Traffic Impact Study

Proposed Mixed-Use Development
41-43 Essa Road

Tonlu Holdings Ltd.

September 20, 2021

→ The Power of Commitment



Executive summary

GHD was retained to prepare a Traffic Impact Study (TIS) for a proposed residential development located at 259 Innisfil Street 41-43 Essa Road in the City of Barrie.

This report establishes the existing road network and the subsequent traffic-related impacts on the adjacent future road network during the weekday a.m. and p.m. peak hours. These impacts are based on projected future background traffic derived for build-out in 2023 and a period of five- and ten-years post build-out in 2028 and 2033.

Proposed Site Characteristics

The proposed site plan was prepared by Architecture Unfolded. It consists of 1,276 residential units and 896 m^2. of ground floor commercial Gross Floor Area (GFA).

New Site Traffic

The subject development is estimated to generate approximately 352 new two-way vehicle trips during the a.m. peak hour consisting of 87 inbound and 265 outbound trips. During the p.m. peak hour, it is expected to generate 279 new two-way vehicle trips consisting of 191 inbound and 470 outbound trips.

The distribution of site traffic for each horizon year was based on a review of Transportation Tomorrow Survey (TTS) 2016 data and existing traffic patterns in the area.

Future Traffic Operations

Based on an assessment of future traffic conditions, the site traffic generated from the subject development is expected to have a minimal impact on the operation of all study area intersections. As a result, there are no recommended geometric improvements to any of the study intersections in response to development of the subject site.

The site access on Essa Road and Innisfil Street are expected to operate well under all future scenarios under stop control on the driveway approach, with reserve capacity, low levels of delay, and no excessive queueing.

Parking

Based on the current City of Barrie Zoning Bylaw, the proposed development requires a total of 1,306 parking spaces based on a rate of 1 space per residential unit and 1 space for every 30 m^2 of retail GFA. The proposed development provides a total of 1,306 parking spaces which meets the By-law requirement. In addition, the site provides 42 accessible parking spaces that consist of 40 accessible parking spaces (residential) ad 2 accessible parking spaces (commercial), that meets the minimum By-law requirement.

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

Sincerely,

GHD



September 20, 2021

William Maria, P. Eng.
Transportation Planning Lead

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1. Introduction

1.1 Retainer and Objective

GHD is pleased to provide the following Traffic Impact Study in support of a proposed Zoning Bylaw Amendment for the proposed residential development located at 41-43 Essa Road in the City of Barrie.

This study was completed to:

- Provide a summary of baseline traffic conditions for the study area intersections.
- Update the existing traffic conditions to derive the future background operating conditions for the study intersections for a future 2023, 2028 and 2033 horizon including general corridor growth and background development traffic.
- Prepare trip generation estimates for the proposed site plan using Institute of Transportation Engineer's (ITE) Trip Generation data and the distribution of the development traffic to the adjacent road network.
- Determine existing and future (background and total) traffic conditions during the critical peak hours by conducting intersectional capacity analysis.

The site is generally located on the South side of Tiffin Street between Essa Road and Innisfil Street as shown in **Figure 1**.

1.2 Scope and limitations

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

1.3 Study Team

The GHD team involved in the preparation of this study are:

– William Maria, P. Eng., Transportation Planning Lead
– Ameer Al Rijjal, Transportation Planner



Figure 1 Site Location

1.4 Development Proposal

The proposed site plan prepared by Architecture Unfolded is provided in **Figure 2**. It consists of 1,276 residential units and 896 m^2 of retail Gross Floor Area (GFA).

Access to the subject site is proposed via two full moves driveway accesses forming a private internal road that extends from Innisfil Street to Essa Road that provides access to some surface parking spaces, the parking garage ramp, loading space and the front lobby and a full moves driveway on Innisfil Street north of Caroline Street.



Figure 2 Proposed Site Plan

2. Existing Road Network

2.1 Study Area

As confirmed by City staff, the following intersections were included in the capacity analysis:

1. Innisfil Street and Tiffin Street

2. Innisfil Street and Essa Road
3. Jacobs Terrace and Innisfil Street
4. Gowan Street and Essa Road
5. Innisfil Street and Essa Road
6. Burton Avenue and Essa Road

2.2 Existing Road Network

Innisfil Street is a north-south major collector road under the jurisdiction of the City of Barrie, The posted speed limit if 50 km/h.

Tiffin Street is an east-west arterial road under the jurisdiction of the City of Barrie that extends from Dunlop Street West to Lakeshore Drive. It has a two-lane urban cross-section. The posted speed limit if 50 km/h.

Essa Road is an arterial road under the jurisdiction of the City of Barrie that travels southwest-northeast between Highway 27 and Tiffin Street. Within the study area it has a four-lane urban cross section. The posted speed limit if 50 km/h.

Jacobs Terrace is an east-west local road under the jurisdiction of the City of Barrie that extends from Alfred Street to Innisfil Street. Within the study area it has a two-lane rural cross section. The assumed speed limit is 50 km/h.

Burton Avenue is an east-west arterial road under the jurisdiction of the City of Barrie. Within the study area it has a two-lane rural cross section. The assumed speed limit is 50 km/h.

Gowan Street is an east-west minor collector road under the jurisdiction of the City of Barrie. Within the study area it has a two-lane rural cross section. The assumed speed limit is 50 km/h.

The existing lane configurations and traffic controls at the study intersections are shown in **Figure 3**.

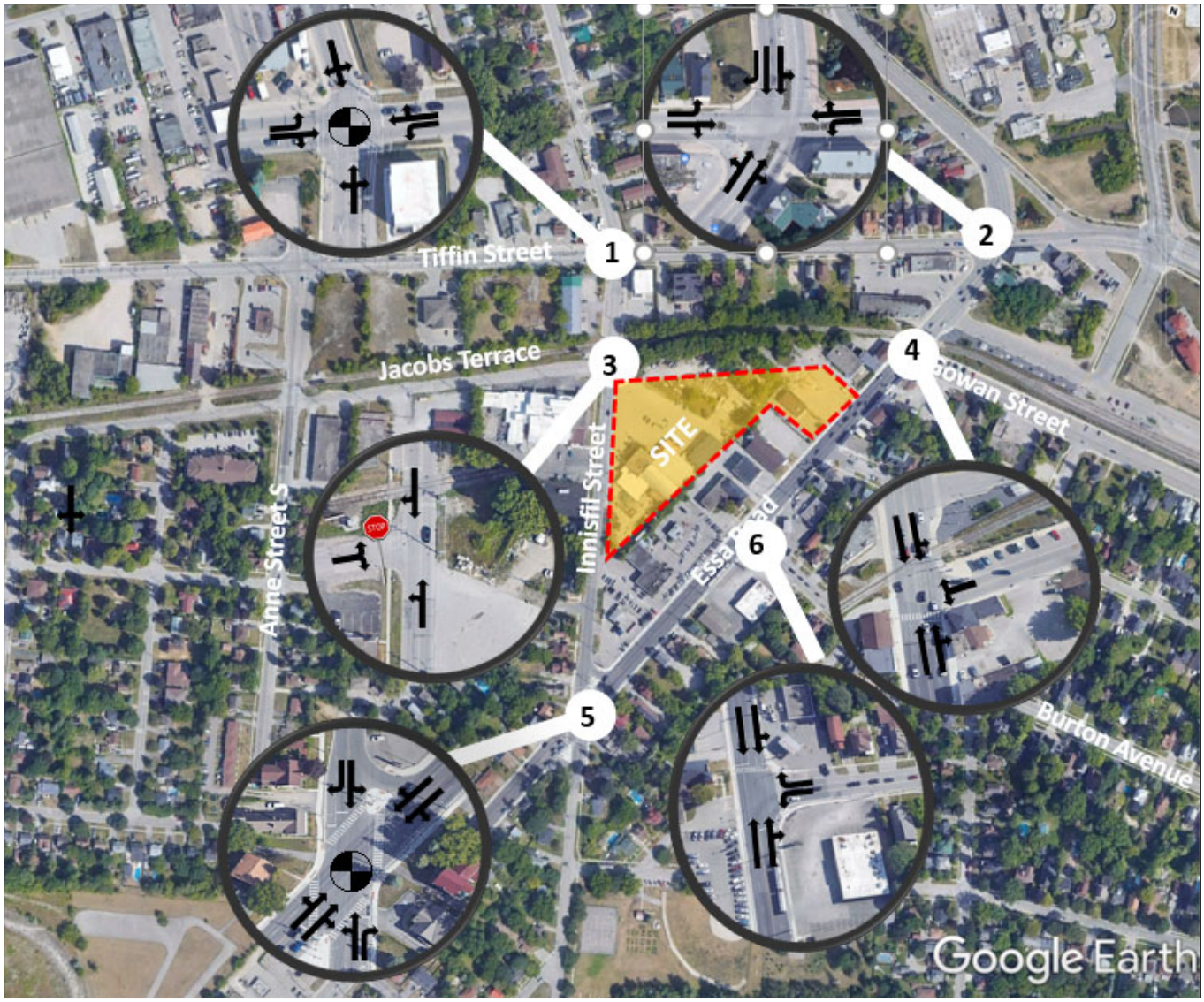


Figure 3 Existing Lane Configurations and Intersection Control

2.3 Pedestrian Facilities

Pedestrian sidewalks are currently provided on several roads within the study area including:

Tiffin Street – Sidewalk on the north side of the road west of Anne Street South to Innisfil Street and of both sides of the road east of Innisfil Street.

Essa Road – Sidewalks are provided on both sides of the road through the study area.

Innisfil Street – Sidewalks are provided on the west side of the road.

Gowan Street – Sidewalks are provided on both sides of the road through the study area

Burton Avenue – Sidewalks are provided on both sides of the road through the study area

2.4 Cycling Facilities

None of the roads within the study area currently provide cycling facilities.

2.5 Transit Service

2.5.1 Barrie Transit

Barrie Transit operates several routes within the study area as illustrated in **Figure 4** below.

