Green (s)	59.8	59.8	59.8	59.8	59.8	16.0	16.0	16.0	16.0
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72	0.19	0.19	0.19	0.19
v/c Ratio	0.05	0.27	0.01	0.28	0.04	0.02	0.05	0.20	0.16
Control Delay	5.6	6.5	5.2	6.7	1.7	27.7	18.2	30.4	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.6	6.5	5.2	6.7	1.7	27.7	18.2	30.4	12.5
LOS	A	A	A	A	A	C	B	C	B
Approach Delay		6.4		6.0			20.7		21.5
Approach LOS		A		A			C		C

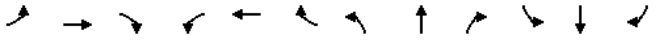
Intersection Summary			
Cycle Length: 83.2			
Actuated Cycle Length: 83.2			
Offset: 22.5 (27%), Referenced to phase 2:EBWB and 6:, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.28			
Intersection Signal Delay: 8.4		Intersection LOS: A	
Intersection Capacity Utilization 63.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: Cataract Road/Main Street (RR 136) & Charleston Sideroad (RR 24)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	328	6	6	313	43	6	6	11	52	9	44
Future Volume (vph)	38	328	6	6	313	43	6	6	11	52	9	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.90		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1772	1745		1825	1588	1633	1825	1735		1825	1614	
Flt Permitted	0.57	1.00		0.55	1.00	1.00	0.72	1.00		0.75	1.00	
Satd. Flow (perm)	1054	1745		1065	1588	1633	1387	1735		1434	1614	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	39	338	6	6	323	44	6	6	11	54	9	45
RTOR Reduction (vph)	0	0	0	0	0	14	0	9	0	0	38	0
Lane Group Flow (vph)	39	344	0	6	323	30	6	8	0	54	16	0
Heavy Vehicles (%)	3%	10%	0%	0%	21%	0%	0%	0%	0%	0%	0%	5%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Actuated Green, G (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Effective Green, g (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Actuated g/C Ratio	0.69	0.69		0.69	0.69	0.69	0.15	0.15		0.15	0.15	
Clearance Time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	724	1199		732	1091	1122	213	266		220	248	
v/s Ratio Prot		0.20			c0.20			0.00			0.01	
v/s Ratio Perm	0.04			0.01		0.02	0.00			c0.04		
v/c Ratio	0.05	0.29		0.01	0.30	0.03	0.03	0.03		0.25	0.06	
Uniform Delay, d1	4.2	5.1		4.1	5.1	4.1	29.9	29.9		31.0	30.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.6		0.0	0.7	0.0	0.1	0.0		0.6	0.1	
Delay (s)	4.4	5.7		4.1	5.8	4.2	30.0	30.0		31.5	30.2	
Level of Service	A	A		A	A	A	C	C		C	C	
Approach Delay (s)		5.5			5.6			30.0			30.9	
Approach LOS		A			A			C			C	

Intersection Summary					
HCM 2000 Control Delay	9.3	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.29				
Actuated Cycle Length (s)	83.2	Sum of lost time (s)		13.2	
Intersection Capacity Utilization	63.2%	ICU Level of Service		B	
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)	16	358	2	33	312	15	2	5	13	15	8	11
Future Volume (Veh/h)	16	358	2	33	312	15	2	5	13	15	8	11
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	17	377	2	35	328	16	2	5	14	16	8	12
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	344			379			826	826	378	834	819	336
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	344			379			826	826	378	834	819	336
tC, single (s)	4.1			4.9			7.2	6.5	6.9	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.9			3.6	4.0	3.9	3.5	4.0	3.3
p0 queue free %	99			96			99	98	97	94	97	98
cM capacity (veh/h)	1226			868			257	293	550	268	296	711

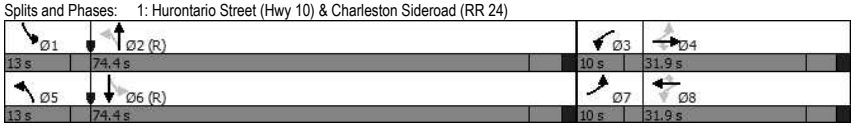
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	17	379	35	344	21	36
Volume Left	17	0	35	0	2	16
Volume Right	0	2	0	16	14	12
cSH	1226	1700	868	1700	417	347
Volume to Capacity	0.01	0.22	0.04	0.20	0.05	0.10
Queue Length 95th (m)	0.3	0.0	1.0	0.0	1.2	2.6
Control Delay (s)	8.0	0.0	9.3	0.0	14.1	16.6
Lane LOS	A		A		B	C
Approach Delay (s)	0.3		0.9		14.1	16.6
Approach LOS					B	C

Intersection Summary					
Average Delay	1.6				
Intersection Capacity Utilization	37.9%	ICU Level of Service		A	
Analysis Period (min)	15				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	75	254	151	113	269	84	181	1397	52	863
Future Volume (vph)	75	254	151	113	269	84	181	1397	52	863
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	7.0	20.0
Minimum Split (s)	10.0	17.9	17.9	10.0	17.9	17.9	10.0	44.4	10.0	44.4
Total Split (s)	10.0	31.9	31.9	10.0	31.9	31.9	13.0	74.4	13.0	74.4
Total Split (%)	7.7%	24.7%	24.7%	7.7%	24.7%	24.7%	10.1%	57.5%	10.1%	57.5%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	5.0	3.0	5.0
All-Red Time (s)	0.0	2.4	2.4	0.0	2.4	2.4	0.0	2.4	0.0	2.4
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	1.0	4.9	4.9	1.0	4.9	4.9	1.0	5.4	1.0	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	38.0	25.1	25.1	38.2	27.1	27.1	88.2	75.3	85.5	71.5
Actuated g/C Ratio	0.29	0.19	0.19	0.30	0.21	0.21	0.68	0.58	0.66	0.55
v/c Ratio	0.33	0.82	0.38	0.53	0.77	0.22	0.48	0.79	0.31	0.53
Control Delay	36.0	69.7	9.0	42.6	63.1	9.8	12.0	25.8	12.6	19.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.0	69.7	9.0	42.6	63.1	9.8	12.0	25.8	12.6	19.9
LOS	D	E	A	D	E	A	B	C	B	B
Approach Delay		45.3			48.5			24.3		19.5
Approach LOS		D			D			C		B

Intersection Summary			
Cycle Length: 129.3			
Actuated Cycle Length: 129.3			
Offset: 85 (66%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 85			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 28.9		Intersection LOS: C	
Intersection Capacity Utilization 87.7%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Hurontario Street (Hwy 10) & Charleston Sideroad (RR 24)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	254	151	113	269	84	181	1397	152	52	863	66
Future Volume (vph)	75	254	151	113	269	84	181	1397	152	52	863	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	4.9	4.9	1.0	4.9	4.9	1.0	5.4		1.0	5.4	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	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	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1754	1685	1527	1658	1762	1544	1771	3516		1601	3312	
Flt Permitted	0.29	1.00	1.00	0.28	1.00	1.00	0.22	1.00		0.06	1.00	
Satd. Flow (perm)	544	1685	1527	488	1762	1544	403	3516		105	3312	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	79	267	159	119	283	88	191	1471	160	55	908	69
RTOR Reduction (vph)	0	0	127	0	0	70	0	6	0	0	4	0
Lane Group Flow (vph)	79	267	32	119	283	18	191	1625	0	55	973	0
Confl. Peds. (#/hr)	5		6	6		5	7		5	5		7
Heavy Vehicles (%)	4%	14%	5%	10%	9%	4%	3%	2%	2%	14%	9%	6%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	29.3	23.7	23.7	32.1	25.1	25.1	81.3	72.1		75.1	68.9	
Effective Green, g (s)	33.3	25.7	25.7	35.7	27.1	27.1	83.3	74.1		79.1	70.9	
Actuated g/C Ratio	0.26	0.20	0.20	0.28	0.21	0.21	0.64	0.57		0.61	0.55	
Clearance Time (s)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4		3.0	7.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4		3.0	4.4	
Lane Grp Cap (vph)	211	334	303	216	369	323	380	2014		159	1816	
v/s Ratio Prot	0.02	0.16		c0.04	c0.16		c0.04	c0.46		0.02	0.29	
v/s Ratio Perm	0.07		0.02	0.11		0.01	0.28			0.19		
v/c Ratio	0.37	0.80	0.10	0.55	0.77	0.06	0.50	0.81		0.35	0.54	
Uniform Delay, d1	38.0	49.3	42.4	37.4	48.1	40.9	11.3	21.9		18.7	18.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	12.6	0.2	3.0	9.2	0.1	1.0	3.6		1.3	1.1	
Delay (s)	39.1	61.9	42.5	40.4	57.3	41.0	12.4	25.5		20.0	19.8	
Level of Service	D	E	D	D	E	D	B	C		B	B	
Approach Delay (s)		52.2			50.3			24.1			19.8	
Approach LOS		D			D			C			B	

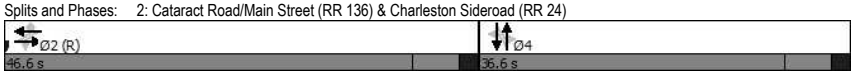
Intersection Summary					
HCM 2000 Control Delay	30.0	HCM 2000 Level of Service		C	
HCM 2000 Volume to Capacity ratio	0.76				
Actuated Cycle Length (s)	129.3	Sum of lost time (s)		12.3	
Intersection Capacity Utilization	87.7%	ICU Level of Service		E	
Analysis Period (min)	15				

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	73	411	4	398	85	12	11	62	17
Future Volume (vph)	73	411	4	398	85	12	11	62	17
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		2		2			4		4
Permitted Phases	2		2		2	4		4	
Detector Phase	2	2	2	2	2	4	4	4	4
Switch Phase									
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	16.0	16.0	16.0	16.0
Minimum Split (s)	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6
Total Split (s)	46.6	46.6	46.6	46.6	46.6	36.6	36.6	36.6	36.6
Total Split (%)	56.0%	56.0%	56.0%	56.0%	56.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
Act Effct Green (s)	59.8	59.8	59.8	59.8	59.8	16.0	16.0	16.0	16.0
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72	0.19	0.19	0.19	0.19
v/c Ratio	0.10	0.35	0.01	0.33	0.08	0.05	0.06	0.23	0.21
Control Delay	6.0	7.2	5.2	6.9	1.5	28.2	20.5	31.0	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.0	7.2	5.2	6.9	1.5	28.2	20.5	31.0	12.9
LOS	A	A	A	A	A	C	C	C	B
Approach Delay		7.0		6.0			23.4		21.1
Approach LOS		A		A			C		C

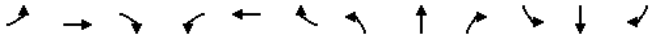
Intersection Summary			
Cycle Length: 83.2			
Actuated Cycle Length: 83.2			
Offset: 22.5 (27%), Referenced to phase 2:EBWB and 6:, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.35			
Intersection Signal Delay: 8.7		Intersection LOS: A	
Intersection Capacity Utilization 68.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Cataract Road/Main Street (RR 136) & Charleston Sideroad (RR 24)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	73	411	11	4	398	85	12	11	9	62	17	58
Future Volume (vph)	73	411	11	4	398	85	12	11	9	62	17	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.93		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	1699		1825	1731	1555	1706	1791		1825	1646	
Flt Permitted	0.51	1.00		0.50	1.00	1.00	0.71	1.00		0.74	1.00	
Satd. Flow (perm)	989	1699		957	1731	1555	1270	1791		1430	1646	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	74	419	11	4	406	87	12	11	9	63	17	59
RTOR Reduction (vph)	0	1	0	0	0	27	0	8	0	0	50	0
Lane Group Flow (vph)	74	429	0	4	406	60	12	12	0	63	26	0
Heavy Vehicles (%)	0%	13%	0%	0%	11%	5%	7%	0%	0%	0%	0%	4%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Actuated Green, G (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Effective Green, g (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Actuated g/C Ratio	0.69	0.69		0.69	0.69	0.69	0.15	0.15		0.15	0.15	
Clearance Time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	679	1168		657	1190	1069	195	275		220	253	
v/s Ratio Prot		c0.25			0.23			0.01			0.02	
v/s Ratio Perm	0.07			0.00		0.04	0.01			c0.04		
v/c Ratio	0.11	0.37		0.01	0.34	0.06	0.06	0.05		0.29	0.10	
Uniform Delay, d1	4.4	5.4		4.1	5.3	4.2	30.1	30.0		31.2	30.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.9		0.0	0.8	0.1	0.1	0.1		0.7	0.2	
Delay (s)	4.7	6.3		4.1	6.1	4.3	30.2	30.1		31.9	30.4	
Level of Service	A	A		A	A	A	C	C		C	C	
Approach Delay (s)		6.1			5.8			30.1			31.1	
Approach LOS		A			A			C			C	

Intersection Summary					
HCM 2000 Control Delay	9.6	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.35				
Actuated Cycle Length (s)	83.2	Sum of lost time (s)		13.2	
Intersection Capacity Utilization	68.8%	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)	14	453	8	12	451	12	3	14	21	21	4	14
Future Volume (Veh/h)	14	453	8	12	451	12	3	14	21	21	4	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	14	467	8	12	465	12	3	14	22	22	4	14
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	477			475			1004	1000	471	1019	998	471
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	477			475			1004	1000	471	1019	998	471
tC, single (s)	4.2			4.2			7.2	6.5	6.3	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.0	3.4	3.5	4.0	3.4
p0 queue free %	99			99			99	94	96	89	98	98
cM capacity (veh/h)	1055			1032			200	239	571	196	240	571

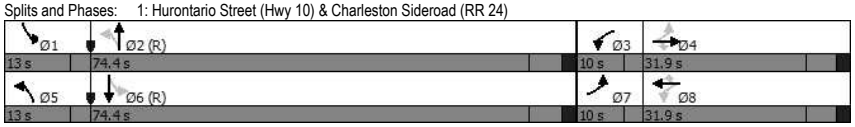
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	14	475	12	477	39	40
Volume Left	14	0	12	0	3	22
Volume Right	0	8	0	12	22	14
cSH	1055	1700	1032	1700	348	260
Volume to Capacity	0.01	0.28	0.01	0.28	0.11	0.15
Queue Length 95th (m)	0.3	0.0	0.3	0.0	2.9	4.1
Control Delay (s)	8.5	0.0	8.5	0.0	16.6	21.3
Lane LOS	A		A		C	C
Approach Delay (s)	0.2		0.2		16.6	21.3
Approach LOS					C	C

Intersection Summary					
Average Delay	1.6				
Intersection Capacity Utilization	39.9%	ICU Level of Service		A	
Analysis Period (min)	15				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	111	224	108	146	226	34	185	1126	60	920
Future Volume (vph)	111	224	108	146	226	34	185	1126	60	920
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	7.0	20.0
Minimum Split (s)	10.0	17.9	17.9	10.0	17.9	17.9	10.0	44.4	10.0	44.4
Total Split (s)	10.0	31.9	31.9	10.0	31.9	31.9	13.0	74.4	13.0	74.4
Total Split (%)	7.7%	24.7%	24.7%	7.7%	24.7%	24.7%	10.1%	57.5%	10.1%	57.5%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	5.0	3.0	5.0
All-Red Time (s)	0.0	2.4	2.4	0.0	2.4	2.4	0.0	2.4	0.0	2.4
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	1.0	4.9	4.9	1.0	4.9	4.9	1.0	5.4	1.0	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	35.5	22.6	22.6	35.5	22.6	22.6	90.8	78.0	87.7	73.9
Actuated g/C Ratio	0.27	0.17	0.17	0.27	0.17	0.17	0.70	0.60	0.68	0.57
v/c Ratio	0.47	0.71	0.30	0.61	0.71	0.10	0.49	0.62	0.21	0.51
Control Delay	41.2	61.9	9.7	46.7	62.2	0.6	11.5	18.9	8.5	18.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.2	61.9	9.7	46.7	62.2	0.6	11.5	18.9	8.5	18.4
LOS	D	E	A	D	E	A	B	B	A	B
Approach Delay		43.9			51.5			18.0		17.9
Approach LOS		D			D			B		B