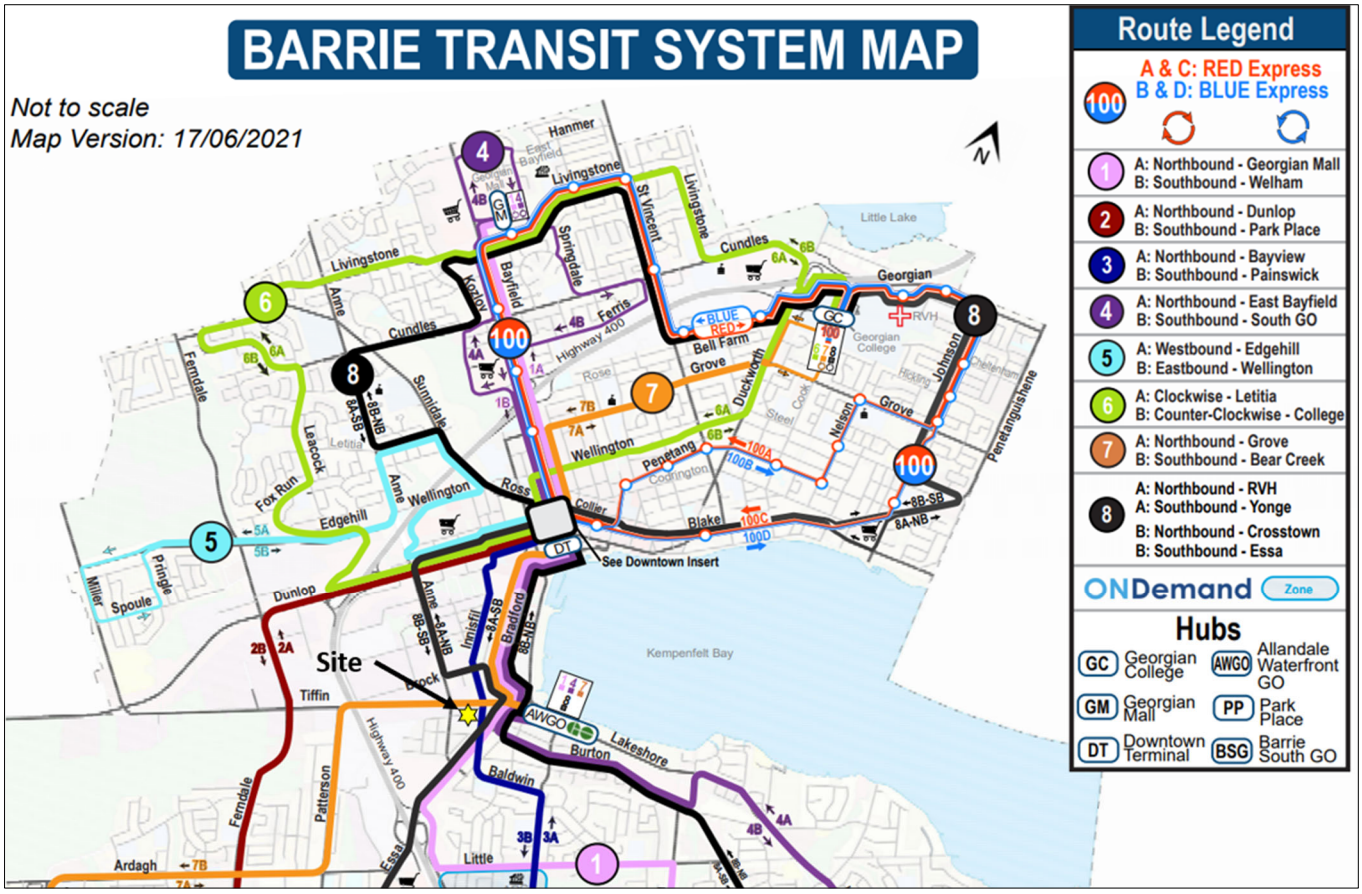


Figure 4 City of Barrie Transit Map

Route #7A – Grove offers weekday and Weekend service every half hour to an hour depending on the time of day.

Route #1A-B (Georgian Mall/Welham) offers weekday and weekend service every half hour to 45 minutes depending on the time of day.

Route #3A-B (Bayview/Painswick) offers weekday and weekend service every half hour to an hour depending on the time of day.

Route #7B – Bear Creek offers weekday and weekend service every half hour to an hour depending on the time of day.

Route #8A – RVH offers weekday and weekend service every half hour to an hour depending on the time of day.

Figure 5 shows the location of the existing transit stops adjacent to the subject site.

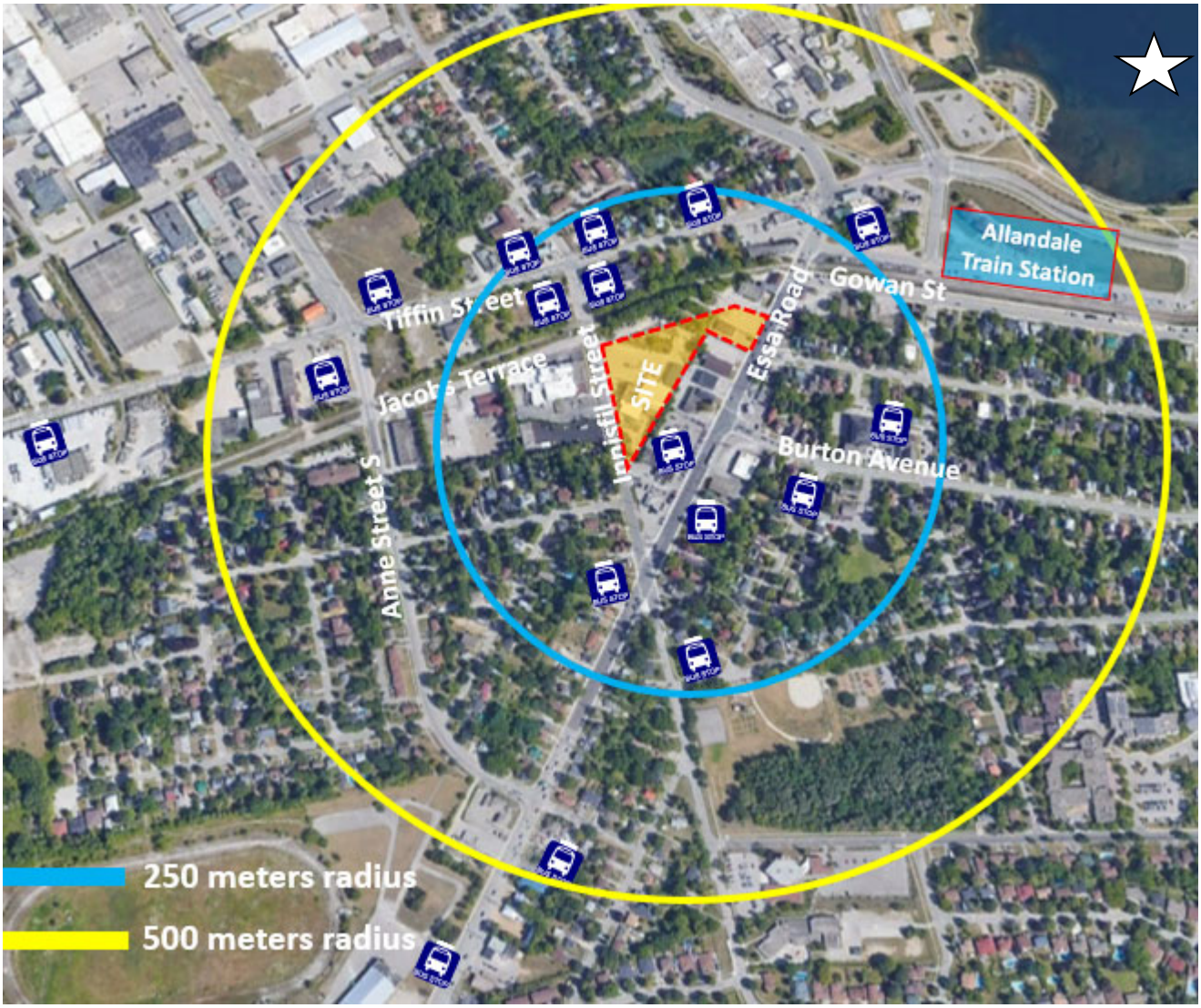


Figure 5 Existing Transit Stop Locations

2.5.2 GO Transit

The Allandale Waterfront GO rail station is located 200 meters (approximately) to the east of the proposed development and currently provides weekday service with four southbound departures in the morning and four northbound arrivals in the evening and on weekends by three morning departures and evening arrivals. This service has been reduced from seven trains during the weekdays due to decreased ridership during the ongoing Covid pandemic.

GO buses also currently service the terminal with the route 68 which operates weekday service hourly throughout the day.

2.6 Existing Traffic Data

Due to COVID-19 pandemic and travel restrictions imposed by the provincial lockdowns, traffic throughout the City is lower than historical levels. Consequently, conducting updated traffic counts at the study intersections would not provide a realistic estimate of the 2021 base traffic volumes. Instead, GHD used historical traffic data purchased from the city for each of the study intersections and factored the data to the base 2021 year. It is important to note that

since the counts for the intersection of Jacobs Terrace/Innisfil Street were conducted during the Covid 19 pandemic period (2021), through movements along Innisfil Street were balanced from counts at Innisfil Street/Tiffin Street, all other turning movement counts to/from Jacobs Terrace were multiplied by a factor of 2 for a conservative analysis.

The most recent turning movement count data available from the city is summarized in **Table 1** below and is provided in **Appendix B** along with signal timing cards.

Table 1 Existing Traffic Data Source

Intersection	Date	Source
Essa Road and Innisfil Street	2019	City of Barrie
Tiffin Street and Innisfil Street	2017	City of Barrie
Burton Avenue and Essa Road	2019	City of Barrie
Innisfil Street and Essa Road	2019	City of Barrie
Gowan Street and Essa Road	2019	City of Barrie
Innisfil Street and Jacobs Terrace	2021	Ontario Traffic

City staff provided growth rates extracted from the City's Strategic EMME model for each of the study area roads to estimate the base 2021 traffic volumes for each intersection. These rates are summarized in **Table 2**.