Intersection Summary			
Cycle Length: 129.3			
Actuated Cycle Length: 129.3			
Offset: 85 (66%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 85			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 25.4		Intersection LOS: C	
Intersection Capacity Utilization 79.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Hurontario Street (Hwy 10) & Charleston Sideroad (RR 24)



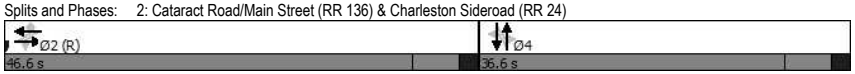
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	224	108	146	226	34	185	1126	140	60	920	76
Future Volume (vph)	111	224	108	146	226	34	185	1126	140	60	920	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	4.9	4.9	1.0	4.9	4.9	1.0	5.4		1.0	5.4	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	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	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1883	1589	1824	1883	1603	1772	3513		1825	3531	
Flt Permitted	0.31	1.00	1.00	0.32	1.00	1.00	0.20	1.00		0.14	1.00	
Satd. Flow (perm)	591	1883	1589	606	1883	1603	380	3513		272	3531	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	116	233	112	152	235	35	193	1173	146	62	958	79
RTOR Reduction (vph)	0	0	93	0	0	29	0	6	0	0	4	0
Lane Group Flow (vph)	116	233	20	152	235	6	193	1313	0	63	1033	0
Confl. Peds. (#/hr)	5		4	4		5	2		3	3		2
Confl. Bikes (#/hr)			1			1			1			1
Heavy Vehicles (%)	1%	2%	1%	0%	2%	0%	3%	2%	1%	0%	2%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	27.6	20.6	20.6	27.6	20.6	20.6	84.4	75.4		77.9	71.9	
Effective Green, g (s)	31.6	22.6	22.6	31.6	22.6	22.6	86.4	77.4		81.9	73.9	
Actuated g/C Ratio	0.24	0.17	0.17	0.24	0.17	0.17	0.67	0.60		0.63	0.57	
Clearance Time (s)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4		3.0	7.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4		3.0	4.4	
Lane Grp Cap (vph)	228	329	277	232	329	280	377	2102		268	2018	
v/s Ratio Prot	0.04	0.12		c0.05	c0.12		c0.05	c0.37		0.01	0.29	
v/s Ratio Perm	0.09		0.01	0.11		0.00	0.30			0.13		
v/c Ratio	0.51	0.71	0.07	0.66	0.71	0.02	0.51	0.62		0.24	0.51	
Uniform Delay, d1	40.0	50.2	44.6	40.8	50.3	44.2	10.4	16.6		11.6	16.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.8	6.8	0.1	6.5	7.2	0.0	1.2	1.4		0.5	0.9	
Delay (s)	41.8	57.1	44.7	47.3	57.5	44.2	11.6	18.0		12.0	17.7	
Level of Service	D	E	D	D	E	D	B	B		B	B	
Approach Delay (s)		50.2			52.7			17.2			17.4	
Approach LOS		D			D			B			B	

Intersection Summary					
HCM 2000 Control Delay	25.9	HCM 2000 Level of Service		C	
HCM 2000 Volume to Capacity ratio	0.63				
Actuated Cycle Length (s)	129.3	Sum of lost time (s)		12.3	
Intersection Capacity Utilization	79.2%	ICU Level of Service		D	
Analysis Period (min)	15				
c Critical Lane Group					

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	42	333	9	350	45	8	7	57	12
Future Volume (vph)	42	333	9	350	45	8	7	57	12
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		2		2			4		4
Permitted Phases	2		2		2	4		4	
Detector Phase	2	2	2	2	2	4	4	4	4
Switch Phase									
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	16.0	16.0	16.0	16.0
Minimum Split (s)	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6
Total Split (s)	46.6	46.6	46.6	46.6	46.6	36.6	36.6	36.6	36.6
Total Split (%)	56.0%	56.0%	56.0%	56.0%	56.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
Act Effct Green (s)	59.8	59.8	59.8	59.8	59.8	16.0	16.0	16.0	16.0
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72	0.19	0.19	0.19	0.19
v/c Ratio	0.06	0.26	0.01	0.27	0.04	0.03	0.03	0.21	0.17
Control Delay	5.6	6.3	5.2	6.4	1.8	27.8	25.0	30.7	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.6	6.3	5.2	6.4	1.8	27.8	25.0	30.7	13.1
LOS	A	A	A	A	A	C	C	C	B
Approach Delay		6.2		5.8			26.3		21.8
Approach LOS		A		A			C		C

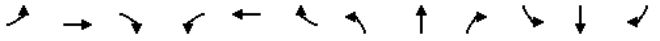
Intersection Summary			
Cycle Length: 83.2			
Actuated Cycle Length: 83.2			
Offset: 22.5 (27%), Referenced to phase 2:EBWB and 6:, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.27			
Intersection Signal Delay: 8.4		Intersection LOS: A	
Intersection Capacity Utilization 63.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: Cataract Road/Main Street (RR 136) & Charleston Sideroad (RR 24)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	333	10	9	350	45	8	7	2	57	12	45
Future Volume (vph)	42	333	10	9	350	45	8	7	2	57	12	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.97		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	1877		1825	1883	1633	1825	1857		1825	1695	
Flt Permitted	0.54	1.00		0.55	1.00	1.00	0.72	1.00		0.75	1.00	
Satd. Flow (perm)	1044	1877		1052	1883	1633	1379	1857		1444	1695	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	44	347	10	9	365	47	8	7	2	59	12	47
RTOR Reduction (vph)	0	1	0	0	0	15	0	2	0	0	40	0
Lane Group Flow (vph)	44	356	0	9	365	32	8	7	0	59	20	0
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Actuated Green, G (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Effective Green, g (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Actuated g/C Ratio	0.69	0.69		0.69	0.69	0.69	0.15	0.15		0.15	0.15	
Clearance Time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	717	1290		723	1294	1122	212	285		222	260	
v/s Ratio Prot		0.19			c0.19			0.00			0.01	
v/s Ratio Perm	0.04			0.01		0.02	0.01			c0.04		
v/c Ratio	0.06	0.28		0.01	0.28	0.03	0.04	0.03		0.27	0.08	
Uniform Delay, d1	4.2	5.0		4.1	5.0	4.1	30.0	29.9		31.1	30.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.5		0.0	0.5	0.0	0.1	0.0		0.6	0.1	
Delay (s)	4.4	5.5		4.1	5.6	4.2	30.0	29.9		31.7	30.3	
Level of Service	A	A		A	A	A	C	C		C	C	
Approach Delay (s)		5.4			5.4			30.0			31.0	
Approach LOS		A			A			C			C	

Intersection Summary					
HCM 2000 Control Delay	9.0	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.28				
Actuated Cycle Length (s)	83.2	Sum of lost time (s)		13.2	
Intersection Capacity Utilization	63.2%	ICU Level of Service		B	
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)	10	358	6	13	382	16	5	5	10	7	5	8
Future Volume (Veh/h)	10	358	6	13	382	16	5	5	10	7	5	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	11	381	6	14	406	17	5	5	11	7	5	9
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	423			387			852	857	384	859	852	414
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	423			387			852	857	384	859	852	414
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			98	98	98	97	98	99
cM capacity (veh/h)	1147			1183			270	291	668	266	293	642

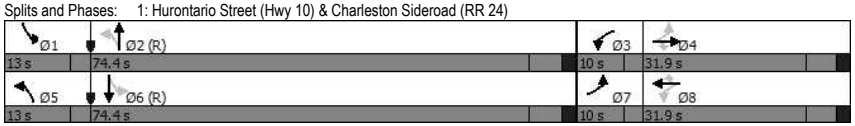
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	11	387	14	423	21	21
Volume Left	11	0	14	0	5	7
Volume Right	0	6	0	17	11	9
cSH	1147	1700	1183	1700	402	366
Volume to Capacity	0.01	0.23	0.01	0.25	0.05	0.06
Queue Length 95th (m)	0.2	0.0	0.3	0.0	1.3	1.4
Control Delay (s)	8.2	0.0	8.1	0.0	14.4	15.4
Lane LOS	A		A		B	C
Approach Delay (s)	0.2		0.3		14.4	15.4
Approach LOS					B	C

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	31.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	58	166	204	124	194	31	139	948	59	1653
Future Volume (vph)	58	166	204	124	194	31	139	948	59	1653
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	7.0	20.0
Minimum Split (s)	10.0	17.9	17.9	10.0	17.9	17.9	10.0	44.4	10.0	44.4
Total Split (s)	10.0	31.9	31.9	10.0	31.9	31.9	13.0	74.4	13.0	74.4
Total Split (%)	7.7%	24.7%	24.7%	7.7%	24.7%	24.7%	10.1%	57.5%	10.1%	57.5%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	5.0	3.0	5.0
All-Red Time (s)	0.0	2.4	2.4	0.0	2.4	2.4	0.0	2.4	0.0	2.4
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	1.0	4.9	4.9	1.0	4.9	4.9	1.0	5.4	1.0	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	34.8	21.9	21.9	35.0	23.9	23.9	91.5	78.5	87.7	73.6
Actuated g/C Ratio	0.27	0.17	0.17	0.27	0.18	0.18	0.71	0.61	0.68	0.57
v/c Ratio	0.23	0.66	0.53	0.46	0.65	0.10	0.73	0.58	0.20	0.89
Control Delay	35.5	61.6	15.6	41.0	59.2	0.6	49.2	18.2	8.3	32.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.5	61.6	15.6	41.0	59.2	0.6	49.2	18.2	8.3	32.3
LOS	D	E	B	D	E	A	D	B	A	C
Approach Delay		36.2			47.5			21.8		31.5
Approach LOS		D			D			C		C

Intersection Summary			
Cycle Length: 129.3			
Actuated Cycle Length: 129.3			
Offset: 85 (66%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 85			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 30.5		Intersection LOS: C	
Intersection Capacity Utilization 86.5%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Hurontario Street (Hwy 10) & Charleston Sideroad (RR 24)



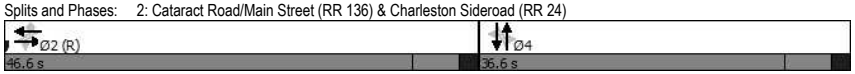
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	166	204	124	194	31	139	948	92	59	1653	58
Future Volume (vph)	58	166	204	124	194	31	139	948	92	59	1653	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	4.9	4.9	1.0	4.9	4.9	1.0	5.4		1.0	5.4	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1690	1575	1555	1772	1700	1384	1534	3095		1484	3545	
Flt Permitted	0.43	1.00	1.00	0.44	1.00	1.00	0.05	1.00		0.21	1.00	
Satd. Flow (perm)	763	1575	1555	816	1700	1384	87	3095		325	3545	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	61	175	215	131	204	33	146	998	97	62	1740	61
RTOR Reduction (vph)	0	0	145	0	0	27	0	5	0	0	2	0
Lane Group Flow (vph)	61	175	70	131	204	6	146	1090	0	62	1799	0
Heavy Vehicles (%)	8%	22%	5%	3%	13%	18%	19%	16%	20%	23%	2%	15%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	26.1	20.5	20.5	28.9	21.9	21.9	84.5	75.3		77.2	71.0	
Effective Green, g (s)	30.1	22.5	22.5	32.5	23.9	23.9	86.5	77.3		81.2	73.0	
Actuated g/C Ratio	0.23	0.17	0.17	0.25	0.18	0.18	0.67	0.60		0.63	0.56	
Clearance Time (s)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4		3.0	7.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4		3.0	4.4	
Lane Grp Cap (vph)	232	274	270	271	314	255	198	1850		277	2001	
v/s Ratio Prot	0.02	0.11		c0.03	c0.12		c0.07	0.35		0.01	c0.51	
v/s Ratio Perm	0.05		0.05	0.09		0.00	0.42			0.13		
v/c Ratio	0.26	0.64	0.26	0.48	0.65	0.02	0.74	0.59		0.22	0.90	
Uniform Delay, d1	39.7	49.6	46.2	39.4	48.8	43.1	37.6	16.1		10.3	24.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	4.8	0.5	1.4	4.6	0.0	13.3	1.4		0.4	7.0	
Delay (s)	40.3	54.4	46.7	40.7	53.4	43.2	50.9	17.5		10.7	31.9	
Level of Service	D	D	D	D	D	D	D	B		B	C	
Approach Delay (s)		48.9			48.0			21.5			31.1	
Approach LOS		D			D			C			C	

Intersection Summary					
HCM 2000 Control Delay	31.7	HCM 2000 Level of Service		C	
HCM 2000 Volume to Capacity ratio	0.79				
Actuated Cycle Length (s)	129.3	Sum of lost time (s)		12.3	
Intersection Capacity Utilization	86.5%	ICU Level of Service		E	
Analysis Period (min)	15				
c Critical Lane Group					

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	38	344	6	328	43	6	7	52	10
Future Volume (vph)	38	344	6	328	43	6	7	52	10
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		2		2			4		4
Permitted Phases	2		2		2	4		4	
Detector Phase	2	2	2	2	2	4	4	4	4
Switch Phase									
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	16.0	16.0	16.0	16.0
Minimum Split (s)	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6
Total Split (s)	46.6	46.6	46.6	46.6	46.6	36.6	36.6	36.6	36.6
Total Split (%)	56.0%	56.0%	56.0%	56.0%	56.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
Act Effct Green (s)	59.8	59.8	59.8	59.8	59.8	16.0	16.0	16.0	16.0
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72	0.19	0.19	0.19	0.19
v/c Ratio	0.05	0.29	0.01	0.30	0.04	0.02	0.05	0.20	0.16
Control Delay	5.6	6.6	5.2	6.8	1.7	27.7	18.7	30.4	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.6	6.6	5.2	6.8	1.7	27.7	18.7	30.4	12.8
LOS	A	A	A	A	A	C	B	C	B
Approach Delay		6.5		6.2			20.9		21.5
Approach LOS		A		A			C		C

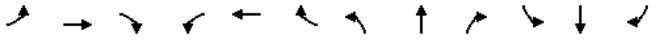
Intersection Summary			
Cycle Length: 83.2			
Actuated Cycle Length: 83.2			
Offset: 22.5 (27%), Referenced to phase 2:EBWB and 6:, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.30			
Intersection Signal Delay: 8.5		Intersection LOS: A	
Intersection Capacity Utilization 63.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: Cataract Road/Main Street (RR 136) & Charleston Sideroad (RR 24)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	344	6	6	328	43	6	7	11	52	10	44
Future Volume (vph)	38	344	6	6	328	43	6	7	11	52	10	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.91		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1772	1745		1825	1588	1633	1825	1745		1825	1619	
Flt Permitted	0.56	1.00		0.55	1.00	1.00	0.72	1.00		0.75	1.00	
Satd. Flow (perm)	1039	1745		1048	1588	1633	1385	1745		1433	1619	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	39	355	6	6	338	44	6	7	11	54	10	45
RTOR Reduction (vph)	0	0	0	0	0	14	0	9	0	0	38	0
Lane Group Flow (vph)	39	361	0	6	338	30	6	9	0	54	17	0
Heavy Vehicles (%)	3%	10%	0%	0%	21%	0%	0%	0%	0%	0%	0%	5%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Actuated Green, G (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Effective Green, g (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Actuated g/C Ratio	0.69	0.69		0.69	0.69	0.69	0.15	0.15		0.15	0.15	
Clearance Time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	714	1199		720	1091	1122	213	268		220	249	
v/s Ratio Prot		0.21			c0.21			0.00			0.01	
v/s Ratio Perm	0.04			0.01		0.02	0.00			c0.04		
v/c Ratio	0.05	0.30		0.01	0.31	0.03	0.03	0.03		0.25	0.07	
Uniform Delay, d1	4.2	5.1		4.1	5.2	4.1	29.9	29.9		31.0	30.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.6		0.0	0.7	0.0	0.1	0.0		0.6	0.1	
Delay (s)	4.4	5.8		4.1	5.9	4.2	30.0	30.0		31.5	30.2	
Level of Service	A	A		A	A	A	C	C		C	C	
Approach Delay (s)		5.6			5.7			30.0			30.9	
Approach LOS		A			A			C			C	

Intersection Summary					
HCM 2000 Control Delay	9.3	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.30				
Actuated Cycle Length (s)	83.2	Sum of lost time (s)		13.2	
Intersection Capacity Utilization	63.2%	ICU Level of Service		B	
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)	16	375	2	33	327	15	2	6	13	15	10	11
Future Volume (Veh/h)	16	375	2	33	327	15	2	6	13	15	10	11
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	17	395	2	35	344	16	2	6	14	16	11	12
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	360			397			862	860	396	868	853	352
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	360			397			862	860	396	868	853	352
tC, single (s)	4.1			4.9			7.2	6.5	6.9	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.9			3.6	4.0	3.9	3.5	4.0	3.3
p0 queue free %	99			96			99	98	97	94	96	98
cM capacity (veh/h)	1210			853			241	280	536	252	282	696

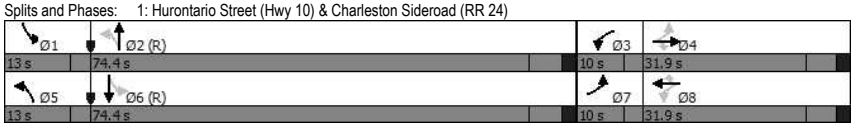
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	17	397	35	360	22	39
Volume Left	17	0	35	0	2	16
Volume Right	0	2	0	16	14	12
cSH	1210	1700	853	1700	394	326
Volume to Capacity	0.01	0.23	0.04	0.21	0.06	0.12
Queue Length 95th (m)	0.3	0.0	1.0	0.0	1.3	3.1
Control Delay (s)	8.0	0.0	9.4	0.0	14.7	17.5
Lane LOS	A		A		B	C
Approach Delay (s)	0.3		0.8		14.7	17.5
Approach LOS					B	C

Intersection Summary					
Average Delay	1.7				
Intersection Capacity Utilization	39.0%	ICU Level of Service		A	
Analysis Period (min)	15				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	75	266	151	113	282	84	181	1670	52	1032
Future Volume (vph)	75	266	151	113	282	84	181	1670	52	1032
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	7.0	20.0
Minimum Split (s)	10.0	17.9	17.9	10.0	17.9	17.9	10.0	44.4	10.0	44.4
Total Split (s)	10.0	31.9	31.9	10.0	31.9	31.9	13.0	74.4	13.0	74.4
Total Split (%)	7.7%	24.7%	24.7%	7.7%	24.7%	24.7%	10.1%	57.5%	10.1%	57.5%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	5.0	3.0	5.0
All-Red Time (s)	0.0	2.4	2.4	0.0	2.4	2.4	0.0	2.4	0.0	2.4
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	1.0	4.9	4.9	1.0	4.9	4.9	1.0	5.4	1.0	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	38.5	25.6	25.6	38.7	27.6	27.6	87.7	74.8	84.9	71.0
Actuated g/C Ratio	0.30	0.20	0.20	0.30	0.21	0.21	0.68	0.58	0.66	0.55
v/c Ratio	0.33	0.84	0.37	0.54	0.79	0.22	0.58	0.94	0.32	0.63
Control Delay	36.1	71.8	8.9	43.1	64.5	9.8	15.2	36.4	14.4	22.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	71.8	8.9	43.1	64.5	9.8	15.2	36.4	14.4	22.4
LOS	D	E	A	D	E	A	B	D	B	C
Approach Delay		47.0			49.9			34.4		22.0
Approach LOS		D			D			C		C

Intersection Summary			
Cycle Length: 129.3			
Actuated Cycle Length: 129.3			
Offset: 85 (66%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 105			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 34.3		Intersection LOS: C	
Intersection Capacity Utilization 95.7%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Hurontario Street (Hwy 10) & Charleston Sideroad (RR 24)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	266	151	113	282	84	181	1670	152	52	1032	66
Future Volume (vph)	75	266	151	113	282	84	181	1670	152	52	1032	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	4.9	4.9	1.0	4.9	4.9	1.0	5.4		1.0	5.4	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	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	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1754	1685	1527	1658	1762	1544	1772	3525		1601	3318	
Flt Permitted	0.27	1.00	1.00	0.26	1.00	1.00	0.16	1.00		0.06	1.00	
Satd. Flow (perm)	506	1685	1527	457	1762	1544	293	3525		96	3318	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	79	280	159	119	297	88	191	1758	160	55	1086	69
RTOR Reduction (vph)	0	0	127	0	0	69	0	5	0	0	4	0
Lane Group Flow (vph)	79	280	32	119	297	19	191	1913	0	55	1151	0
Confl. Peds. (#/hr)	5		6	6		5	7		5	5		7
Heavy Vehicles (%)	4%	14%	5%	10%	9%	4%	3%	2%	2%	14%	9%	6%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	29.8	24.2	24.2	32.6	25.6	25.6	80.8	71.6		74.6	68.4	
Effective Green, g (s)	33.8	26.2	26.2	36.2	27.6	27.6	82.8	73.6		78.6	70.4	
Actuated g/C Ratio	0.26	0.20	0.20	0.28	0.21	0.21	0.64	0.57		0.61	0.54	
Clearance Time (s)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4		3.0	7.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4		3.0	4.4	
Lane Grp Cap (vph)	205	341	309	211	376	329	318	2006		153	1806	
v/s Ratio Prot	0.02	0.17		c0.04	c0.17		c0.05	c0.54		0.02	0.35	
v/s Ratio Perm	0.08		0.02	0.12		0.01	0.33			0.20		
v/c Ratio	0.39	0.82	0.10	0.56	0.79	0.06	0.60	0.95		0.36	0.64	
Uniform Delay, d1	37.7	49.3	42.0	37.1	48.1	40.5	13.7	26.2		26.4	20.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	14.6	0.1	3.4	10.6	0.1	3.2	11.8		1.4	1.7	
Delay (s)	38.9	63.9	42.1	40.5	58.7	40.6	16.9	38.1		27.9	22.3	
Level of Service	D	E	D	D	E	D	B	D		C	C	
Approach Delay (s)		53.4			51.2			36.1			22.5	
Approach LOS		D			D			D			C	

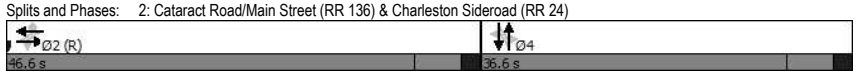
Intersection Summary					
HCM 2000 Control Delay	36.2	HCM 2000 Level of Service		D	
HCM 2000 Volume to Capacity ratio	0.87				
Actuated Cycle Length (s)	129.3	Sum of lost time (s)		12.3	
Intersection Capacity Utilization	95.7%	ICU Level of Service		F	
Analysis Period (min)	15				

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	73	430	4	417	85	12	12	62	18
Future Volume (vph)	73	430	4	417	85	12	12	62	18
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		2		2			4		4
Permitted Phases	2		2		2	4		4	
Detector Phase	2	2	2	2	2	4	4	4	4
Switch Phase									
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	16.0	16.0	16.0	16.0
Minimum Split (s)	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6
Total Split (s)	46.6	46.6	46.6	46.6	46.6	36.6	36.6	36.6	36.6
Total Split (%)	56.0%	56.0%	56.0%	56.0%	56.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
Act Effct Green (s)	59.8	59.8	59.8	59.8	59.8	16.0	16.0	16.0	16.0
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72	0.19	0.19	0.19	0.19
v/c Ratio	0.11	0.37	0.01	0.34	0.08	0.05	0.06	0.23	0.21
Control Delay	6.1	7.3	5.2	7.1	1.5	28.2	20.8	31.0	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.1	7.3	5.2	7.1	1.5	28.2	20.8	31.0	13.0
LOS	A	A	A	A	A	C	C	C	B
Approach Delay		7.1		6.1			23.5		21.1
Approach LOS		A		A			C		C

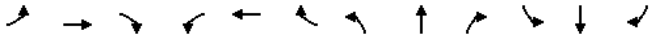
Intersection Summary			
Cycle Length: 83.2			
Actuated Cycle Length: 83.2			
Offset: 22.5 (27%), Referenced to phase 2:EBWB and 6:, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.37			
Intersection Signal Delay: 8.8		Intersection LOS: A	
Intersection Capacity Utilization 69.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Cataract Road/Main Street (RR 136) & Charleston Sideroad (RR 24)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	73	430	11	4	417	85	12	12	9	62	18	58
Future Volume (vph)	73	430	11	4	417	85	12	12	9	62	18	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.94		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	1699		1825	1731	1555	1706	1798		1825	1650	
Flt Permitted	0.50	1.00		0.48	1.00	1.00	0.71	1.00		0.74	1.00	
Satd. Flow (perm)	962	1699		931	1731	1555	1269	1798		1429	1650	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	74	439	11	4	426	87	12	12	9	63	18	59
RTOR Reduction (vph)	0	1	0	0	0	27	0	8	0	0	50	0
Lane Group Flow (vph)	74	449	0	4	426	60	12	13	0	63	27	0
Heavy Vehicles (%)	0%	13%	0%	0%	11%	5%	7%	0%	0%	0%	0%	4%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Actuated Green, G (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Effective Green, g (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Actuated g/C Ratio	0.69	0.69		0.69	0.69	0.69	0.15	0.15		0.15	0.15	
Clearance Time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	661	1168		640	1190	1069	195	276		219	253	
v/s Ratio Prot		c0.26			0.25			0.01			0.02	
v/s Ratio Perm	0.08			0.00		0.04	0.01			c0.04		
v/c Ratio	0.11	0.38		0.01	0.36	0.06	0.06	0.05		0.29	0.11	
Uniform Delay, d1	4.4	5.5		4.1	5.4	4.2	30.1	30.0		31.2	30.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	1.0		0.0	0.8	0.1	0.1	0.1		0.7	0.2	
Delay (s)	4.7	6.5		4.1	6.2	4.3	30.2	30.1		31.9	30.5	
Level of Service	A	A		A	A	A	C	C		C	C	
Approach Delay (s)		6.2			5.9			30.1			31.1	
Approach LOS		A			A			C			C	

Intersection Summary					
HCM 2000 Control Delay	9.6	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.37				
Actuated Cycle Length (s)	83.2	Sum of lost time (s)		13.2	
Intersection Capacity Utilization	69.8%	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)	14	474	8	12	472	12	3	17	21	21	5	14
Future Volume (Veh/h)	14	474	8	12	472	12	3	17	21	21	5	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	14	489	8	12	487	12	3	18	22	22	5	14
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	499			497			1048	1044	493	1065	1042	493
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	499			497			1048	1044	493	1065	1042	493
tC, single (s)	4.2			4.2			7.2	6.5	6.3	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.0	3.4	3.5	4.0	3.4
p0 queue free %	99			99			98	92	96	88	98	97
cM capacity (veh/h)	1035			1012			186	225	554	179	226	554

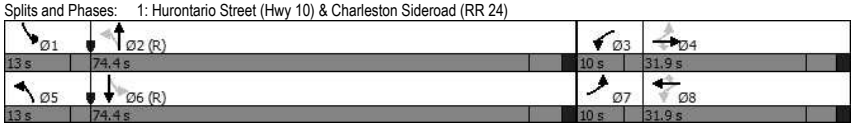
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	14	497	12	499	43	41
Volume Left	14	0	12	0	3	22
Volume Right	0	8	0	12	22	14
cSH	1035	1700	1012	1700	317	241
Volume to Capacity	0.01	0.29	0.01	0.29	0.14	0.17
Queue Length 95th (m)	0.3	0.0	0.3	0.0	3.5	4.6
Control Delay (s)	8.5	0.0	8.6	0.0	18.1	23.0
Lane LOS	A		A		C	C
Approach Delay (s)	0.2		0.2		18.1	23.0
Approach LOS					C	C

Intersection Summary					
Average Delay	1.8				
Intersection Capacity Utilization	41.2%	ICU Level of Service		A	
Analysis Period (min)	15				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	111	235	108	146	237	34	185	1346	60	1100
Future Volume (vph)	111	235	108	146	237	34	185	1346	60	1100
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	7.0	20.0
Minimum Split (s)	10.0	17.9	17.9	10.0	17.9	17.9	10.0	44.4	10.0	44.4
Total Split (s)	10.0	31.9	31.9	10.0	31.9	31.9	13.0	74.4	13.0	74.4
Total Split (%)	7.7%	24.7%	24.7%	7.7%	24.7%	24.7%	10.1%	57.5%	10.1%	57.5%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	5.0	3.0	5.0
All-Red Time (s)	0.0	2.4	2.4	0.0	2.4	2.4	0.0	2.4	0.0	2.4
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	1.0	4.9	4.9	1.0	4.9	4.9	1.0	5.4	1.0	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	36.2	23.3	23.3	36.2	23.3	23.3	90.1	77.2	87.3	73.4
Actuated g/C Ratio	0.28	0.18	0.18	0.28	0.18	0.18	0.70	0.60	0.68	0.57
v/c Ratio	0.48	0.72	0.30	0.62	0.73	0.10	0.60	0.73	0.27	0.61
Control Delay	41.0	62.3	9.5	46.9	62.7	0.5	16.2	22.6	9.9	20.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.0	62.3	9.5	46.9	62.7	0.5	16.2	22.6	9.9	20.7
LOS	D	E	A	D	E	A	B	C	A	C
Approach Delay		44.5			52.1			21.9		20.1
Approach LOS		D			D			C		C

Intersection Summary			
Cycle Length: 129.3			
Actuated Cycle Length: 129.3			
Offset: 85 (66%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 85			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 27.4		Intersection LOS: C	
Intersection Capacity Utilization 85.7%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Hurontario Street (Hwy 10) & Charleston Sideroad (RR 24)



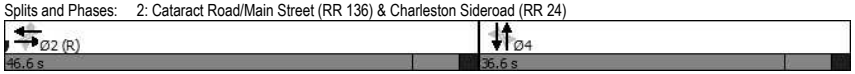
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	235	108	146	237	34	185	1346	140	60	1100	76
Future Volume (vph)	111	235	108	146	237	34	185	1346	140	60	1100	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	4.9	4.9	1.0	4.9	4.9	1.0	5.4		1.0	5.4	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	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	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1806	1883	1589	1824	1883	1603	1772	3523		1825	3538	
Flt Permitted	0.29	1.00	1.00	0.30	1.00	1.00	0.15	1.00		0.09	1.00	
Satd. Flow (perm)	560	1883	1589	575	1883	1603	273	3523		166	3538	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	116	245	112	152	247	35	193	1402	146	62	1146	79
RTOR Reduction (vph)	0	0	93	0	0	29	0	5	0	0	3	0
Lane Group Flow (vph)	116	245	20	152	247	6	193	1543	0	63	1222	0
Confl. Peds. (#/hr)	5		4	4		5	2		3	3		2
Confl. Bikes (#/hr)			1			1			1			1
Heavy Vehicles (%)	1%	2%	1%	0%	2%	0%	3%	2%	1%	0%	2%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	28.3	21.3	21.3	28.3	21.3	21.3	83.7	74.6		77.5	71.4	
Effective Green, g (s)	32.3	23.3	23.3	32.3	23.3	23.3	85.7	76.6		81.5	73.4	
Actuated g/C Ratio	0.25	0.18	0.18	0.25	0.18	0.18	0.66	0.59		0.63	0.57	
Clearance Time (s)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4		3.0	7.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4		3.0	4.4	
Lane Grp Cap (vph)	226	339	286	230	339	288	311	2087		208	2008	
v/s Ratio Prot	0.04	0.13		c0.05	c0.13		c0.05	c0.44		0.02	0.35	
v/s Ratio Perm	0.09		0.01	0.12		0.00	0.36			0.17		
v/c Ratio	0.51	0.72	0.07	0.66	0.73	0.02	0.62	0.74		0.30	0.61	
Uniform Delay, d1	39.5	50.0	44.0	40.3	50.0	43.6	13.3	19.1		15.1	18.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.0	7.4	0.1	6.9	7.6	0.0	3.8	2.4		0.8	1.4	
Delay (s)	41.5	57.4	44.1	47.3	57.6	43.7	17.1	21.5		15.9	19.8	
Level of Service	D	E	D	D	E	D	B	C		B	B	
Approach Delay (s)		50.3			52.9			21.0			19.6	
Approach LOS		D			D			C			B	