Table 2 City's Strategic Travel Model Compounded Annual Growth Rates

Street Name	Annual Growth Rate
Innisfil Street	1%
Jacobs Terrace	1%
Essa Road	4%
Tiffin Street	4%
Burton Avenue	2%
Gowan Street	1%
Innisfil Street	1%

Figure 6 summarizes the existing traffic volumes for each of the study intersections during the weekday a.m. and p.m. peak hours.

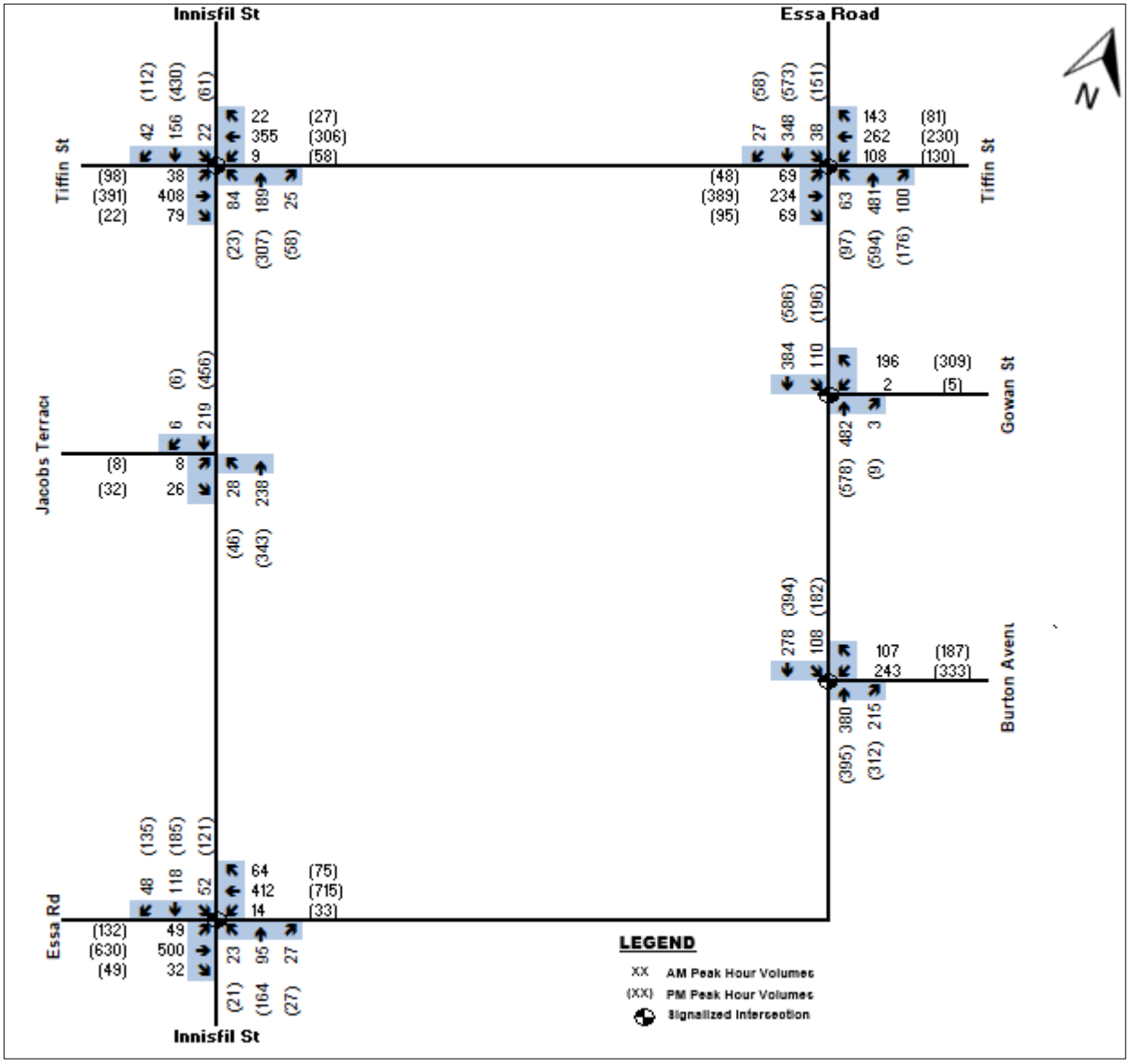


Figure 6 Existing 2021 Volumes

3. Future Background Traffic Conditions

3.1 Study Horizon Year

As per the terms of reference, this study has been prepared with an expected build-out year of 2023 for the subject site and for a period of 5 and 10 years post build-out. As a result, the future traffic scenarios include analysis of the 2023 (build-out), 2028 (five years post build-out) and 2033 (10 years post build-out) planning horizons.

3.2 Planned Infrastructure Improvements

3.2.1 Road Improvements

Planned improvements within the study area are contained within the City of Barrie Transportation Master Plan Final Report dated June 2019 and include the following by 2031:

- Innisfil Street from Tiffin Street to Essa Road – two lanes plus two-way left turn lane (with adjacent development)
- Tiffin Street from Ferndale Drive to Essa Road – four lanes plus two-way left turn lane (before 2026)
- Essa Road from Tiffin Street to Anne Street – four lane plus two-way left turn lane (before 2026)
- Burton Avenue from Bayview Drive to Robinson Drive – two lanes plus Two-way left turn (with adjacent development)

Figure 7 and 8 below illustrates the planned road improvements within the study area by 2031 based on the City's Transportation Master Plan.