Intersection Summary					
HCM 2000 Control Delay	27.6	HCM 2000 Level of Service		C	
HCM 2000 Volume to Capacity ratio	0.72				
Actuated Cycle Length (s)	129.3	Sum of lost time (s)		12.3	
Intersection Capacity Utilization	85.7%	ICU Level of Service		E	
Analysis Period (min)	15				
c Critical Lane Group					

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	42	349	9	367	45	8	8	57	13
Future Volume (vph)	42	349	9	367	45	8	8	57	13
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		2		2			4		4
Permitted Phases	2		2		2	4		4	
Detector Phase	2	2	2	2	2	4	4	4	4
Switch Phase									
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	16.0	16.0	16.0	16.0
Minimum Split (s)	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6
Total Split (s)	46.6	46.6	46.6	46.6	46.6	36.6	36.6	36.6	36.6
Total Split (%)	56.0%	56.0%	56.0%	56.0%	56.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
Act Effct Green (s)	59.8	59.8	59.8	59.8	59.8	16.0	16.0	16.0	16.0
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72	0.19	0.19	0.19	0.19
v/c Ratio	0.06	0.28	0.01	0.28	0.04	0.03	0.03	0.21	0.17
Control Delay	5.7	6.4	5.2	6.5	1.8	27.8	25.2	30.7	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.7	6.4	5.2	6.5	1.8	27.8	25.2	30.7	13.3
LOS	A	A	A	A	A	C	C	C	B
Approach Delay		6.3		5.9			26.3		21.8
Approach LOS		A		A			C		C

Intersection Summary			
Cycle Length: 83.2			
Actuated Cycle Length: 83.2			
Offset: 22.5 (27%), Referenced to phase 2:EBWB and 6:, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.28			
Intersection Signal Delay: 8.4		Intersection LOS: A	
Intersection Capacity Utilization 63.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: Cataract Road/Main Street (RR 136) & Charleston Sideroad (RR 24)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	349	10	9	367	45	8	8	2	57	13	45
Future Volume (vph)	42	349	10	9	367	45	8	8	2	57	13	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.97		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	1877		1825	1883	1633	1825	1863		1825	1699	
Flt Permitted	0.53	1.00		0.54	1.00	1.00	0.72	1.00		0.75	1.00	
Satd. Flow (perm)	1021	1877		1032	1883	1633	1378	1863		1443	1699	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	44	364	10	9	382	47	8	8	2	59	14	47
RTOR Reduction (vph)	0	1	0	0	0	15	0	2	0	0	40	0
Lane Group Flow (vph)	44	373	0	9	382	32	8	8	0	59	21	0
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Actuated Green, G (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Effective Green, g (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Actuated g/C Ratio	0.69	0.69		0.69	0.69	0.69	0.15	0.15		0.15	0.15	
Clearance Time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	701	1290		709	1294	1122	212	286		222	261	
v/s Ratio Prot		0.20			c0.20			0.00			0.01	
v/s Ratio Perm	0.04			0.01		0.02	0.01			c0.04		
v/c Ratio	0.06	0.29		0.01	0.30	0.03	0.04	0.03		0.27	0.08	
Uniform Delay, d1	4.2	5.1		4.1	5.1	4.1	30.0	29.9		31.1	30.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.6		0.0	0.6	0.0	0.1	0.0		0.6	0.1	
Delay (s)	4.4	5.6		4.1	5.7	4.2	30.0	30.0		31.7	30.3	
Level of Service	A	A		A	A	A	C	C		C	C	
Approach Delay (s)		5.5			5.5			30.0			31.0	
Approach LOS		A			A			C			C	

Intersection Summary					
HCM 2000 Control Delay	9.0	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.29				
Actuated Cycle Length (s)	83.2	Sum of lost time (s)		13.2	
Intersection Capacity Utilization	63.2%	ICU Level of Service		B	
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)	10	375	6	13	400	16	5	6	10	7	6	8
Future Volume (Veh/h)	10	375	6	13	400	16	5	6	10	7	6	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	11	399	6	14	426	17	5	6	11	7	6	9
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	443			405			890	895	402	898	890	434
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	443			405			890	895	402	898	890	434
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			98	98	98	97	98	99
cM capacity (veh/h)	1128			1165			253	276	653	250	278	626

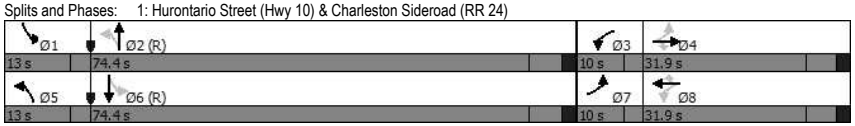
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	11	405	14	443	22	22
Volume Left	11	0	14	0	5	7
Volume Right	0	6	0	17	11	9
cSH	1128	1700	1165	1700	377	344
Volume to Capacity	0.01	0.24	0.01	0.26	0.06	0.06
Queue Length 95th (m)	0.2	0.0	0.3	0.0	1.4	1.6
Control Delay (s)	8.2	0.0	8.1	0.0	15.1	16.2
Lane LOS	A		A		C	C
Approach Delay (s)	0.2		0.2		15.1	16.2
Approach LOS					C	C

Intersection Summary					
Average Delay	1.0				
Intersection Capacity Utilization	32.0%	ICU Level of Service		A	
Analysis Period (min)	15				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	64	166	250	124	194	31	172	948	59	1653
Future Volume (vph)	64	166	250	124	194	31	172	948	59	1653
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	7.0	20.0
Minimum Split (s)	10.0	17.9	17.9	10.0	17.9	17.9	10.0	44.4	10.0	44.4
Total Split (s)	10.0	31.9	31.9	10.0	31.9	31.9	13.0	74.4	13.0	74.4
Total Split (%)	7.7%	24.7%	24.7%	7.7%	24.7%	24.7%	10.1%	57.5%	10.1%	57.5%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	5.0	3.0	5.0
All-Red Time (s)	0.0	2.4	2.4	0.0	2.4	2.4	0.0	2.4	0.0	2.4
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	1.0	4.9	4.9	1.0	4.9	4.9	1.0	5.4	1.0	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	34.8	21.9	21.9	35.0	23.9	23.9	91.5	78.5	83.9	69.8
Actuated g/C Ratio	0.27	0.17	0.17	0.27	0.18	0.18	0.71	0.61	0.65	0.54
v/c Ratio	0.26	0.66	0.70	0.46	0.65	0.10	0.81	0.58	0.20	0.95
Control Delay	36.2	61.6	27.2	41.0	59.2	0.6	59.8	18.2	8.4	39.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.2	61.6	27.2	41.0	59.2	0.6	59.8	18.2	8.4	39.6
LOS	D	E	C	D	E	A	E	B	A	D
Approach Delay		40.3			47.5			24.1		38.6
Approach LOS		D			D			C		D

Intersection Summary			
Cycle Length: 129.3			
Actuated Cycle Length: 129.3			
Offset: 85 (66%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 85			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 35.0		Intersection LOS: D	
Intersection Capacity Utilization 88.6%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Hurontario Street (Hwy 10) & Charleston Sideroad (RR 24)



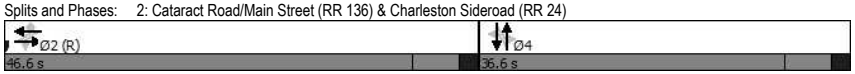
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	166	250	124	194	31	172	948	92	59	1653	64
Future Volume (vph)	64	166	250	124	194	31	172	948	92	59	1653	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	4.9	4.9	1.0	4.9	4.9	1.0	5.4		1.0	5.4	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1644	1575	1361	1772	1700	1372	1393	3095		1472	3539	
Flt Permitted	0.43	1.00	1.00	0.44	1.00	1.00	0.06	1.00		0.22	1.00	
Satd. Flow (perm)	743	1575	1361	816	1700	1372	84	3095		340	3539	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	67	175	263	131	204	33	181	998	97	62	1740	67
RTOR Reduction (vph)	0	0	145	0	0	27	0	5	0	0	2	0
Lane Group Flow (vph)	67	175	118	131	204	6	181	1090	0	62	1805	0
Heavy Vehicles (%)	11%	22%	20%	3%	13%	19%	31%	16%	20%	24%	2%	17%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	26.1	20.5	20.5	28.9	21.9	21.9	84.5	75.3		73.4	67.2	
Effective Green, g (s)	30.1	22.5	22.5	32.5	23.9	23.9	86.5	77.3		77.4	69.2	
Actuated g/C Ratio	0.23	0.17	0.17	0.25	0.18	0.18	0.67	0.60		0.60	0.54	
Clearance Time (s)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4		3.0	7.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4		3.0	4.4	
Lane Grp Cap (vph)	225	274	236	271	314	253	221	1850		275	1894	
v/s Ratio Prot	0.02	0.11		c0.03	c0.12		c0.10	0.35		0.01	c0.51	
v/s Ratio Perm	0.05		0.09	0.09		0.00	0.45			0.12		
v/c Ratio	0.30	0.64	0.50	0.48	0.65	0.02	0.82	0.59		0.23	0.95	
Uniform Delay, d1	39.9	49.6	48.3	39.4	48.8	43.2	41.5	16.1		11.4	28.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	4.8	1.7	1.4	4.6	0.0	20.5	1.4		0.4	12.2	
Delay (s)	40.6	54.4	50.0	40.7	53.4	43.2	62.0	17.5		11.8	40.7	
Level of Service	D	D	D	D	D	D	E	B		B	D	
Approach Delay (s)		50.3			48.0			23.8			39.7	
Approach LOS		D			D			C			D	

Intersection Summary					
HCM 2000 Control Delay	36.8	HCM 2000 Level of Service		D	
HCM 2000 Volume to Capacity ratio	0.83				
Actuated Cycle Length (s)	129.3	Sum of lost time (s)		12.3	
Intersection Capacity Utilization	88.6%	ICU Level of Service		E	
Analysis Period (min)	15				
c Critical Lane Group					

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	39	396	6	367	43	6	7	52	10
Future Volume (vph)	39	396	6	367	43	6	7	52	10
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		2		2			4		4
Permitted Phases	2		2		2	4		4	
Detector Phase	2	2	2	2	2	4	4	4	4
Switch Phase									
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	16.0	16.0	16.0	16.0
Minimum Split (s)	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6
Total Split (s)	46.6	46.6	46.6	46.6	46.6	36.6	36.6	36.6	36.6
Total Split (%)	56.0%	56.0%	56.0%	56.0%	56.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
Act Effct Green (s)	59.8	59.8	59.8	59.8	59.8	16.0	16.0	16.0	16.0
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72	0.19	0.19	0.19	0.19
v/c Ratio	0.06	0.36	0.01	0.35	0.04	0.02	0.05	0.20	0.16
Control Delay	5.6	7.3	5.3	7.3	1.7	27.7	18.7	30.4	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.6	7.3	5.3	7.3	1.7	27.7	18.7	30.4	12.6
LOS	A	A	A	A	A	C	B	C	B
Approach Delay		7.1		6.7			20.9		21.4
Approach LOS		A		A			C		C

Intersection Summary			
Cycle Length: 83.2			
Actuated Cycle Length: 83.2			
Offset: 22.5 (27%), Referenced to phase 2:EBWB and 6:, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.36			
Intersection Signal Delay: 8.8		Intersection LOS: A	
Intersection Capacity Utilization 63.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: Cataract Road/Main Street (RR 136) & Charleston Sideroad (RR 24)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	396	6	6	367	43	6	7	11	52	10	45
Future Volume (vph)	39	396	6	6	367	43	6	7	11	52	10	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.91		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1772	1615		1825	1513	1633	1825	1745		1825	1631	
Flt Permitted	0.53	1.00		0.51	1.00	1.00	0.72	1.00		0.75	1.00	
Satd. Flow (perm)	997	1615		978	1513	1633	1384	1745		1433	1631	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	40	408	6	6	378	44	6	7	11	54	10	46
RTOR Reduction (vph)	0	0	0	0	0	14	0	9	0	0	39	0
Lane Group Flow (vph)	40	414	0	6	378	30	6	9	0	54	17	0
Heavy Vehicles (%)	3%	19%	0%	0%	27%	0%	0%	0%	0%	0%	0%	4%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Actuated Green, G (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Effective Green, g (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Actuated g/C Ratio	0.69	0.69		0.69	0.69	0.69	0.15	0.15		0.15	0.15	
Clearance Time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	685	1110		672	1040	1122	212	268		220	250	
v/s Ratio Prot		c0.26			0.25			0.00			0.01	
v/s Ratio Perm	0.04			0.01		0.02	0.00			c0.04		
v/c Ratio	0.06	0.37		0.01	0.36	0.03	0.03	0.03		0.25	0.07	
Uniform Delay, d1	4.2	5.5		4.1	5.4	4.1	29.9	29.9		31.0	30.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	1.0		0.0	1.0	0.0	0.1	0.0		0.6	0.1	
Delay (s)	4.4	6.4		4.1	6.4	4.2	30.0	30.0		31.5	30.2	
Level of Service	A	A		A	A	A	C	C		C	C	
Approach Delay (s)		6.2			6.1			30.0			30.9	
Approach LOS		A			A			C			C	

Intersection Summary					
HCM 2000 Control Delay	9.4	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.35				
Actuated Cycle Length (s)	83.2	Sum of lost time (s)		13.2	
Intersection Capacity Utilization	63.2%	ICU Level of Service		B	
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)	16	379	2	34	333	15	2	6	14	15	10	11
Future Volume (Veh/h)	16	379	2	34	333	15	2	6	14	15	10	11
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	17	399	2	36	351	16	2	6	15	16	11	12
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	367			401			874	873	400	882	866	359
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	367			401			874	873	400	882	866	359
tC, single (s)	4.1			4.8			7.1	6.5	6.8	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.9			3.5	4.0	3.8	3.5	4.0	3.3
p0 queue free %	99			96			99	98	97	94	96	98
cM capacity (veh/h)	1203			856			248	275	546	246	277	690

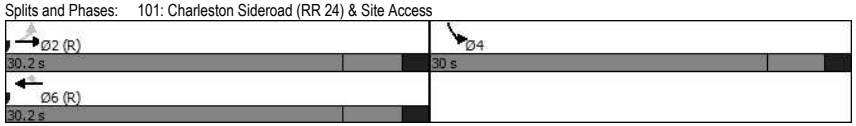
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	17	401	36	367	23	39
Volume Left	17	0	36	0	2	16
Volume Right	0	2	0	16	15	12
cSH	1203	1700	856	1700	401	320
Volume to Capacity	0.01	0.24	0.04	0.22	0.06	0.12
Queue Length 95th (m)	0.3	0.0	1.0	0.0	1.4	3.1
Control Delay (s)	8.0	0.0	9.4	0.0	14.5	17.8
Lane LOS	A		A		B	C
Approach Delay (s)	0.3		0.8		14.5	17.8
Approach LOS					B	C

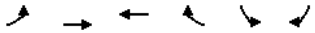
Intersection Summary					
Average Delay		1.7			
Intersection Capacity Utilization		39.4%	ICU Level of Service		A
Analysis Period (min)		15			

Lane Group	EBL	EBT	WBT	WBR	SBL
Lane Configurations					
Traffic Volume (vph)	5	404	380	40	53
Future Volume (vph)	5	404	380	40	53
Turn Type	Perm	NA	NA	Perm	Prot
Protected Phases		2	6		4
Permitted Phases	2			6	
Detector Phase	2	2	6	6	4
Switch Phase					
Minimum Initial (s)	12.0	12.0	12.0	12.0	1.0
Minimum Split (s)	30.2	30.2	30.2	30.2	30.0
Total Split (s)	30.2	30.2	30.2	30.2	30.0
Total Split (%)	50.2%	50.2%	50.2%	50.2%	49.8%
Yellow Time (s)	4.2	4.2	4.2	4.2	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max
Act Effct Green (s)	24.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40
v/c Ratio	0.02	0.58	0.61	0.10	0.14
Control Delay	11.2	18.3	19.6	5.1	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.2	18.3	19.6	5.1	11.7
LOS	B	B	B	A	B
Approach Delay		18.2	18.2		11.7
Approach LOS		B	B		B

Intersection Summary		
Cycle Length: 60.2		
Actuated Cycle Length: 60.2		
Offset: 37 (61%), Referenced to phase 2:EBTL and 6:WBT, Start of Green		
Natural Cycle: 65		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.61		
Intersection Signal Delay: 17.7	Intersection LOS: B	
Intersection Capacity Utilization 34.8%	ICU Level of Service A	
Analysis Period (min) 15		

Splits and Phases: 101: Charleston Sideroad (RR 24) & Site Access





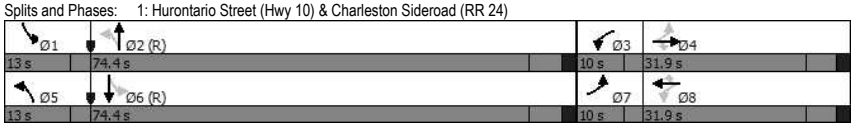
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	5	404	380	40	53	7
Future Volume (vph)	5	404	380	40	53	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2	6.2	6.2	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	0.98	
Flt Protected	0.95	1.00	1.00	1.00	0.96	
Satd. Flow (prot)	1521	1746	1562	944	1035	
Flt Permitted	0.46	1.00	1.00	1.00	0.96	
Satd. Flow (perm)	734	1746	1562	944	1035	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	5	404	380	40	53	7
RTOR Reduction (vph)	0	0	0	24	4	0
Lane Group Flow (vph)	5	404	380	16	56	0
Heavy Vehicles (%)	20%	10%	23%	73%	81%	29%
Turn Type	Perm	NA	NA	Perm	Prot	
Protected Phases		2	6		4	
Permitted Phases	2			6		
Actuated Green, G (s)	24.0	24.0	24.0	24.0	24.0	
Effective Green, g (s)	24.0	24.0	24.0	24.0	24.0	
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	
Clearance Time (s)	6.2	6.2	6.2	6.2	6.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	
Lane Grp Cap (vph)	292	696	622	376	412	
v/s Ratio Prot		0.23	c0.24		c0.05	
v/s Ratio Perm	0.01			0.02		
v/c Ratio	0.02	0.58	0.61	0.04	0.14	
Uniform Delay, d1	11.0	14.2	14.4	11.1	11.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	3.5	4.4	0.2	0.7	
Delay (s)	11.1	17.7	18.8	11.3	12.2	
Level of Service	B	B	B	B	B	
Approach Delay (s)		17.6	18.1		12.2	
Approach LOS		B	B		B	

Intersection Summary				
HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.37			
Actuated Cycle Length (s)	60.2	Sum of lost time (s)	12.2	
Intersection Capacity Utilization	34.8%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	92	266	191	113	282	84	224	1670	52	1032
Future Volume (vph)	92	266	191	113	282	84	224	1670	52	1032
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	7.0	20.0
Minimum Split (s)	10.0	17.9	17.9	10.0	17.9	17.9	10.0	44.4	10.0	44.4
Total Split (s)	10.0	31.9	31.9	10.0	31.9	31.9	13.0	74.4	13.0	74.4
Total Split (%)	7.7%	24.7%	24.7%	7.7%	24.7%	24.7%	10.1%	57.5%	10.1%	57.5%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	5.0	3.0	5.0
All-Red Time (s)	0.0	2.4	2.4	0.0	2.4	2.4	0.0	2.4	0.0	2.4
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	1.0	4.9	4.9	1.0	4.9	4.9	1.0	5.4	1.0	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	38.6	25.7	25.7	38.6	25.7	25.7	87.7	74.7	84.1	70.2
Actuated g/C Ratio	0.30	0.20	0.20	0.30	0.20	0.20	0.68	0.58	0.65	0.54
v/c Ratio	0.45	0.84	0.47	0.54	0.85	0.23	0.78	0.94	0.31	0.64
Control Delay	39.4	71.4	9.4	43.1	72.0	9.9	30.2	36.5	14.2	22.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.4	71.4	9.4	43.1	72.0	9.9	30.2	36.5	14.2	22.9
LOS	D	E	A	D	E	A	C	D	B	C
Approach Delay		44.5			54.4			35.8		22.5
Approach LOS		D			D			D		C

Intersection Summary		
Cycle Length: 129.3		
Actuated Cycle Length: 129.3		
Offset: 85 (66%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green		
Natural Cycle: 105		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.94		
Intersection Signal Delay: 35.4	Intersection LOS: D	
Intersection Capacity Utilization 95.7%	ICU Level of Service F	
Analysis Period (min) 15		

Splits and Phases: 1: Hurontario Street (Hwy 10) & Charleston Sideroad (RR 24)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	266	191	113	282	84	224	1670	152	52	1032	68
Future Volume (vph)	92	266	191	113	282	84	224	1670	152	52	1032	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	4.9	4.9	1.0	4.9	4.9	1.0	5.4		1.0	5.4	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	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	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1737	1685	1359	1658	1762	1544	1601	3525		1615	3311	
Flt Permitted	0.23	1.00	1.00	0.26	1.00	1.00	0.16	1.00		0.06	1.00	
Satd. Flow (perm)	417	1685	1359	460	1762	1544	263	3525		97	3311	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	97	280	201	119	297	88	236	1758	160	55	1086	72
RTOR Reduction (vph)	0	0	161	0	0	71	0	5	0	0	4	0
Lane Group Flow (vph)	97	280	40	119	297	17	236	1913	0	55	1154	0
Confl. Peds. (#/hr)	5		6	6		5	7		5	5		7
Heavy Vehicles (%)	5%	14%	18%	10%	9%	4%	14%	2%	2%	13%	9%	9%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	30.7	23.7	23.7	30.7	23.7	23.7	81.3	72.1		74.4	68.2	
Effective Green, g (s)	34.7	25.7	25.7	34.7	25.7	25.7	83.3	74.1		78.4	70.2	
Actuated g/C Ratio	0.27	0.20	0.20	0.27	0.20	0.20	0.64	0.57		0.61	0.54	
Clearance Time (s)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4		3.0	7.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4		3.0	4.4	
Lane Grp Cap (vph)	203	334	270	206	350	306	294	2020		155	1797	
v/s Ratio Prot	0.03	0.17		c0.04	c0.17		c0.07	c0.54		0.02	0.35	
v/s Ratio Perm	0.09		0.03	0.11		0.01	0.44			0.19		
v/c Ratio	0.48	0.84	0.15	0.58	0.85	0.06	0.80	0.95		0.35	0.64	
Uniform Delay, d1	37.7	49.8	42.8	38.2	49.9	42.0	15.6	25.8		26.0	20.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.8	16.6	0.3	3.9	17.1	0.1	14.6	10.9		1.4	1.8	
Delay (s)	39.5	66.4	43.0	42.1	67.1	42.1	30.2	36.7		27.4	22.5	
Level of Service	D	E	D	D	E	D	C	D		C	C	
Approach Delay (s)		53.7			56.8			36.0			22.7	
Approach LOS		D			E			D			C	

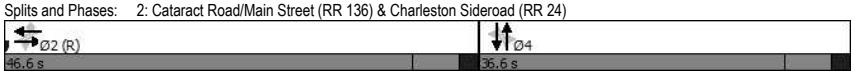
Intersection Summary				
HCM 2000 Control Delay	37.0	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.88			
Actuated Cycle Length (s)	129.3	Sum of lost time (s)	12.3	
Intersection Capacity Utilization	95.7%	ICU Level of Service	F	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	74	487	4	462	85	12	12	62	18
Future Volume (vph)	74	487	4	462	85	12	12	62	18
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		2		2			4		4
Permitted Phases	2		2		2	4		4	
Detector Phase	2	2	2	2	2	4	4	4	4
Switch Phase									
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	16.0	16.0	16.0	16.0
Minimum Split (s)	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6
Total Split (s)	46.6	46.6	46.6	46.6	46.6	36.6	36.6	36.6	36.6
Total Split (%)	56.0%	56.0%	56.0%	56.0%	56.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
Act Effct Green (s)	59.8	59.8	59.8	59.8	59.8	16.0	16.0	16.0	16.0
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72	0.19	0.19	0.19	0.19
v/c Ratio	0.12	0.43	0.01	0.40	0.08	0.05	0.06	0.23	0.21
Control Delay	6.2	8.1	5.2	7.7	1.5	28.2	20.9	31.1	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.2	8.1	5.2	7.7	1.5	28.2	20.9	31.1	13.1
LOS	A	A	A	A	A	C	C	C	B
Approach Delay		7.9		6.7			23.5		21.1
Approach LOS		A		A			C		C

Intersection Summary			
Cycle Length: 83.2			
Actuated Cycle Length: 83.2			
Offset: 22.5 (27%), Referenced to phase 2:EBWB and 6:, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.43			
Intersection Signal Delay: 9.2		Intersection LOS: A	
Intersection Capacity Utilization 72.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Cataract Road/Main Street (RR 136) & Charleston Sideroad (RR 24)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	487	11	4	462	85	12	12	9	62	18	58
Future Volume (vph)	74	487	11	4	462	85	12	12	9	62	18	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.94		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	1642		1825	1656	1555	1690	1798		1825	1664	
Flt Permitted	0.47	1.00		0.44	1.00	1.00	0.71	1.00		0.74	1.00	
Satd. Flow (perm)	898	1642		851	1656	1555	1255	1798		1429	1664	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	76	502	11	4	476	88	12	12	9	64	19	60
RTOR Reduction (vph)	0	1	0	0	0	27	0	8	0	0	51	0
Lane Group Flow (vph)	76	512	0	4	476	61	12	13	0	64	28	0
Heavy Vehicles (%)	0%	17%	0%	0%	16%	5%	8%	0%	0%	0%	0%	3%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Actuated Green, G (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Effective Green, g (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Actuated g/C Ratio	0.69	0.69		0.69	0.69	0.69	0.15	0.15		0.15	0.15	
Clearance Time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	617	1128		585	1138	1069	193	276		219	256	
v/s Ratio Prot		c0.31			0.29			0.01			0.02	
v/s Ratio Perm	0.08			0.00		0.04	0.01			c0.04		
v/c Ratio	0.12	0.45		0.01	0.42	0.06	0.06	0.05		0.29	0.11	
Uniform Delay, d1	4.4	5.9		4.1	5.7	4.2	30.1	30.0		31.2	30.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	1.3		0.0	1.1	0.1	0.1	0.1		0.7	0.2	
Delay (s)	4.8	7.2		4.1	6.8	4.3	30.2	30.1		31.9	30.5	
Level of Service	A	A		A	A	A	C	C		C	C	
Approach Delay (s)		6.9			6.4			30.1			31.1	
Approach LOS		A			A			C			C	

Intersection Summary					
HCM 2000 Control Delay	9.9	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.42				
Actuated Cycle Length (s)	83.2	Sum of lost time (s)		13.2	
Intersection Capacity Utilization	72.8%	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)	14	479	8	14	477	12	3	17	26	21	5	14
Future Volume (Veh/h)	14	479	8	14	477	12	3	17	26	21	5	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	15	504	8	15	502	13	3	18	27	22	5	15
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	515			512			1088	1083	508	1108	1080	508
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	515			512			1088	1083	508	1108	1080	508
tC, single (s)	4.2			4.2			7.1	6.5	6.3	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.5	4.0	3.4	3.5	4.0	3.4
p0 queue free %	99			98			98	92	95	87	98	97
cM capacity (veh/h)	1026			995			182	213	545	164	213	541

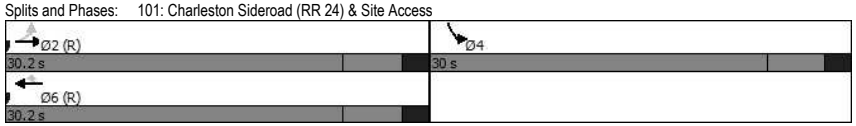
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	15	512	15	515	48	42
Volume Left	15	0	15	0	3	22
Volume Right	0	8	0	13	27	15
cSH	1026	1700	995	1700	319	227
Volume to Capacity	0.01	0.30	0.02	0.30	0.15	0.19
Queue Length 95th (m)	0.3	0.0	0.3	0.0	4.0	5.0
Control Delay (s)	8.6	0.0	8.7	0.0	18.3	24.5
Lane LOS	A		A		C	C
Approach Delay (s)	0.2		0.2		18.3	24.5
Approach LOS					C	C

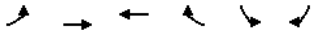
Intersection Summary					
Average Delay	1.9				
Intersection Capacity Utilization	41.4%	ICU Level of Service		A	
Analysis Period (min)	15				

Lane Group	EBL	EBT	WBT	WBR	SBL
Lane Configurations					
Traffic Volume (vph)	10	518	490	45	58
Future Volume (vph)	10	518	490	45	58
Turn Type	Perm	NA	NA	Perm	Prot
Protected Phases		2	6		4
Permitted Phases	2			6	
Detector Phase	2	2	6	6	4
Switch Phase					
Minimum Initial (s)	12.0	12.0	5.0	5.0	12.0
Minimum Split (s)	30.2	30.2	30.2	30.2	30.0
Total Split (s)	30.2	30.2	30.2	30.2	30.0
Total Split (%)	50.2%	50.2%	50.2%	50.2%	49.8%
Yellow Time (s)	4.2	4.2	4.2	4.2	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max
Act Effct Green (s)	24.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40
v/c Ratio	0.04	0.73	0.69	0.11	0.14
Control Delay	11.8	23.1	21.2	4.9	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.8	23.1	21.2	4.9	11.6
LOS	B	C	C	A	B
Approach Delay		22.9	19.9		11.6
Approach LOS		C	B		B

Intersection Summary			
Cycle Length: 60.2			
Actuated Cycle Length: 60.2			
Offset: 34 (56%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 20.7		Intersection LOS: C	
Intersection Capacity Utilization 47.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 101: Charleston Sideroad (RR 24) & Site Access





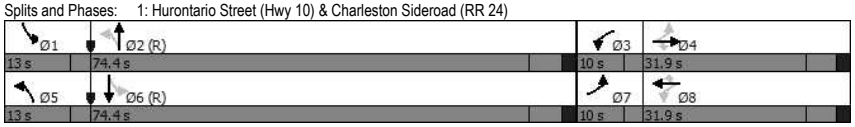
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	518	490	45	58	7
Future Volume (vph)	10	518	490	45	58	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2	6.2	6.2	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	0.99	
Flt Protected	0.95	1.00	1.00	1.00	0.96	
Satd. Flow (prot)	1659	1779	1779	996	1239	
Flt Permitted	0.34	1.00	1.00	1.00	0.96	
Satd. Flow (perm)	588	1779	1779	996	1239	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	0.92	1.00
Adj. Flow (vph)	10	518	490	45	63	7
RTOR Reduction (vph)	0	0	0	27	4	0
Lane Group Flow (vph)	10	518	490	18	66	0
Heavy Vehicles (%)	10%	8%	8%	64%	50%	14%
Turn Type	Perm	NA	NA	Perm	Prot	
Protected Phases		2	6		4	
Permitted Phases	2			6		
Actuated Green, G (s)	24.0	24.0	24.0	24.0	24.0	
Effective Green, g (s)	24.0	24.0	24.0	24.0	24.0	
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	
Clearance Time (s)	6.2	6.2	6.2	6.2	6.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	
Lane Grp Cap (vph)	234	709	709	397	493	
v/s Ratio Prot		c0.29	0.28		c0.05	
v/s Ratio Perm	0.02			0.02		
v/c Ratio	0.04	0.73	0.69	0.05	0.13	
Uniform Delay, d1	11.1	15.4	15.0	11.1	11.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	6.5	5.5	0.2	0.6	
Delay (s)	11.4	21.9	20.5	11.3	12.1	
Level of Service	B	C	C	B	B	
Approach Delay (s)		21.7	19.7		12.1	
Approach LOS		C	B		B	