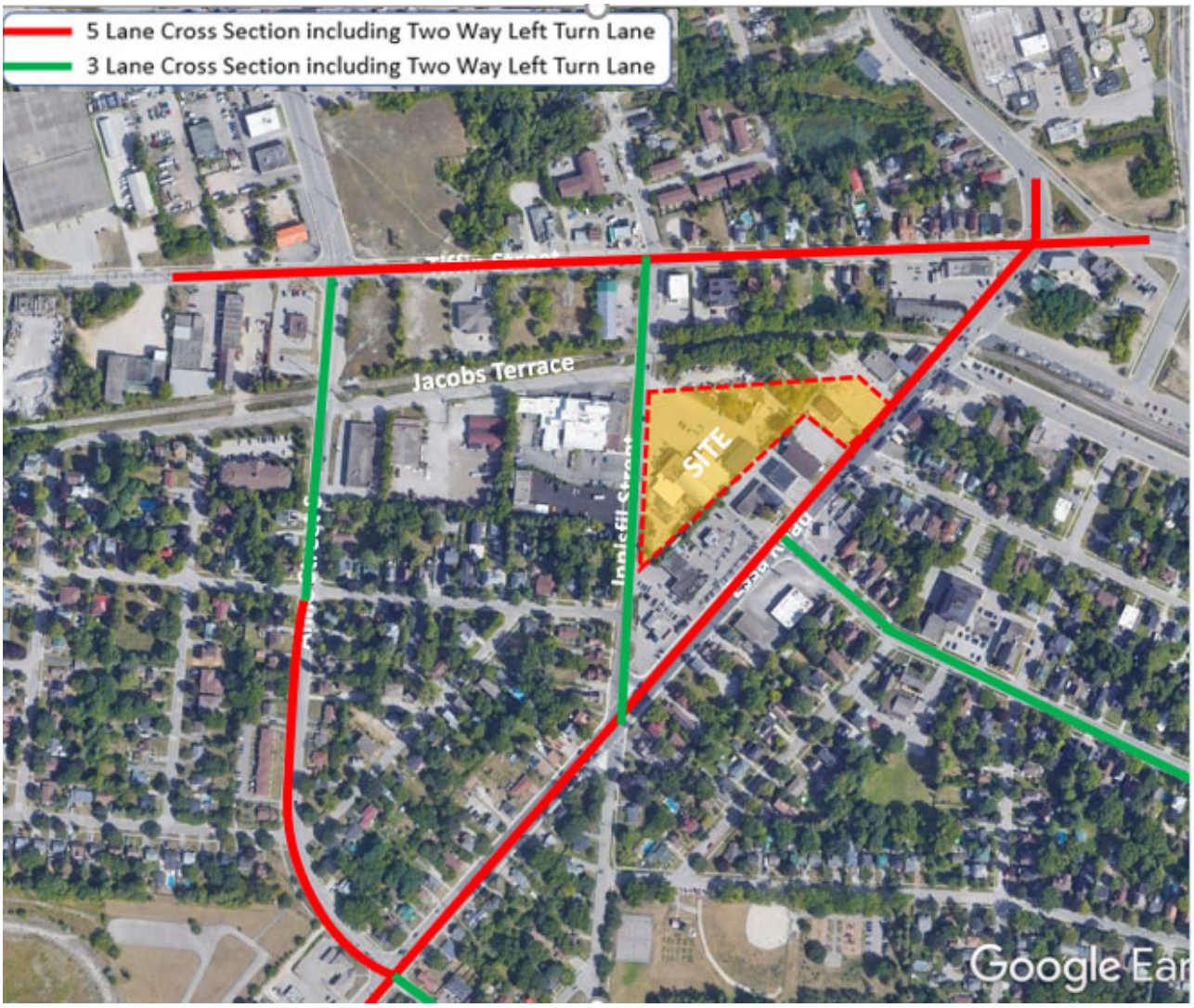


Figure 7 Planned Road Improvements by 2031

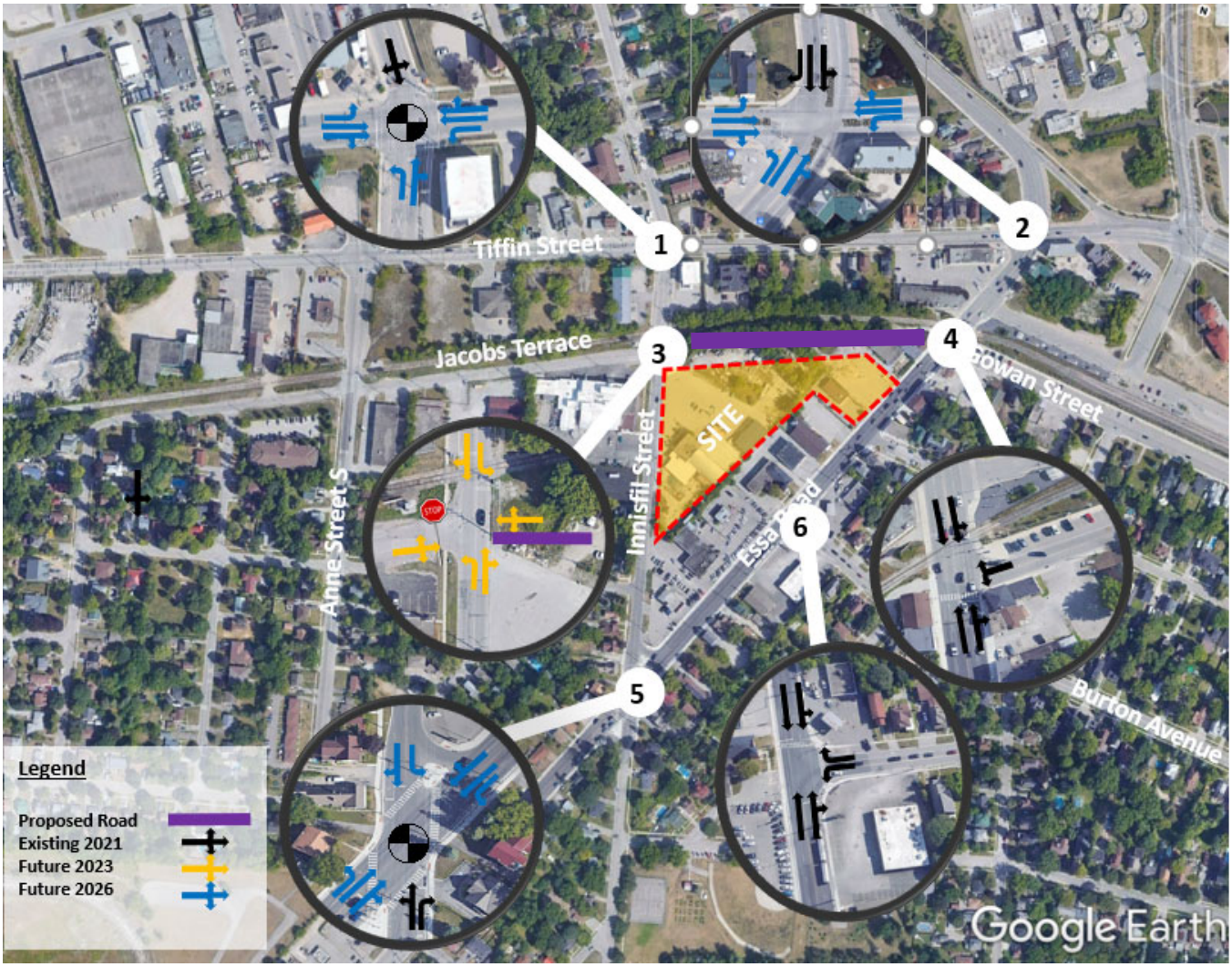


Figure 8 Future Lane Configuration

3.2.2 Transit Service

As part of the GO Regional Express Rail program, two-way all day rail service is expected between Union Station and Allandale Waterfront GO by 2024. The improved service calls for hourly service between Union Station and Allandale Waterfront with 15-minute service between Union Station and Aurora GO. While these plans are subject to change, they indicate a significant increase in transit accessibility and options for residents surrounding the Transit Hub with a goal to increase transit modal split by 2041 to 7%.

Barrie Transit plans also plans to support future transit use by adopting 10-minute service for the core routes and direct connection between significant landmarks and 20-minute service for supporting networks. The 10 and 20 minute service will be recommended for peak commuter periods (morning and afternoon).

3.2.3 Pedestrian Facilities

As per the City of Barrie Transportation Master Plan – Active Transportation Strategy report dated June 2019, the city proposes to construct the following pedestrian facilities:

- **Tiffin Street** – provide an in-boulevard pathway west of Anne Street South
- **Jacobs Terrace** – provide a sidewalk on one side of the road

- **Anne Street South** – provide sidewalks on both sides of the road
- **Innisfil Street** – provide sidewalks on both sides of the road

3.2.4 Bicycle Facilities

As per the City of Barrie Transportation Master Plan – Active Transportation Strategy report dated June 2019, the city proposes to construct the following bicycle facilities:

Short Term – 2019 to 2023

No improvements proposed within this timeframe.

Medium Term – 2024 to 2031

Tiffin Street – provide an in-boulevard pathway west of Anne Street South

Tiffin Street – provide bike lanes east of Anne Street South

Anne Street South – provide cycle track north of Tiffin Street

Anne Street South – provide buffered bike lanes south of Tiffin Street to Essa Road

Anne Street South – provide bike lanes south of Essa Road

Innisfil Street – provide bike lanes from Perry Street to Bayview Drive

Figure 9 below illustrates the planned cycle improvements within the study area by 2031 from the City's Transportation Master Plan.

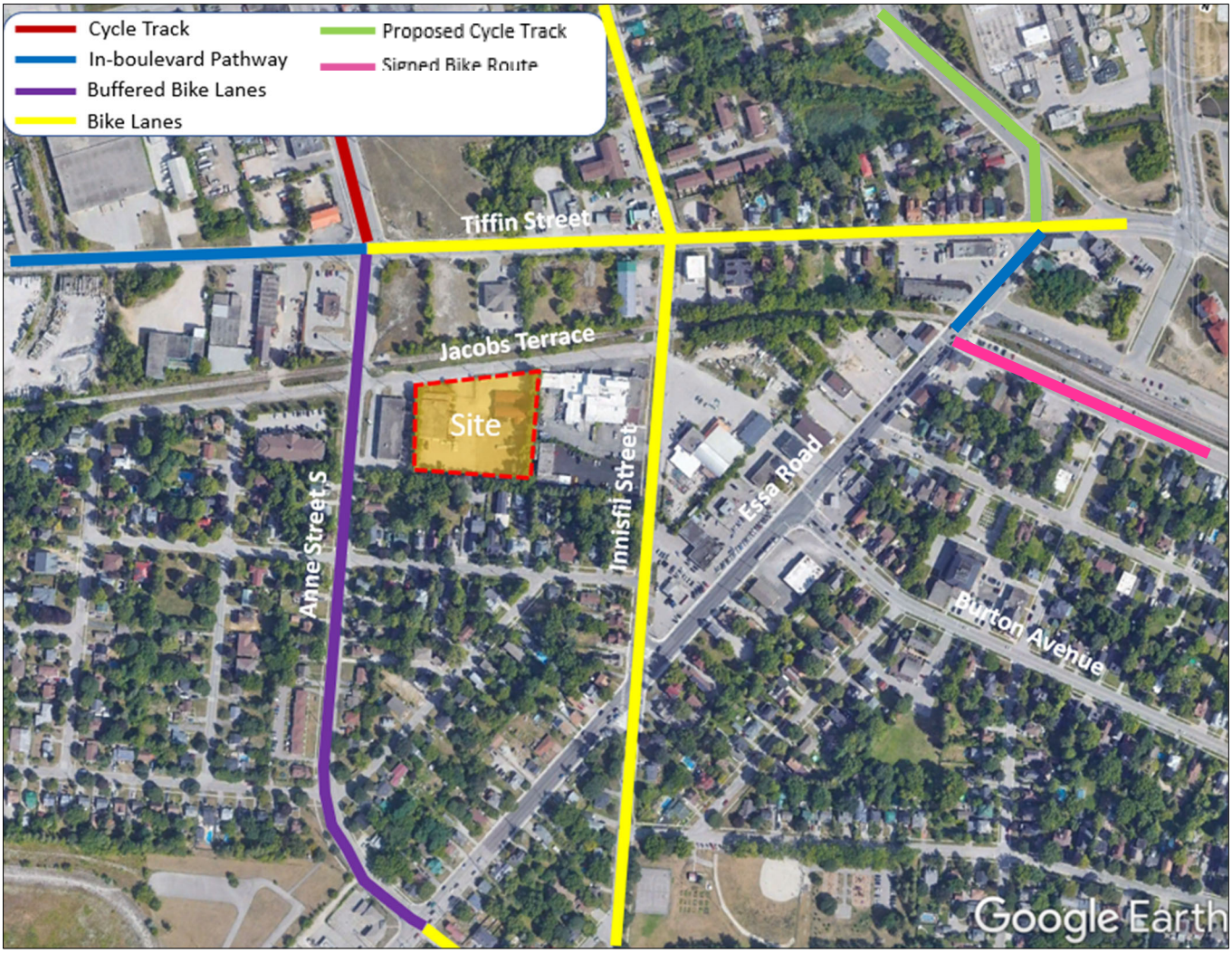


Figure 9 Planned Road Improvements by 2031

3.3 Future Background Traffic Growth

City staff provided growth rates to be used in establishing future background traffic volumes at the study intersections. These growth rates have been extracted from the City's EMME model and were previously summarized in **Table 2**.

3.3.1 Future Background Developments

Background site generated traffic from the following planned developments have also been reviewed and if necessary, site trips from these developments included in the future background traffic volumes:

- 175, 199 Essa Road & 50 Wood Street
- 272 Innisfil Street
- 220 Bradford Street
- 17 Jacobs Terrace

Excerpts from each respective Traffic Impact Study are provided in the appendix.

Traffic generated by all other future planned developments near the study are assumed to be included in the projected annual growth rates provided by City Staff from the City's EMME model.