Intersection Summary				
HCM 2000 Control Delay	20.2	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.43			
Actuated Cycle Length (s)	60.2	Sum of lost time (s)	12.2	
Intersection Capacity Utilization	47.4%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	113	235	135	146	237	34	212	1346	60	1100
Future Volume (vph)	113	235	135	146	237	34	212	1346	60	1100
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	7.0	20.0
Minimum Split (s)	10.0	17.9	17.9	10.0	17.9	17.9	10.0	44.4	10.0	44.4
Total Split (s)	10.0	31.9	31.9	10.0	31.9	31.9	13.0	74.4	13.0	74.4
Total Split (%)	7.7%	24.7%	24.7%	7.7%	24.7%	24.7%	10.1%	57.5%	10.1%	57.5%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	3.0	5.0	3.0	5.0
All-Red Time (s)	0.0	2.4	2.4	0.0	2.4	2.4	0.0	2.4	0.0	2.4
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	1.0	4.9	4.9	1.0	4.9	4.9	1.0	5.4	1.0	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	37.0	24.1	24.1	37.0	24.1	24.1	89.1	76.1	85.6	71.5
Actuated g/C Ratio	0.29	0.19	0.19	0.29	0.19	0.19	0.69	0.59	0.66	0.55
v/c Ratio	0.49	0.78	0.40	0.65	0.75	0.10	0.77	0.75	0.31	0.67
Control Delay	41.1	67.4	10.2	49.5	64.4	0.5	31.1	23.6	11.1	23.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.1	67.4	10.2	49.5	64.4	0.5	31.1	23.6	11.1	23.2
LOS	D	E	B	D	E	A	C	C	B	C
Approach Delay		45.2			54.1			24.5		22.6
Approach LOS		D			D			C		C

Intersection Summary			
Cycle Length: 129.3			
Actuated Cycle Length: 129.3			
Offset: 85 (66%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 85			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 29.7		Intersection LOS: C	
Intersection Capacity Utilization 85.7%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Hurontario Street (Hwy 10) & Charleston Sideroad (RR 24)



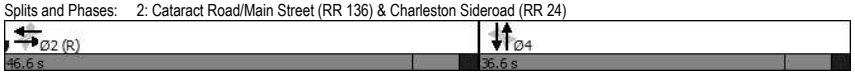
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	235	135	146	237	34	212	1346	140	60	1100	78
Future Volume (vph)	113	235	135	146	237	34	212	1346	140	60	1100	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	4.9	4.9	1.0	4.9	4.9	1.0	5.4		1.0	5.4	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	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	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1737	1685	1294	1658	1762	1557	1573	3519		1615	3310	
Flt Permitted	0.31	1.00	1.00	0.31	1.00	1.00	0.14	1.00		0.08	1.00	
Satd. Flow (perm)	564	1685	1294	546	1762	1557	233	3519		143	3310	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	118	245	141	152	247	35	221	1402	146	62	1146	81
RTOR Reduction (vph)	0	0	115	0	0	28	0	5	0	0	4	0
Lane Group Flow (vph)	118	245	26	152	247	7	221	1543	0	63	1223	0
Confl. Peds. (#/hr)	5		4	4		5	2		3	3		2
Confl. Bikes (#/hr)			1			1			1			1
Heavy Vehicles (%)	5%	14%	24%	10%	9%	3%	16%	2%	2%	13%	9%	9%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	29.1	22.1	22.1	29.1	22.1	22.1	82.9	73.5		75.9	69.5	
Effective Green, g (s)	33.1	24.1	24.1	33.1	24.1	24.1	84.9	75.5		79.9	71.5	
Actuated g/C Ratio	0.26	0.19	0.19	0.26	0.19	0.19	0.66	0.58		0.62	0.55	
Clearance Time (s)	3.0	6.9	6.9	3.0	6.9	6.9	3.0	7.4		3.0	7.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4		3.0	4.4	
Lane Grp Cap (vph)	226	314	241	217	328	290	281	2054		183	1830	
v/s Ratio Prot	0.04	c0.15		c0.05	0.14		c0.08	c0.44		0.02	0.37	
v/s Ratio Perm	0.10		0.02	0.13		0.00	0.44			0.19		
v/c Ratio	0.52	0.78	0.11	0.70	0.75	0.02	0.79	0.75		0.34	0.67	
Uniform Delay, d1	39.0	50.1	43.7	40.8	49.8	43.0	16.1	19.9		16.0	20.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.2	11.9	0.2	9.8	9.4	0.0	13.5	2.6		1.1	2.0	
Delay (s)	41.2	61.9	43.9	50.5	59.2	43.0	29.6	22.5		17.1	22.4	
Level of Service	D	E	D	D	E	D	C	C		B	C	
Approach Delay (s)		52.0			54.9			23.4			22.2	
Approach LOS		D			D			C			C	

Intersection Summary					
HCM 2000 Control Delay	30.0	HCM 2000 Level of Service		C	
HCM 2000 Volume to Capacity ratio	0.75				
Actuated Cycle Length (s)	129.3	Sum of lost time (s)		12.3	
Intersection Capacity Utilization	85.7%	ICU Level of Service		E	
Analysis Period (min)	15				
c Critical Lane Group					

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	42	378	9	396	45	8	8	57	13
Future Volume (vph)	42	378	9	396	45	8	8	57	13
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		2		2			4		4
Permitted Phases	2		2		2	4		4	
Detector Phase	2	2	2	2	2	4	4	4	4
Switch Phase									
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	16.0	16.0	16.0	16.0
Minimum Split (s)	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6
Total Split (s)	46.6	46.6	46.6	46.6	46.6	36.6	36.6	36.6	36.6
Total Split (%)	56.0%	56.0%	56.0%	56.0%	56.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None
Act Effct Green (s)	59.8	59.8	59.8	59.8	59.8	16.0	16.0	16.0	16.0
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72	0.19	0.19	0.19	0.19
v/c Ratio	0.06	0.35	0.01	0.35	0.04	0.03	0.03	0.21	0.17
Control Delay	5.7	7.2	5.2	7.2	1.8	28.0	25.2	30.7	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.7	7.2	5.2	7.2	1.8	28.0	25.2	30.7	13.3
LOS	A	A	A	A	A	C	C	C	B
Approach Delay		7.1		6.6			26.4		21.9
Approach LOS		A		A			C		C

Intersection Summary			
Cycle Length: 83.2			
Actuated Cycle Length: 83.2			
Offset: 22.5 (27%), Referenced to phase 2:EBWB and 6:, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.35			
Intersection Signal Delay: 8.9		Intersection LOS: A	
Intersection Capacity Utilization 63.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: Cataract Road/Main Street (RR 136) & Charleston Sideroad (RR 24)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	378	10	9	396	45	8	8	2	57	13	45
Future Volume (vph)	42	378	10	9	396	45	8	8	2	57	13	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.97		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	1602		1825	1642	1570	1615	1863		1825	1648	
Flt Permitted	0.51	1.00		0.52	1.00	1.00	0.72	1.00		0.75	1.00	
Satd. Flow (perm)	979	1602		991	1642	1570	1219	1863		1443	1648	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	44	394	10	9	412	47	8	8	2	59	14	47
RTOR Reduction (vph)	0	1	0	0	0	15	0	2	0	0	40	0
Lane Group Flow (vph)	44	403	0	9	413	32	8	8	0	59	21	0
Heavy Vehicles (%)	0%	20%	0%	0%	17%	4%	13%	0%	0%	0%	0%	4%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Actuated Green, G (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Effective Green, g (s)	57.2	57.2		57.2	57.2	57.2	12.8	12.8		12.8	12.8	
Actuated g/C Ratio	0.69	0.69		0.69	0.69	0.69	0.15	0.15		0.15	0.15	
Clearance Time (s)	6.6	6.6		6.6	6.6	6.6	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	673	1101		681	1128	1079	187	286		222	253	
v/s Ratio Prot		c0.25			0.25			0.00			0.01	
v/s Ratio Perm	0.04			0.01		0.02	0.01			c0.04		
v/c Ratio	0.07	0.37		0.01	0.37	0.03	0.04	0.03		0.27	0.08	
Uniform Delay, d1	4.3	5.4		4.1	5.4	4.1	30.0	29.9		31.1	30.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.9		0.0	0.9	0.1	0.1	0.0		0.6	0.1	
Delay (s)	4.4	6.4		4.1	6.3	4.2	30.1	30.0		31.7	30.3	
Level of Service	A	A		A	A	A	C	C		C	C	
Approach Delay (s)		6.2			6.1			30.0			31.0	
Approach LOS		A			A			C			C	

Intersection Summary					
HCM 2000 Control Delay	9.4	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.35				
Actuated Cycle Length (s)	83.2	Sum of lost time (s)		13.2	
Intersection Capacity Utilization	63.2%	ICU Level of Service		B	
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)	10	376	6	13	401	16	5	6	10	7	6	8
Future Volume (Veh/h)	10	376	6	13	401	16	5	6	10	7	6	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	11	400	6	14	427	17	5	6	11	7	6	9
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	444			406			892	897	403	900	892	436
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	444			406			892	897	403	900	892	436
tC, single (s)	4.2			4.2			7.3	6.5	6.3	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.7	4.0	3.4	3.5	4.0	3.4
p0 queue free %	99			99			98	98	98	97	98	98
cM capacity (veh/h)	1075			1086			233	275	630	249	277	598

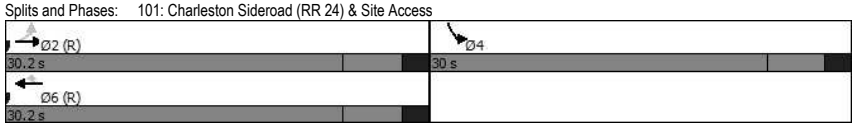
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	11	406	14	444	22	22
Volume Left	11	0	14	0	5	7
Volume Right	0	6	0	17	11	9
cSH	1075	1700	1086	1700	362	339
Volume to Capacity	0.01	0.24	0.01	0.26	0.06	0.06
Queue Length 95th (m)	0.2	0.0	0.3	0.0	1.5	1.6
Control Delay (s)	8.4	0.0	8.4	0.0	15.6	16.4
Lane LOS	A		A		C	C
Approach Delay (s)	0.2		0.3		15.6	16.4
Approach LOS					C	C

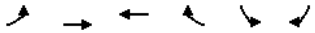
Intersection Summary				
Average Delay	1.0			
Intersection Capacity Utilization	32.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBT	WBR	SBL
Lane Configurations					
Traffic Volume (vph)	1	393	422	29	29
Future Volume (vph)	1	393	422	29	29
Turn Type	Perm	NA	NA	Perm	Prot
Protected Phases		2	6		4
Permitted Phases	2			6	
Detector Phase	2	2	6	6	4
Switch Phase					
Minimum Initial (s)	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	30.2	30.2	30.2	30.2	30.0
Total Split (s)	30.2	30.2	30.2	30.2	30.0
Total Split (%)	50.2%	50.2%	50.2%	50.2%	49.8%
Yellow Time (s)	4.2	4.2	4.2	4.2	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max
Act Effct Green (s)	24.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40
v/c Ratio	0.01	0.55	0.60	0.08	0.08
Control Delay	11.0	17.7	18.6	5.6	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	17.7	18.6	5.6	11.8
LOS	B	B	B	A	B
Approach Delay		17.7	17.7		11.8
Approach LOS		B	B		B

Intersection Summary			
Cycle Length: 60.2			
Actuated Cycle Length: 60.2			
Offset: 33 (55%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay: 17.5		Intersection LOS: B	
Intersection Capacity Utilization 42.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 101: Charleston Sideroad (RR 24) & Site Access





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1	393	422	29	29	1
Future Volume (vph)	1	393	422	29	29	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2	6.2	6.2	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	1.00	
Flt Protected	0.95	1.00	1.00	1.00	0.95	
Satd. Flow (prot)	913	1779	1779	816	912	
Flt Permitted	0.41	1.00	1.00	1.00	0.95	
Satd. Flow (perm)	395	1779	1779	816	912	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	0.92
Adj. Flow (vph)	1	393	422	29	29	1
RTOR Reduction (vph)	0	0	0	17	1	0
Lane Group Flow (vph)	1	393	422	12	29	0
Heavy Vehicles (%)	100%	8%	8%	100%	100%	100%
Turn Type	Perm	NA	NA	Perm	Prot	
Protected Phases		2	6		4	
Permitted Phases	2			6		
Actuated Green, G (s)	24.0	24.0	24.0	24.0	24.0	
Effective Green, g (s)	24.0	24.0	24.0	24.0	24.0	
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	
Clearance Time (s)	6.2	6.2	6.2	6.2	6.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	
Lane Grp Cap (vph)	157	709	709	325	363	
v/s Ratio Prot		0.22	c0.24		c0.03	
v/s Ratio Perm	0.00			0.01		
v/c Ratio	0.01	0.55	0.60	0.04	0.08	
Uniform Delay, d1	10.9	14.0	14.3	11.0	11.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	3.1	3.7	0.2	0.4	
Delay (s)	11.0	17.1	17.9	11.2	11.7	
Level of Service	B	B	B	B	B	
Approach Delay (s)		17.1	17.5		11.7	
Approach LOS		B	B		B	

Intersection Summary				
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	60.2	Sum of lost time (s)	12.2
Intersection Capacity Utilization	42.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

APPENDIX J

SimTraffic Queueing Analysis Reports

Intersection: 1: Hurontario Street (Hwy 10) & Charleston Sideroad (RR 24)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	TR	L	T	TR
Maximum Queue (m)	49.8	96.0	81.5	60.6	84.3	22.0	67.8	88.7	100.9	59.8	144.3	146.5
Average Queue (m)	12.8	43.3	34.7	28.1	42.0	6.2	29.3	45.2	54.6	19.1	93.7	94.9
95th Queue (m)	31.6	80.4	65.9	51.9	74.6	16.9	58.1	77.3	90.4	52.6	136.5	136.2
Link Distance (m)		1355.9			586.1			774.3	774.3		547.3	547.3
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	80.0		65.0	80.0		60.0	130.0			60.0		
Storage Blk Time (%)	0	4	0	0	4					0	19	
Queuing Penalty (veh)	0	9	1	0	6					1	11	

Intersection: 2: Cataract Road/Main Street (RR 136) & Charleston Sideroad (RR 24)

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	TR
Maximum Queue (m)	15.5	46.8	7.2	65.8	14.5	9.1	11.2	25.3	18.1
Average Queue (m)	4.1	17.7	0.5	19.4	2.2	1.4	2.8	9.0	6.4
95th Queue (m)	12.3	39.5	3.5	50.6	9.0	6.5	9.3	20.2	14.6
Link Distance (m)		1418.7		2799.0			898.9		1191.1
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)	125.0		60.0		90.0	70.0		85.0	
Storage Blk Time (%)				0					
Queuing Penalty (veh)				0					

Intersection: 3: Mississauga Road & Charleston Sideroad (RR 24)

Movement	EB	WB	WB	NB	SB
Directions Served	L	L	TR	LTR	LTR
Maximum Queue (m)	6.8	21.8	0.7	20.4	12.6
Average Queue (m)	0.9	3.7	0.0	5.7	5.1
95th Queue (m)	4.4	14.8	0.7	16.1	11.2
Link Distance (m)			1418.7	1222.3	609.3
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)	30.0	30.0			
Storage Blk Time (%)		0			
Queuing Penalty (veh)		0			

Network Summary

Network wide Queuing Penalty: 29

Intersection: 1: Hurontario Street (Hwy 10) & Charleston Sideroad (RR 24)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	TR	L	T	TR
Maximum Queue (m)	79.9	370.2	85.0	144.9	279.8	115.0	53.2	162.7	173.8	59.8	109.3	112.2
Average Queue (m)	36.1	200.7	46.2	69.6	147.4	41.0	22.8	80.6	87.2	14.8	55.5	57.0
95th Queue (m)	83.4	410.6	102.3	144.0	330.2	117.2	41.7	152.5	161.7	39.3	105.5	105.8
Link Distance (m)		1355.9			586.1			774.3	774.3		547.3	547.3
Upstream Blk Time (%)					0							
Queuing Penalty (veh)					0							
Storage Bay Dist (m)	80.0		65.0	80.0		60.0	130.0			60.0		
Storage Blk Time (%)	0	53	0	12	53			1		0	8	
Queuing Penalty (veh)	1	120	0	43	104			3		0	4	