3.3.2 Allandale Transit Mobility Hub

The City of Barrie is currently constructing a new Transit Mobility Hub within Barrie's Allandale area. The project which is scheduled to be completed by the end of 2022 is meant to support future Barrie Transit growth, increase transit access to the Allandale GO Station to provide more sustainable travel choices for residents, provide a seamless connection between GO Train service and buses providing integrated transit access to Simcoe County, Muskoka and the GTA.

3.4 Future Background Traffic Volumes

The total future background traffic volumes including corridor growth and background site generated traffic for the 2023, 2028 and 2033 planning horizons are summarized in **Figures 10, 11 and 12 respectively** for the weekday a.m. and p.m. peak hours.

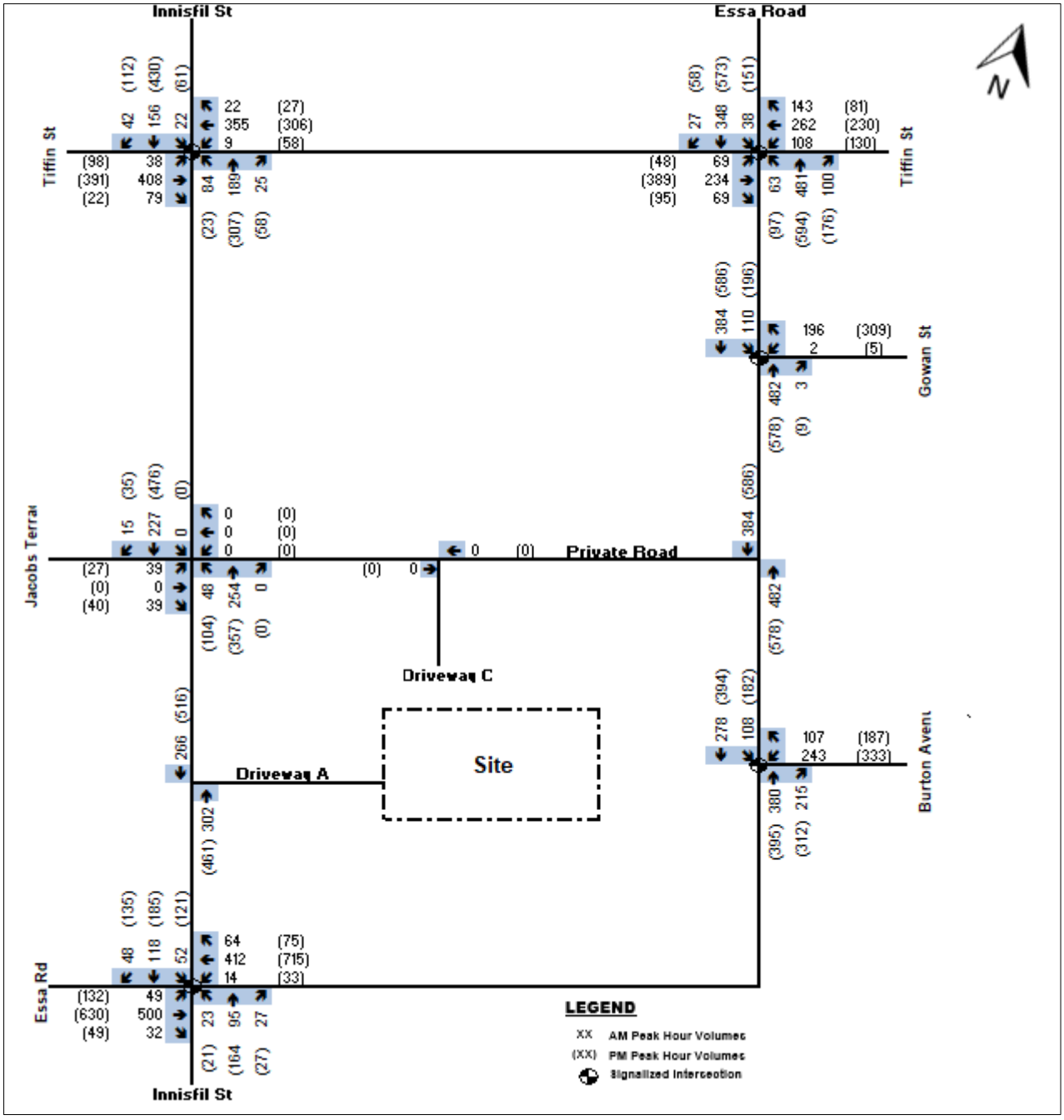


Figure 10 2023 Future Background Volumes

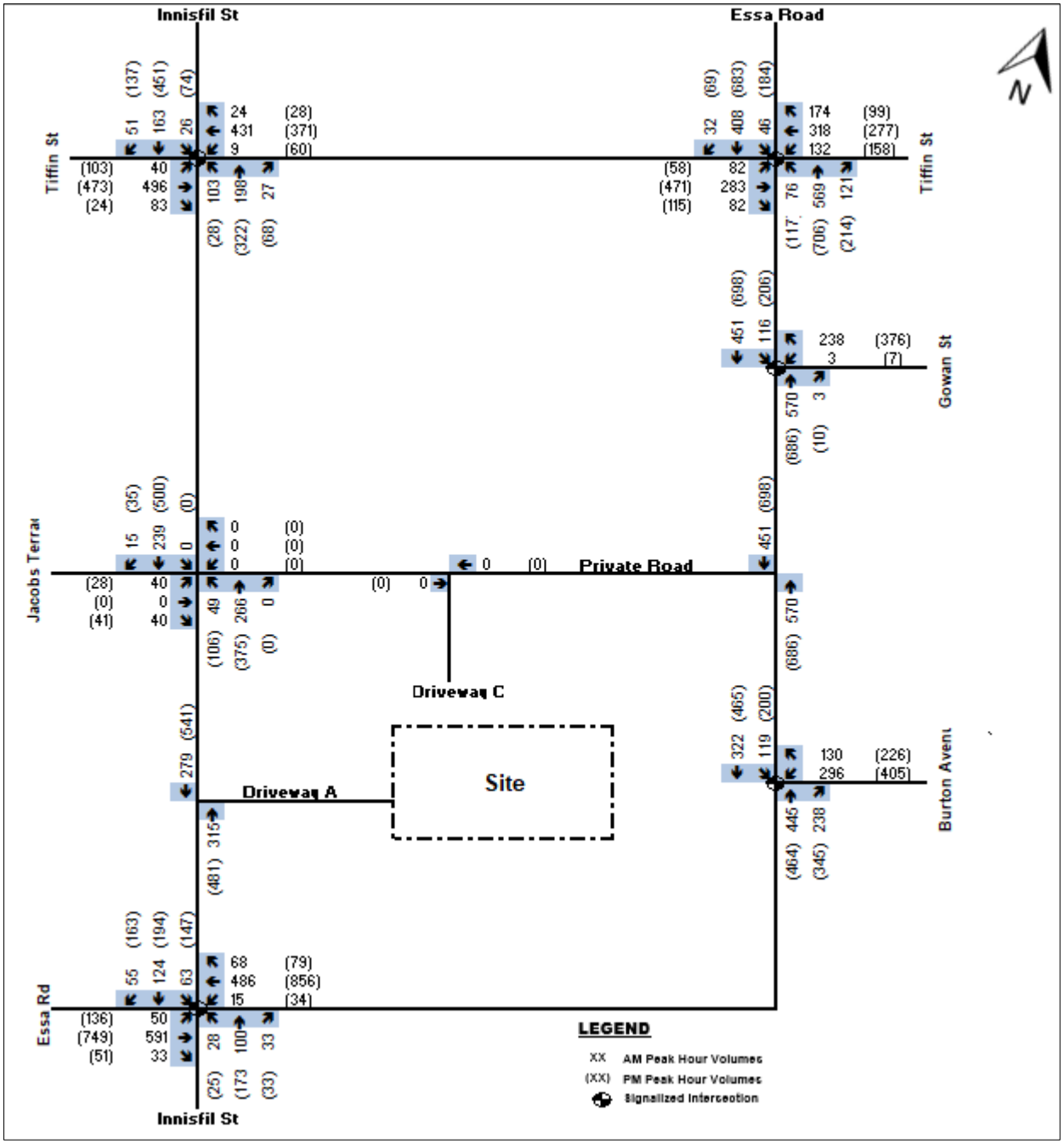


Figure 11 2028 Future Background Volumes

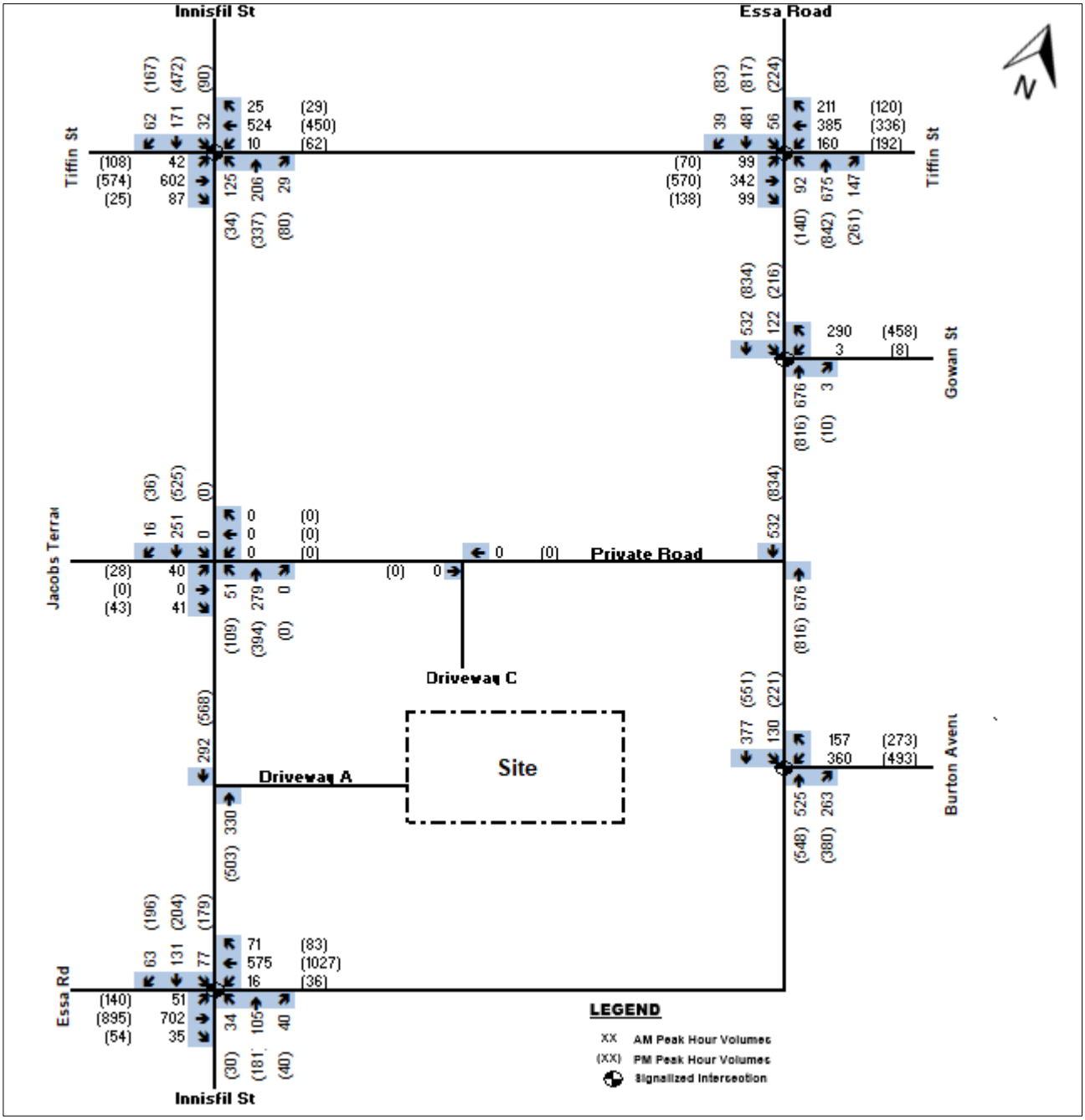


Figure 12 2033 Future Background Volumes

4. Site Generated Traffic

4.1 Site Multi Modal Travel Demand Forecast

A multi-modal analysis was undertaken utilizing data retrieved from the 2016 Transportation Tomorrow Survey (TTS). Although the proposed development is within Zone 8502, Zones 8502,8525,8526 and 8527 were utilized for this analysis to improve the accuracy of the results.

The proposed development is in an area where alternate forms of transportation are available. The results in Table 3 indicate that a small percentage of residents in this zone currently use non-auto modes of transportation.

Table 3 Existing Modal Split %

Transportation Mode	AM PEAK		PM PEAK	
	Inbound	Outbound	Inbound	Outbound
Auto Driver	82% (existing)	79% (existing)	86% (existing)	77% (existing)
Auto Passenger	0%	7%	9%	23%
Transit	0%	4%	4%	0%
Walk	18%	9%	1%	0%
Cycle	0%	1%	2%	0%

4.2 Vehicle Trip Generation

4.3 Modal Split

As per the City of Barrie Transportation Master Plan, the city has identified a mode share target of 7% for transit by 2041 City wide. Considering that the subject site is located in close proximity to the Allandale Transit Mobility Hub, it has been assumed that this target can be achieved for the subject site by 2023 when the site is expected to be built out.

Site traffic generated by the proposed development for the weekday a.m. and p.m. peak hours were estimated using the trip rates published by the ITE Trip Generation Manual, 10th Edition. Trip generation for the residential units used Land Use Code 222 (Multifamily Housing – High-Rise) and Land Use Code 850 (Shopping Centre).

Table 4 summarizes the trip generation calculations as per the City's Guidelines. Detailed ITE Trip Generation excerpts are provided in **Appendix D.**

Table 4 Estimated Site Traffic

Land Use	Units	Parameters	Weekday AM Peak Hour			Weekday PM Peak Hour		
			In	Out	Total	In	Out	Total
Multifamily Housing (High-Rise) LUC 222	1,276 units	Trip Rate	0.069	0.221	0.290	0.212	0.134	0.346
		Trip Ratio	24%	76%	-	61%	39%	-
		Gross Trips	88	282	370	270	172	442
		Transit %	7%	7%%		7%%	7%%	
		Transit reduction	6	20	26	19	12	31
Total residential Primary Trips			82	262	344	251	160	411
Shopping Centre LUC 820	9,000 ft^2	Trip Rate	0.556	0.333	0.889	4.889	5.222	10.111
		Trip Ratio	62%	38%	-	48%	52%	-
		Gross Trips	5	3	8	44	47	91
		Transit %	0%	0%	0%	0%	0%	0%
		Pass By %	-	-	-	17%	17%	34%
		Pass By Trips	-	-	-	16	16	32

Land Use	Units	Parameters	Weekday AM Peak Hour			Weekday PM Peak Hour		
			In	Out	Total	In	Out	Total
Total commercial Primary Trips			5	3	8	28	31	59
Total Mixed use Dev Primary Trips			87	265	352	279	191	470

The subject site is estimated to generate approximately 352 new two-way vehicle trips during the a.m. peak hour consisting of 87 inbound and 265 outbound trips. During the p.m. peak hour, it is estimated to generate 470 new two-way vehicle trips consisting of 279 inbound and 191 outbound trips.

4.4 Site Trip Distribution and Assignment

The distribution of site traffic between the subject site through the study area was based on a review of the 2016 TTS data and traffic data at the study intersections.

Upon determining origin and destination points throughout the study area for all inbound and outbound trips, trips were assigned to individual turning movements at the study area intersections based on route choice assignment with consideration for anticipated travel times. **Table 5** below summarizes the site trips distribution within the study area road network for both passenger vehicles and heavy vehicles.

Table 5 Overall Site Trip Distribution

Trip Orientation	AM Peak Hour		PM Peak Hour	
	In	Out	In	Out
West on Essa Road	50%	50%	50%	50%
West on Tiffin Street	15%	15%	15%	15%
East on Burton Avenue	10%	10%	10%	10%
North on Anne Street	5%	5%	5%	5%
North on Innisfil Street	15%	15%	15%	15%
North on Bradford Street	5%	5%	5%	5%

The site trip distribution and the estimated site trips generated from the proposed development and assigned to the adjacent road network for the weekday a.m. and p.m. peak hours are Illustrated in **Figures 13 and 14**.