Intersection: 2: Cataract Road/Main Street (RR 136) & Charleston Sideroad (RR 24)

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	TR
Maximum Queue (m)	26.0	59.9	6.8	81.5	15.3	17.0	11.5	27.8	28.8
Average Queue (m)	8.6	22.4	0.5	24.2	4.0	2.9	3.3	10.4	8.7
95th Queue (m)	19.9	46.0	3.5	61.6	11.5	10.8	10.0	22.4	20.5
Link Distance (m)		1418.7		2799.0			898.9		1191.1
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)	125.0		60.0		90.0	70.0		85.0	
Storage Blk Time (%)				1					
Queuing Penalty (veh)				1					

Intersection: 3: Mississauga Road & Charleston Sideroad (RR 24)

Movement	EB	WB	WB	NB	SB
Directions Served	L	L	TR	LTR	LTR
Maximum Queue (m)	9.0	10.5	0.6	18.8	15.6
Average Queue (m)	1.0	1.0	0.0	6.5	5.7
95th Queue (m)	5.3	5.8	0.6	14.9	12.7
Link Distance (m)			1418.7	1222.3	609.3
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)	30.0	30.0			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 277

Intersection: 1: Hurontario Street (Hwy 10) & Charleston Sideroad (RR 24)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	TR	L	T	TR
Maximum Queue (m)	79.9	229.0	85.0	125.0	195.3	73.7	54.0	111.2	118.9	59.4	106.1	106.8
Average Queue (m)	42.9	98.1	28.9	76.6	90.2	8.3	22.4	57.5	64.0	12.9	52.6	54.5
95th Queue (m)	85.9	224.6	77.0	144.2	199.7	36.6	41.9	108.7	118.3	38.2	99.9	100.4
Link Distance (m)		1355.9			586.1			774.3	774.3		547.3	547.3
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	80.0		65.0	80.0		60.0	130.0			60.0		
Storage Blk Time (%)	6	22	0	33	24					0	6	
Queuing Penalty (veh)	19	49	0	86	43					0	4	

Intersection: 2: Cataract Road/Main Street (RR 136) & Charleston Sideroad (RR 24)

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	TR
Maximum Queue (m)	18.2	46.8	7.3	62.8	10.7	10.4	9.8	23.3	20.4
Average Queue (m)	4.7	16.6	0.8	17.8	2.3	1.6	1.9	9.0	5.9
95th Queue (m)	13.0	36.9	4.4	46.4	8.4	7.1	7.6	19.7	14.4
Link Distance (m)		1418.7		2799.0			898.9		1191.1
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)	125.0		60.0		90.0	70.0		85.0	
Storage Blk Time (%)				0					
Queuing Penalty (veh)				0					

Intersection: 3: Mississauga Road & Charleston Sideroad (RR 24)

Movement	EB	WB	WB	NB	SB
Directions Served	L	L	TR	LTR	LTR
Maximum Queue (m)	7.6	8.0	1.3	11.2	10.6
Average Queue (m)	0.7	0.7	0.0	3.9	3.4
95th Queue (m)	4.2	4.3	0.9	10.2	9.4
Link Distance (m)			1418.7	1222.3	609.3
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)	30.0	30.0			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 202

Intersection: 1: Hurontario Street (Hwy 10) & Charleston Sideroad (RR 24)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	TR	L	T	TR
Maximum Queue (m)	49.0	98.3	80.6	73.2	99.9	22.2	75.2	110.1	121.0	94.8	238.0	238.3
Average Queue (m)	13.4	44.4	36.9	29.0	46.5	6.8	33.0	57.5	66.2	25.0	141.4	142.7
95th Queue (m)	32.8	80.3	67.4	56.7	80.3	17.3	63.1	94.8	106.2	77.2	217.7	217.3
Link Distance (m)		1355.9			586.1			774.3	774.3		547.3	547.3
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	80.0		65.0	80.0		60.0	130.0			60.0		
Storage Blk Time (%)	0	3	1	0	6			0			32	
Queuing Penalty (veh)	0	8	2	1	9			0			19	

Intersection: 2: Cataract Road/Main Street (RR 136) & Charleston Sideroad (RR 24)

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	TR
Maximum Queue (m)	16.5	49.5	6.8	71.5	11.0	9.6	11.2	22.4	18.3
Average Queue (m)	4.3	17.7	0.7	19.3	2.0	1.4	2.9	8.4	6.2
95th Queue (m)	12.2	39.3	4.4	52.7	7.9	6.8	9.5	19.0	14.0
Link Distance (m)		1418.7		2799.0			898.9		1191.1
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)	125.0		60.0		90.0	70.0		85.0	
Storage Blk Time (%)				0					
Queuing Penalty (veh)				0					

Intersection: 3: Mississauga Road & Charleston Sideroad (RR 24)

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	L	LTR	LTR
Maximum Queue (m)	7.9	0.6	21.0	19.8	14.8
Average Queue (m)	1.1	0.0	3.9	5.4	5.3
95th Queue (m)	5.4	0.6	15.3	15.6	12.0
Link Distance (m)		662.7		1222.3	609.3
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)	30.0		30.0		
Storage Blk Time (%)			0		
Queuing Penalty (veh)			0		

Network Summary

Network wide Queuing Penalty: 39

Intersection: 1: Hurontario Street (Hwy 10) & Charleston Sideroad (RR 24)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	TR	L	T	TR
Maximum Queue (m)	82.4	366.4	90.0	99.9	392.3	105.0	159.8	272.8	273.8	81.7	131.5	132.5
Average Queue (m)	39.8	202.2	53.8	68.4	213.5	38.3	47.5	130.6	135.7	15.6	68.0	68.6
95th Queue (m)	90.1	382.9	112.3	123.7	456.0	105.5	134.5	243.9	250.4	44.9	124.8	125.6
Link Distance (m)		1355.9			586.1			774.3	774.3		547.3	547.3
Upstream Blk Time (%)					3							
Queuing Penalty (veh)					0							
Storage Bay Dist (m)	80.0		65.0	80.0		60.0	130.0			60.0		
Storage Blk Time (%)	0	57	1	16	54	0		12			12	
Queuing Penalty (veh)	1	129	3	60	106	1		21			6	

Intersection: 2: Cataract Road/Main Street (RR 136) & Charleston Sideroad (RR 24)

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	TR
Maximum Queue (m)	24.2	68.9	5.2	81.6	17.8	15.8	12.2	27.1	21.7
Average Queue (m)	8.8	25.6	0.3	23.8	4.6	2.6	3.4	11.1	8.2
95th Queue (m)	18.9	53.0	2.5	58.9	13.8	10.1	10.5	22.2	17.5
Link Distance (m)		1418.7		2799.0			898.9		1191.1
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)	125.0		60.0		90.0	70.0		85.0	
Storage Blk Time (%)				1					
Queuing Penalty (veh)				1					

Intersection: 3: Mississauga Road & Charleston Sideroad (RR 24)

Movement	EB	WB	WB	NB	SB
Directions Served	L	L	TR	LTR	LTR
Maximum Queue (m)	11.0	10.9	1.3	20.6	17.3
Average Queue (m)	1.3	1.0	0.0	7.2	6.4
95th Queue (m)	6.4	6.0	1.3	16.0	14.0
Link Distance (m)			1418.7	1222.3	609.3
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)	30.0	30.0			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 327

Intersection: 1: Hurontario Street (Hwy 10) & Charleston Sideroad (RR 24)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	TR	L	T	TR
Maximum Queue (m)	82.3	219.3	90.0	99.9	326.8	105.0	78.0	149.3	155.7	80.7	127.2	126.2
Average Queue (m)	42.4	91.9	30.8	70.7	152.8	16.9	27.0	76.1	82.7	15.4	66.5	67.8
95th Queue (m)	86.7	186.3	83.1	123.6	365.8	69.4	57.7	142.3	151.1	49.0	120.1	121.5
Link Distance (m)		1355.9			586.1			774.3	774.3		547.3	547.3
Upstream Blk Time (%)					0							
Queuing Penalty (veh)					0							
Storage Bay Dist (m)	80.0		65.0	80.0		60.0	130.0			60.0		
Storage Blk Time (%)	2	27		37	28			1			12	
Queuing Penalty (veh)	7	60		99	51			1			7	

Intersection: 2: Cataract Road/Main Street (RR 136) & Charleston Sideroad (RR 24)

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	TR
Maximum Queue (m)	17.3	47.9	7.5	59.3	11.0	9.8	12.6	24.3	16.1
Average Queue (m)	4.7	18.3	1.0	17.2	2.0	1.5	2.1	9.7	6.1
95th Queue (m)	13.1	39.5	4.8	43.2	7.7	6.8	8.4	20.5	13.4
Link Distance (m)		1418.7		2799.0			898.9		1191.1
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)	125.0		60.0		90.0	70.0		85.0	
Storage Blk Time (%)				0					
Queuing Penalty (veh)				0					

Intersection: 3: Mississauga Road & Charleston Sideroad (RR 24)

Movement	EB	WB	WB	NB	SB
Directions Served	L	L	TR	LTR	LTR
Maximum Queue (m)	7.4	8.4	0.7	12.6	9.4
Average Queue (m)	0.6	0.7	0.0	4.3	3.4
95th Queue (m)	4.0	4.4	0.7	10.9	9.3
Link Distance (m)			1418.7	1222.3	609.3
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)	30.0	30.0			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 226

Intersection: 1: Hurontario Street (Hwy 10) & Charleston Sideroad (RR 24)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	TR	L	T	TR
Maximum Queue (m)	68.9	143.7	89.6	77.1	95.7	29.8	108.0	124.8	127.0	94.9	353.2	344.7
Average Queue (m)	15.5	52.1	54.0	27.5	47.5	6.5	59.2	61.8	69.7	29.4	225.0	222.0
95th Queue (m)	40.5	109.0	91.3	55.2	81.4	20.3	117.5	111.9	115.0	88.5	440.7	432.5
Link Distance (m)		1355.9			586.1			774.3	774.3		547.3	547.3
Upstream Blk Time (%)											3	2
Queuing Penalty (veh)											0	0
Storage Bay Dist (m)	80.0		65.0	80.0		60.0	130.0			60.0		
Storage Blk Time (%)	0	4	7		7		3	0			40	
Queuing Penalty (veh)	0	13	17		10		15	0			23	

Intersection: 2: Cataract Road/Main Street (RR 136) & Charleston Sideroad (RR 24)

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	TR
Maximum Queue (m)	15.1	60.7	7.5	75.7	12.2	7.5	9.8	24.6	16.2
Average Queue (m)	3.6	21.8	0.7	21.2	2.1	1.1	2.0	9.0	6.0
95th Queue (m)	10.4	50.7	4.2	55.6	8.4	5.2	7.0	19.9	13.3
Link Distance (m)		753.6		2799.0			895.6		1191.1
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)	125.0		60.0		90.0	70.0		85.0	
Storage Blk Time (%)				1					
Queuing Penalty (veh)				0					

Intersection: 3: Mississauga Road & Charleston Sideroad (RR 24)

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (m)	8.9	0.6	21.9	0.6	23.2	13.5
Average Queue (m)	1.0	0.0	3.7	0.0	5.5	4.5
95th Queue (m)	5.2	0.6	14.2	0.6	16.5	10.3
Link Distance (m)		662.7		623.7	1222.3	607.7
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	30.0		30.0			
Storage Blk Time (%)			0			
Queuing Penalty (veh)			0			

Intersection: 101: Charleston Sideroad (RR 24) & Site Access

Movement	EB	EB	WB	WB	SB
Directions Served	L	T	T	R	LR
Maximum Queue (m)	10.2	75.7	108.3	25.3	41.0
Average Queue (m)	1.0	34.5	49.3	7.2	11.2
95th Queue (m)	5.4	58.7	88.8	20.1	29.2
Link Distance (m)		623.7	753.6		117.2
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)	130.0			75.0	
Storage Blk Time (%)			2		
Queuing Penalty (veh)			1		

Network Summary

Network wide Queuing Penalty: 80

Intersection: 1: Hurontario Street (Hwy 10) & Charleston Sideroad (RR 24)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	TR	L	T	TR
Maximum Queue (m)	82.4	584.7	90.0	99.9	427.4	105.0	151.5	239.3	247.3	87.8	159.0	155.5
Average Queue (m)	42.8	290.5	61.2	76.1	232.6	42.9	54.0	109.6	116.1	19.2	71.7	72.7
95th Queue (m)	90.9	593.7	114.4	124.7	467.4	113.4	127.0	224.3	232.3	55.8	142.5	141.8
Link Distance (m)		1355.9			586.1			774.3	774.3		547.3	547.3
Upstream Blk Time (%)					4							
Queuing Penalty (veh)					0							
Storage Bay Dist (m)	80.0		65.0	80.0		60.0	130.0			60.0		
Storage Blk Time (%)	1	58	4	26	57	0		8		0	14	
Queuing Penalty (veh)	6	165	15	94	112	1		18		0	7	

Intersection: 2: Cataract Road/Main Street (RR 136) & Charleston Sideroad (RR 24)

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	TR
Maximum Queue (m)	23.4	70.7	7.6	88.0	18.2	13.3	11.5	24.3	23.3
Average Queue (m)	6.9	27.7	0.6	28.7	4.7	2.3	2.6	10.3	7.7
95th Queue (m)	16.9	58.6	3.8	67.6	13.2	8.8	8.3	21.5	17.5
Link Distance (m)		753.6		2799.0			895.6		1191.1
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)	125.0		60.0		90.0	70.0		85.0	
Storage Blk Time (%)				1					
Queuing Penalty (veh)				1					

Intersection: 3: Mississauga Road & Charleston Sideroad (RR 24)

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (m)	12.7	0.6	10.7	0.7	18.3	14.6
Average Queue (m)	1.7	0.0	1.0	0.0	7.3	4.9
95th Queue (m)	7.7	0.6	5.6	0.7	15.0	11.1
Link Distance (m)		662.7		623.7	1222.3	607.7
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	30.0		30.0			
Storage Blk Time (%)	0					
Queuing Penalty (veh)	0					

Intersection: 101: Charleston Sideroad (RR 24) & Site Access

Movement	EB	EB	WB	WB	SB
Directions Served	L	T	T	R	LR
Maximum Queue (m)	10.8	103.3	114.5	21.8	41.0
Average Queue (m)	2.6	48.2	57.7	6.9	9.7
95th Queue (m)	8.9	82.8	97.3	19.0	26.7
Link Distance (m)		623.7	753.6		117.2
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)	130.0			75.0	
Storage Blk Time (%)		0	3		
Queuing Penalty (veh)		0	1		

Network Summary

Network wide Queuing Penalty: 420

Intersection: 1: Hurontario Street (Hwy 10) & Charleston Sideroad (RR 24)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	TR	L	T	TR
Maximum Queue (m)	82.4	291.3	90.0	99.9	462.7	104.9	115.3	157.1	162.4	94.8	157.0	151.0
Average Queue (m)	48.8	133.0	43.2	81.0	251.1	20.1	43.8	75.8	83.3	18.0	76.3	78.7
95th Queue (m)	91.9	274.8	96.4	125.4	567.3	78.7	87.8	144.9	153.4	56.0	140.9	142.5
Link Distance (m)		1355.9			586.1			774.3	774.3		547.3	547.3
Upstream Blk Time (%)					10							
Queuing Penalty (veh)					0							
Storage Bay Dist (m)	80.0		65.0	80.0		60.0	130.0			60.0		
Storage Blk Time (%)	3	37	0	55	28		0	1		0	15	
Queuing Penalty (veh)	9	91	2	149	51		1	2		0	9	