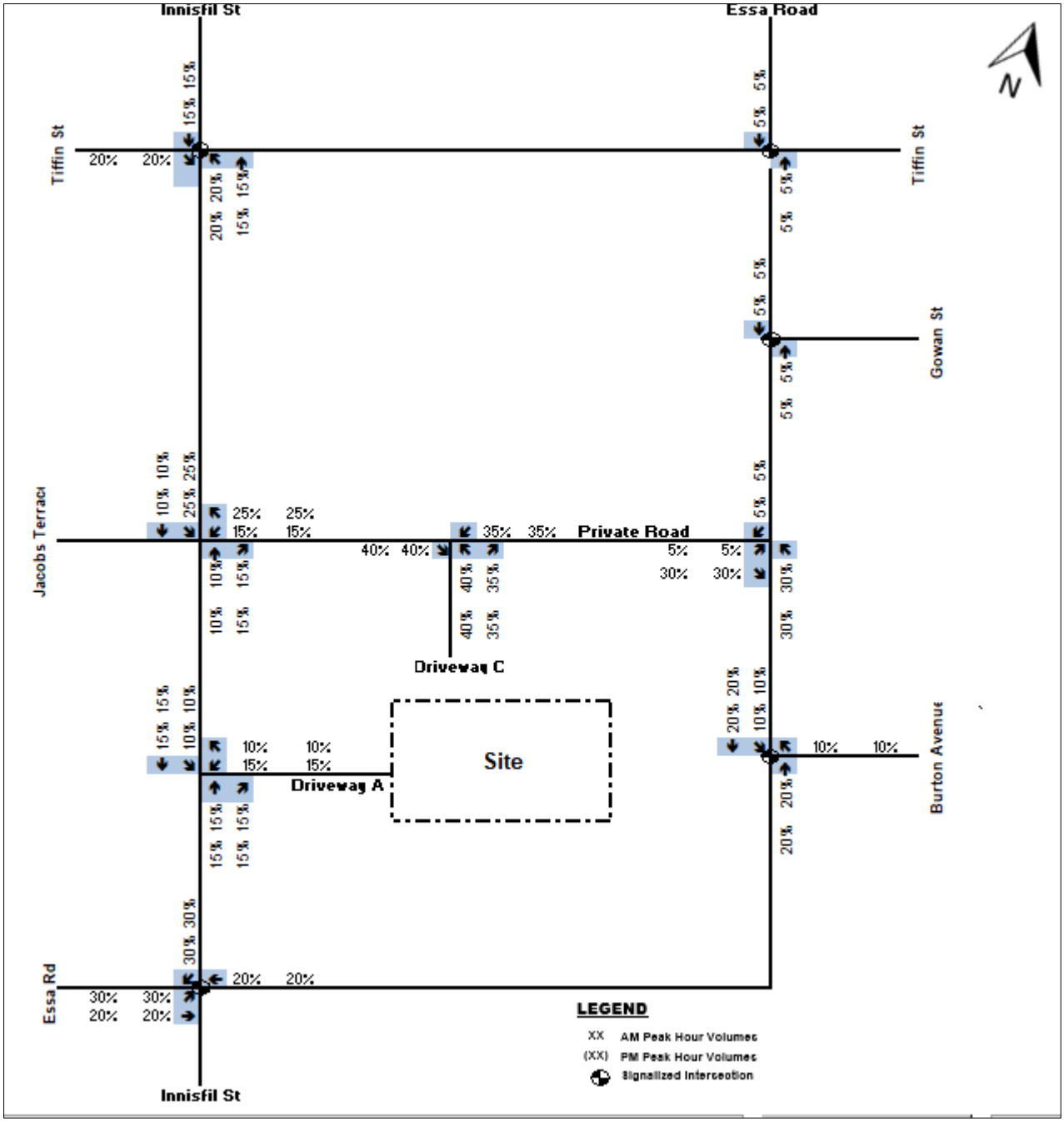


Figure 13 Site Trip Distribution

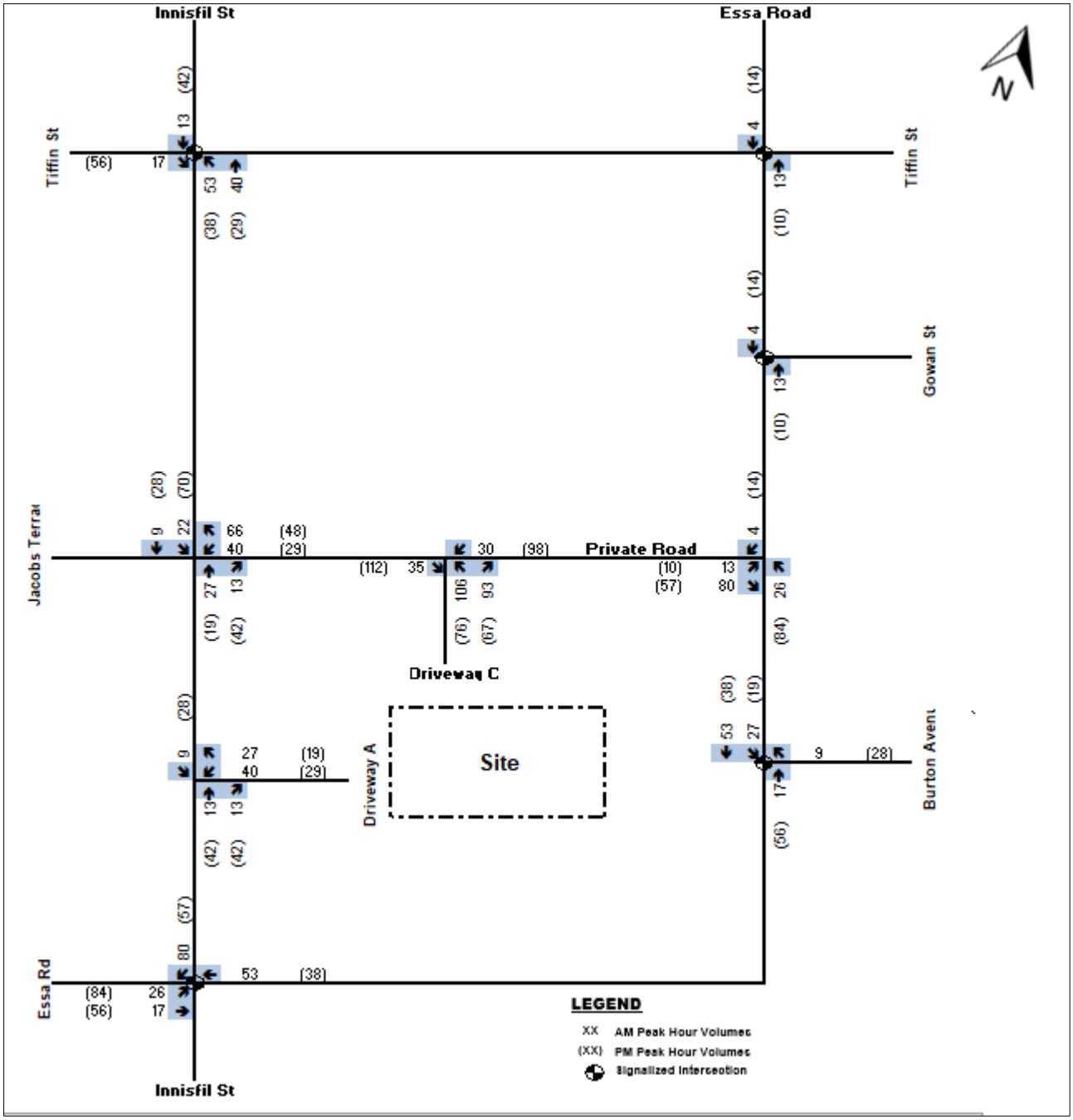


Figure 14 Site Traffic Assignment

4.5 Total Multi Modal Trip Generation

The TTS data shows that in addition to automobile trips, the proposed development is expected to also generate a number of transit trips and auto passenger trips.

Individual trip generation for each mode of travel was estimated using the ITE estimates for vehicle trip generation and the TTS data of the study area's mode splits summarized in Table 6.

Table 6 Multi Modal Trip Generation

Mode	Modal Split Volume Breakdown			
	Site Trips			
	AM Peak		PM Peak	
	Inbound	Outbound	Inbound	Outbound
Auto Driver	87	265	279	191
Auto Passenger	0	24	31	62
Transit	6	20	19	12
Walk	21	32	1	0
Cycle	0	2	0	0
Total	114	343	330	265

Based on the total vehicle trip generation, in addition to vehicle trips, the subject site is also expected generate a total 26 two-way transit trips during the a.m. peak hour consisting of 6 inbound and 20 outbound trips. During the p.m. peak hour, it a total 31 two-way transit trips are generated consisting of 19 inbound and 12 outbound trips.

A total of 53 two-way walking trips are generated during the a.m. peak hour consisting of 21 inbound and 32 outbound trips. During the p.m. peak hour, a total 1 two-way walking trip is generated consisting of 1 inbound and no outbound trips.

Lastly, a total 2 cycle trips are generated during the a.m. peak hour and a no cycle trips are generated during the p.m. peak hour based on existing TTS data although walking and cycling trips are expected to increase in the future as improvements to the Go Station and bike lanes are implemented within the study area.

5. Future total traffic

5.1 Future Total Traffic

The future total traffic conditions in the weekday a.m. and p.m. peak study hours for each of the future planning horizon years were derived by combining the future background traffic volumes with the corresponding estimates of site trips generation by the proposed residential development for each planning horizon.

Figures 15, 16 and 17 summarize the future total traffic volumes for the 2023, 2028 and 2033 planning horizons respectively, for the weekday a.m. and p.m. peak hours.