Intersection: 2: Cataract Road/Main Street (RR 136) & Charleston Sideroad (RR 24)

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	TR
Maximum Queue (m)	13.4	59.6	7.3	74.2	13.6	14.6	7.8	26.6	22.0
Average Queue (m)	3.4	19.9	1.0	22.8	2.5	1.8	1.2	10.4	7.0
95th Queue (m)	9.5	48.5	5.0	57.3	9.8	8.2	5.3	22.1	16.0
Link Distance (m)		753.6		2799.0			895.6		1191.1
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)	125.0		60.0		90.0	70.0		85.0	
Storage Blk Time (%)				1					
Queuing Penalty (veh)				0					

Intersection: 3: Mississauga Road & Charleston Sideroad (RR 24)

Movement	EB	WB	WB	NB	SB
Directions Served	L	L	TR	LTR	LTR
Maximum Queue (m)	7.1	11.6	0.6	14.5	9.7
Average Queue (m)	0.9	1.0	0.0	4.9	2.9
95th Queue (m)	4.5	6.1	0.6	12.6	8.1
Link Distance (m)			623.7	1222.3	607.7
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)	30.0	30.0			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 101: Charleston Sideroad (RR 24) & Site Access

Movement	EB	EB	WB	WB	SB
Directions Served	L	T	T	R	LR
Maximum Queue (m)	5.5	71.0	93.0	26.6	29.1
Average Queue (m)	0.2	33.6	40.8	6.9	6.6
95th Queue (m)	3.0	58.2	76.8	21.6	21.3
Link Distance (m)		623.7	753.6		117.2
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)	130.0			75.0	
Storage Blk Time (%)			1		
Queuing Penalty (veh)			0		

Network Summary

Network wide Queuing Penalty: 315

APPENDIX K

Project Team CVs

TYLin

YEARS OF EXPERIENCE
15 Years

YEARS WITH TYLIN
6 Years

EDUCATION
Advanced Diploma in Transportation Engineering Technology, Mohawk College, 2010

LICENSE
Certified Engineering Technologist, Ontario

CERTIFICATIONS
WHMIS 2015 Training, 2016

AODA Understanding Human Rights, 2016

AODA Customer Service Training, 2016

Supervisor Health and Safety Awareness in 5 Steps, 2016

Workplace Violence and Harassment Training (Bills 168 and 132), 2016

AFFILIATIONS
Ontario Association of Certified Technicians and Technologists (OACETT)

Institute of Transportation Engineers (ITE)

BUILDINGS

Michael Dowdall, C.E.T., MITE

DIRECTOR OF TRAFFIC

Michael is the Director of Traffic at TYLin with extensive experience in all aspects of the transportation planning field at the municipal, regional, and provincial level. He has significant experience using AutoCAD and Microstation for the functional design of roadways and site accesses, traffic management implementation plans, and construction management plans. Michael's project experience includes the identification and mitigation of traffic impacts for land development, preparation of conceptual roadway / highway layouts, site access schemes, internal circulation systems, queuing studies, and parking needs reviews. His key public sector experience includes traffic calming, secondary plan road network assessments, and urban / suburban parking studies. This experience enables Michael to prepare thorough and informed transportation studies in support of development applications.

PROJECT EXPERIENCE

City of Mississauga, Lakeview Village Transportation Considerations Report and Vissim Microsimulation Report | Mississauga, ON
Project Manager for development of vehicle travel demand throughout the study area road network and examining the transportation operations under a series of potential road network design options. Managed the trip generation of residential component of site from first principles, taking into consideration TTS data, expected unit occupancy, percentage of residents traveling during the peak hour, modal split implications and adjustments, etc. Oversaw the Creation and calibration of detailed models of the study area road network using both PTV Vissim and Synchro microsimulation software to assess major intersections for Level (Quality) of Service, volume to capacity ratios, delay, and queuing. Analyzed results from Vissim and Synchro models and made recommendations on the ultimate road network to accommodate the predicted build-out of the Lakeview Village area and surrounding developments. Provided supplemental phasing analysis and sensitivity testing throughout approvals process in order to achieve draft plan approval from City.

Town of East Gwillimbury, Green Lane MESP | East Gwillimbury, Ontario, Canada
Buildings, Traffic | Design Bid Build | Traffic Analyst
Examined and assessed the operational impacts of trips generated by the Green Lane Secondary Plan area in the context of the broader area transportation demands. Created a micro-analysis traffic operations model using Synchro and tested the major intersections for Level (Quality) of Service, volume to capacity ratios, delay, and queuing. Tested the reasonableness and ability of the planned internal and external road system to accommodate future traffic. In concert with the traffic operations assessment, developed a series of transportation system plans in coordination with the Region's Transportation Master Plan and other relevant documents. Developed a comprehensive strategy to highlight the features and opportunities of the GLSP study area in efforts to encourage a shift away from SOV travel.

Milton Phase II Landowners Group, Sherwood Survey | Milton, Ontario, Canada
Buildings, Traffic | Design Bid Build | Traffic Analyst
Traffic Analyst for this urban expansion, which is predominately on the west side of Milton, and is under construction with a planned future population of 45,000.

Milton Phase III Landowners Group, Boyne Survey Roads Needs Assessment | Milton, Ontario, Canada
Buildings, Traffic | Design Bid Build | Traffic Analyst
The Boyne Survey Secondary Plan Area is located in the Milton Urban Expansion Area, south of the existing Bristol Survey and Sherwood Survey Secondary Plan Areas. This urban expansion is under

construction with a planned future population of 50,000. Michael analyzed the traffic conditions for full build-out and identified the interim and ultimate intersection improvements required to accommodate development based on the scheduled capital works phasing. The Town adopted this study as a basis for all future development within the Boyne Secondary Plan.

Milton Phase IIII Landowners Group, South Milton Urban Expansion Area | Milton, Ontario, Canada

Buildings, Traffic | Design Bid Build | Traffic Analyst

Provide advisory transportation planning / engineering services for the Landowners Group of the South Milton Urban Expansion Area (established through the passing of Regional Official Plan Amendment 38), and of the ongoing and future Transportation Planning assignments and Capital Works projects that will directly affect these lands and the broader development of Milton.

City of Toronto, Crosslinx Eglinton LRT Traffic and Transit Management Plan | Toronto, Ontario, Canada

Buildings, Traffic | Design Bid Build | Traffic Analyst

Provided traffic analysis and traffic management plans for Segment 2 of the Eglinton LRT project, consisting of five separate Eglinton LRT stations each requiring the use of Synchro analysis software and OTM Book 7 to prepare traffic management plans for each stage of construction and recommend measures to maintain existing capacity along Eglinton Avenue during construction.

Town of Richmond Hill, North Leslie West Residential Subdivisions | Richmond Hill, Ontario, Canada

Buildings, Traffic | Design Bid Build | Traffic Analyst

Michael completed a traffic impact study for the Raki Holdings Inc., Richview 19 Holdings Inc., and Autumnhill Investment Ltd. Draft Plans within the North Leslie West Secondary Plan consistent with their conditions of approval and the North Leslie MESP. Michael calculated trip generation of the three proposed subdivisions and documented the internal road network elements and external arterial access points to ensure the traffic generated by the three subject subdivisions can be accommodated by the network. Traffic Management Implementation Plans and Transportation Demand Management components were included to accommodate other modes of transportation.

Township of Ramara, Fowler Construction Fleming Quarry | Orillia, Ontario, Canada

Buildings, Traffic | Design Bid Build | Project Manager

Project Manager for the traffic impact study assessing the extent of traffic-related impacts on the abutting roadway system generated by Fowler's proposed application for an extraction area boundary increase at Fleming Quarry, located in the northeast quadrant of Switch Road and Rama Road in the Township of Ramara, County of Simcoe. The objectives of this study are to establish baseline traffic conditions for the study area and update the existing traffic conditions, derive the future background operating conditions and analyze future operating conditions for the study intersections at a future 2022 and 2027 planning horizon, and determine what, if any, traffic impacts there are on the study area haul route from the proposed quarry extension.

City of Brampton, Chinquacousy Farm Residential Subdivision | Brampton, Ontario, Canada

Buildings, Traffic | Design Bid Build | Transportation Analyst

Transportation Analyst responsible for the preparation of a traffic impact study and completion of an extensive analysis of future traffic conditions for the development of a 540-unit residential subdivision that satisfied MTO's requirements at the ramp terminals.

Town of Oakville, Green Ginger Residential Subdivision | Oakville, Ontario, Canada

Buildings, Traffic | Design Bid Build | Traffic Analyst

Completed a traffic impact study for Draft Plan approval of a 2,000-unit residential subdivision. Examined the future capacity and operations of the adjacent regional road network and prepared a Transit Facilities Plan consistent with the Town's transit plan.

City of Toronto, 1100 Caledonia Road Commercial Redevelopment | Toronto, Ontario, Canada

Buildings, Traffic | Design Bid Build | Traffic Analyst

Analyzed the existing and future traffic volumes on the adjacent road network for the redevelopment of an existing commercial building. Recommended roadway improvements and completed functional design drawings for the sections of roadway to be improved.

Town of Milton, Traffic Control Plans | Milton, Ontario, Canada

Buildings, Traffic | Design Bid Build | Traffic Analyst

Prepared traffic control plans for a variety of residential subdivisions within the Sherwood and Boyne Survey Secondary Plans. The subdivisions included Mattamy Church Lands Neighbourhood, Willmott Neighbourhood Phase 1 & 2, Capozzi Neighbourhood Phase 2A, and Milton Main Street Homes.

Town of Bowmanville, Brookhill Neighbourhood Residential Subdivision | Bowmanville, Ontario, Canada

Buildings, Traffic | Design Bid Build | Traffic Analyst

Completed a traffic impact study for Draft Plan approval of a 1,500-unit residential subdivision in the Municipality of Clarington. Analysis included extensive redistribution of traffic, multiple road and development phasing, and intersection functional design.

ENVIRONMENTAL ASSESSMENTS

Peel Region, Burnhamthorpe Road Watermain Twinning EA and Preliminary Design | Brampton, Ontario, Canada

Buildings, Traffic | Design Bid Build | Traffic Analyst

Analyzed the existing and future traffic volumes on the adjacent road network along the new Burnhamthorpe Road watermain route, including Webb Drive. Also provided a preliminary summary of the traffic impact at key intersections based on the conceptual construction staging in compliance with OTM Book 7.

City of Kitchener, Huron Road Environmental Assessment | Kitchener, Ontario, Canada

Buildings, Traffic | Design Bid Build | Traffic Analyst

Traffic Analyst who evaluated the existing conditions along the Huron Road Corridor by adhering to the phasing requirements of the Class EA process. Transportation analysis defined problems / opportunities and a preferred road improvement alternative solution. Michael built upon these requirements to meet the needs of the City by developing a system integrating all modes of travel while providing a safe and efficient road network for the movement of both people and goods within and through this area of the City. The transportation planning approach to this study will be multidimensional and recognize the current and projected functions of Huron Road.

Peel Region, Cawthra Road Watermain Installation | Mississauga, Ontario, Canada

Buildings, Traffic | Design Bid Build | Designer

Designer for the construction staging of the proposed 1,500mm Mississauga City Centre (MCC) watermain. Prepared detailed design traffic management plans involving lane closures that were required for the installation of MCC and local watermain on Cawthra Road between Rathburn Road and Burnhamthorpe Road.

NAC Constructors Ltd., Britannia Road Watermain Installation | Milton, Ontario, Canada

Buildings, Traffic | Design Bid Build | Designer

Designer for the construction staging of the proposed watermain. Prepared detailed design traffic plans, involving partial lane shifts required for the installation of MH2 and MH2A shaft sites on Britannia Road.

URBAN REDEVELOPMENT

City of Toronto, Build Toronto Kingston-Dale Residential Development | Toronto, Ontario, Canada

Buildings, Traffic | Design Bid Build | Traffic Analyst

Examined the traffic impacts from the proposed development and considered the City's Traffic Demand Management Strategies and parking requirements for the site. The study included a loading study as per City guidelines confirming the site's internal circulation system's ability to accommodate the maneuverability of passenger cars and expected delivery / emergency vehicles. Prepared a functional / conceptual design of Dale Avenue based on traffic analysis results including lane geometry, pavement markings, traffic control measures, and signage.

City of Toronto, 871-899 College Street Condominium | Toronto, Ontario, Canada

Buildings, Traffic | Design Bid Build | Traffic Analyst

Assessed the traffic impacts of an eight-storey condominium building, including ground floor commercial. The consolidated deliverables included loading, parking, and traffic operations studies required for the application. Provided a Transportation Demand Management plan for the site to reduce the dependency on single occupant vehicle trips and promote a shift to Transit and/or Active Transportation modes. Investigated the appropriateness of the proposed parking supply to accommodate the future demands of the development.

City of Toronto, Laird and Wicksteed Commercial Redevelopment | Toronto, Ontario, Canada

Buildings, Traffic | Design Bid Build | Traffic Analyst

Developed a detailed traffic model for a commercial redevelopment in the Leaside Community of Toronto. Synchro traffic model confirmed the future development can be accommodated on the adjacent road network and subsequently approved by the City of Toronto.

City of Toronto, Sheppard Avenue Condominiums | Toronto, Ontario, Canada

Buildings, Traffic | Design Bid Build | Traffic Analyst

Assessed traffic impacts of two nine–storey condos, including ground floor commercial, and prepared traffic impact studies satisfying City requirements.

Town of Oakville, 70 Old Mill Road Mixed-Use Development | Oakville, Ontario, Canada

Buildings, Traffic | Design Bid Build | Traffic Analyst

Developed a pedestrian circulation plan and assessed the traffic impact of a proposed mixed-use development. The traffic model included existing and future traffic generated from the new Oakville GO parking lot expansion and reviewed the operational and capacity restraints in the Cornwall Road corridor.

City of Mississauga, 6789 Airport Road Restaurant Development | Mississauga, Ontario, Canada

Buildings, Traffic | Design Bid Build | Traffic Analyst

Analyzed the future traffic volumes on the adjacent road network for the redevelopment of an existing warehouse building. Derived an appropriate parking demand for the build-out site and provided an opinion as to the suitability of the proposed parking supply in comparison to the minimum parking requirement. Prepared a functional design of the right-in / right-out access on Airport Road based on Peel Region engineering standards.

City of Mississauga, Dixie Crossing Commercial Development | Mississauga, Ontario, Canada

Buildings, Traffic | Design Bid Build | Traffic Analyst

Examined the future traffic volumes generated by the commercial development and prepared a traffic impact study. With Peel Region's cooperation, a design was agreed upon for the site access onto Dixie Road. The study concluded that traffic generated by the proposed 53,693 sq ft of retail and restaurant GFA can be accommodated by the adjacent street system with the implementation of recommended access improvements.

FUNCTIONAL DESIGN

- Lakeshore Road East external road improvements, City of Mississauga
- Highway 9 and First Line Localized Widening Design, Town of Mono
- Derry / Scott Commercial Access Design, Town of Milton
- William Allen Road Commercial Access Design, City of Toronto
- Caledon-King Townline Residential, Town of Caledon
- Intersection Design, Town of Caledon
- 7150 Edwards Boulevard Parking Lot Layout, City of Mississauga
- Richmond Hill GO Access Design, City of Vaughan
- Rotherglen School Parking Layout, Town of Oakville
- Steeles and Financial Drive Access Design, City of Brampton

PARKING STUDIES

- Shingar Banquet Hall, City of Brampton
- Woodland Court Commercial, Town of Richmond Hill
- Oakville Entertainment Centre, Town of Oakville
- Meadowvale Christian Academy, City of Mississauga
- Trafalgar Sports Park, Town of Milton
- Rotherglen School, Town of Oakville
- Chinguacousy Road Commercial, City of Brampton
- 2441 Finch Residential, City of Toronto
- Eitz Chaim Synagogue, City of Toronto
- Faith of Life Place of Worship, City of Mississauga
- Oakleaf Academy, Town of Oakville
- Orchard Gardens Market, City of Mississauga
- Four Seasons Garden Condominium, Town of Richmond Hill
- Electric Building Condominiums, City of Toronto