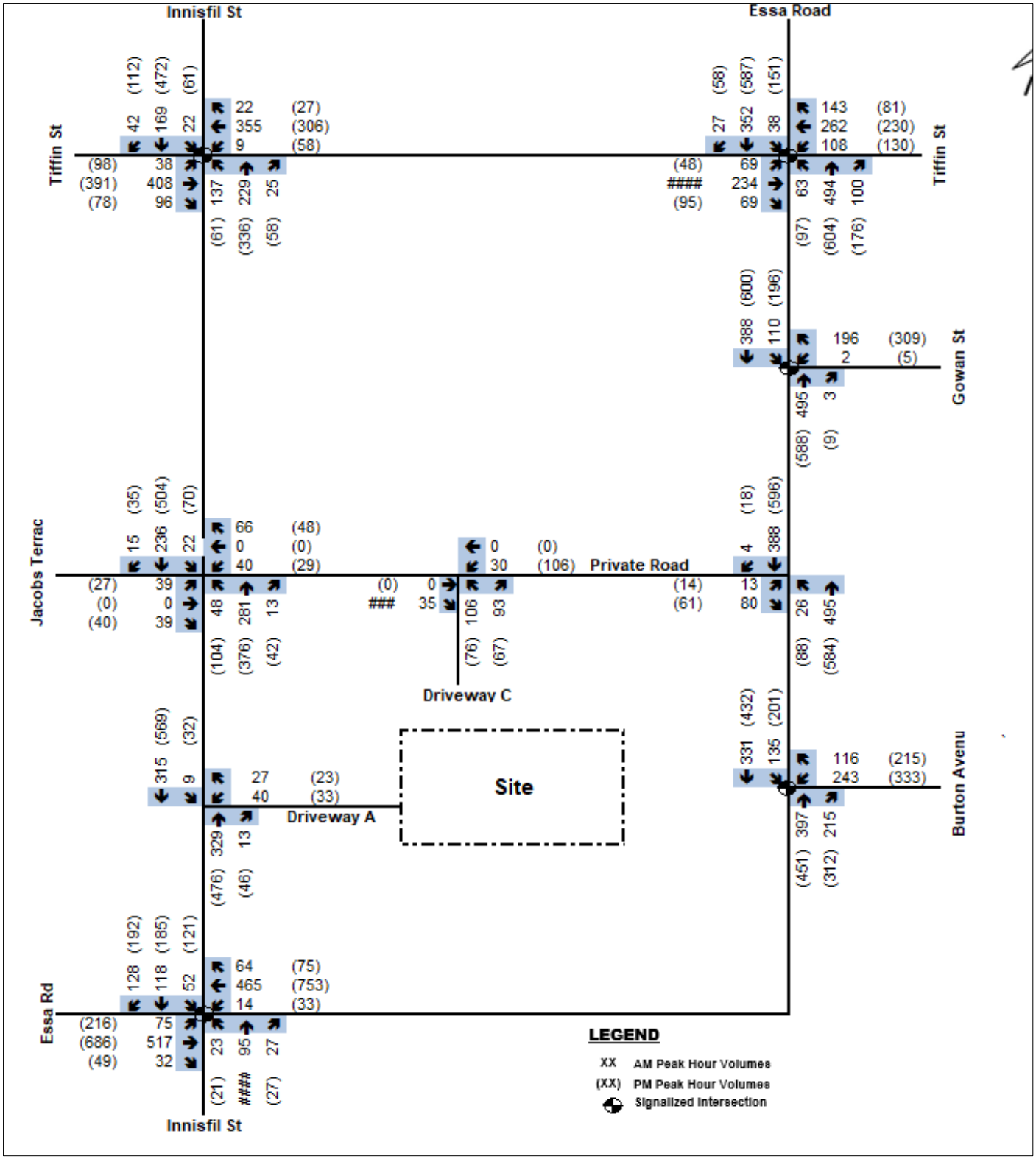


Figure 15 2023 Total Traffic Volumes

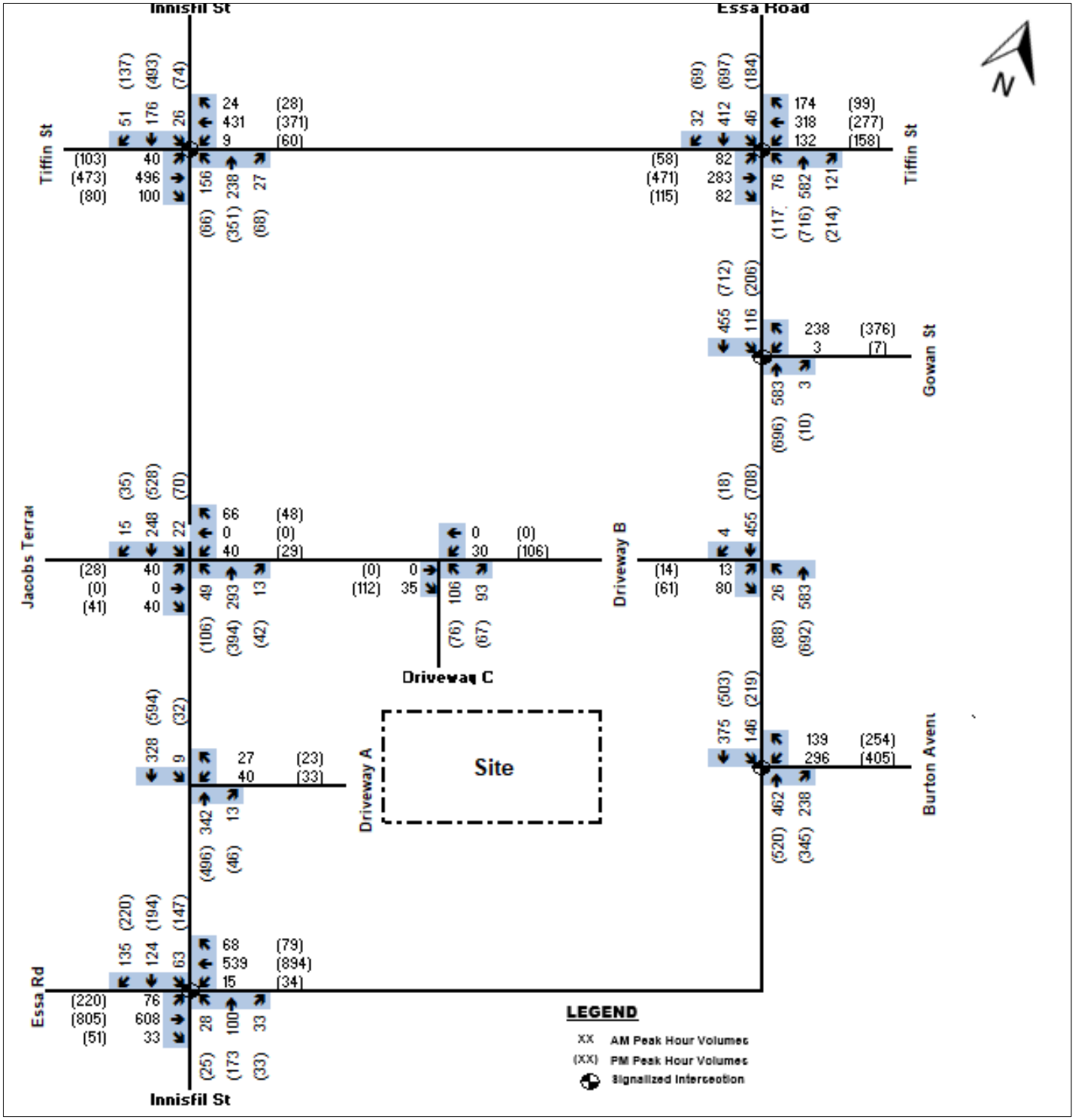


Figure 16 2028 Total Traffic Volumes

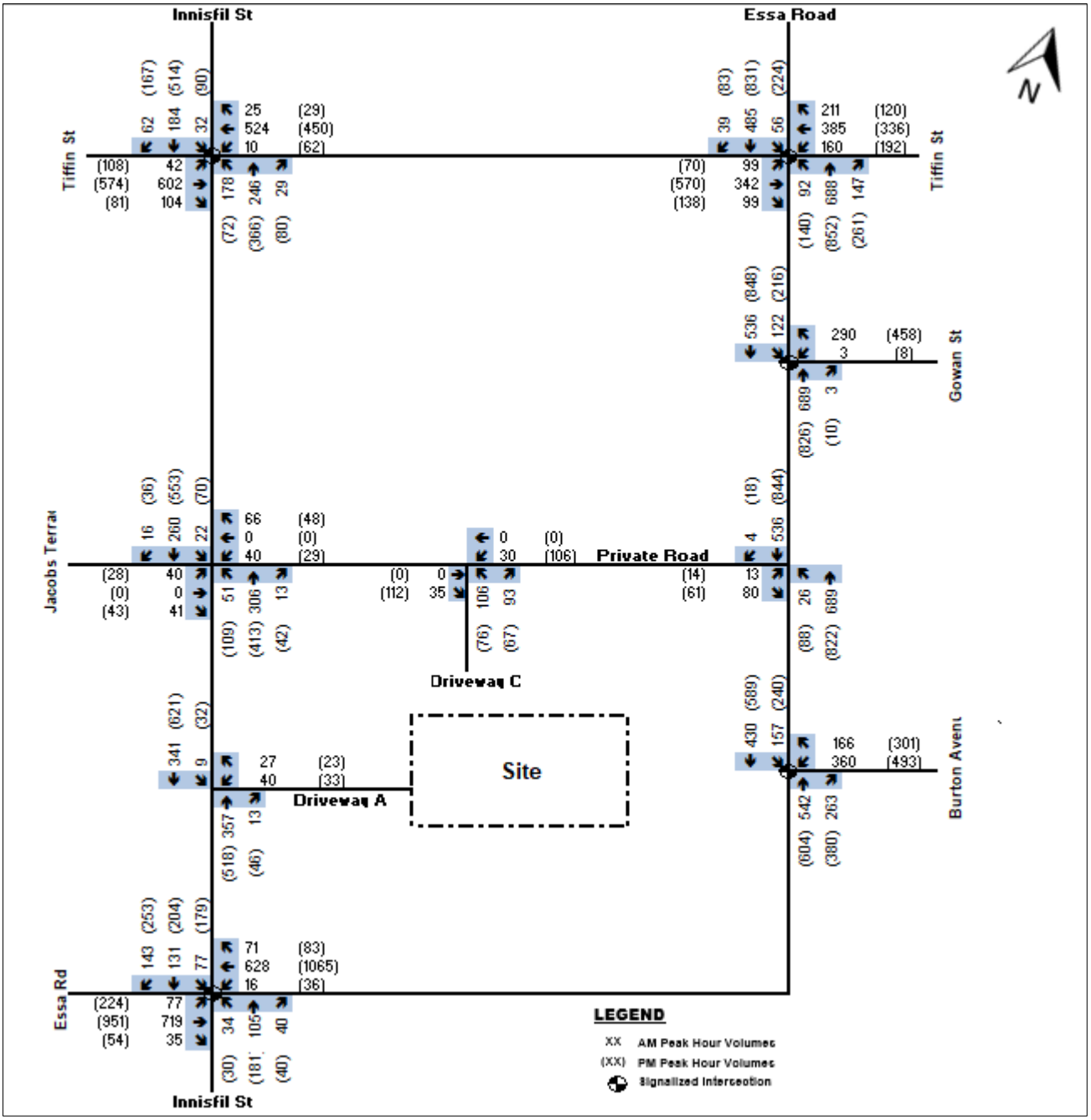


Figure 17 2033 Total Traffic Volumes

6. Multi Modal Capacity Analysis

6.1 Vehicle Capacity Analysis

The capacity analysis identifies how well the intersections and driveways are operating. The analysis contained within this report utilized the Highway Capacity Manual (HCM) 2000 procedure within the Synchro Version 10 Software package. The reported intersection volume-to-capacity ratios (v/c) are a measure of the saturation volume for each

turning movement, while the levels-of-service (LOS) are a measure of the average delay for each turning movement. Queuing characteristics are reported as the predicted 95th percentile queue for each turning movement.

In accordance with the City of Barrie Traffic Impact Study Guidelines, the analysis includes identification of conditions at signalized intersections where:

- Levels of Service (LOS) for overall intersection operations exceeds LOS D.
- Volume/capacity (v/c) ratios for through movements or shared through/turning movements increased to 0.85 or above.
- V/c ratios for exclusive movements increased to 0.85 or above.
- Where the 50th and 95th percentile queues for an individual movement are projected to exceed available turning lane storage.
- Queues for exclusive left and right turn lanes that are inaccessible due to the through lane queue length

The analysis includes identification of conditions at unsignalized intersections where:

- Level of service based on average delay per vehicle for individual movements exceed LOS E.
- 95th percentile queues for an individual movement are projected to exceed the lesser of 5 vehicles or the available queue storage.

The following tables summarize the HCM 2000 capacity results for the study intersections during the weekday a.m. and p.m. hours under existing 2021 and future background condition in 2023 and future total traffic conditions for the 2023, 2028 and 2033 planning horizons.

The detailed Synchro calculation sheets are provided in Appendix F.

Existing signal timing plans were obtained from the city for use in the analysis. A copy of the timing plans is also included in Appendix B.

6.1.1 Gowan Street and Essa Road

Capacity analysis at this intersection during the weekday a.m. and p.m. peak hours for the existing, future background, and future total traffic conditions are summarized in the following table.

Table 7 Capacity Analysis for Tiffin Street and Anne Street South

Traffic Condition	AM Peak Hour		PM Peak Hour	
	Movement v/c (LOS) Delay(sec)	95th Percentile Queue	Movement v/c (LOS) Delay(sec)	95th Percentile Queue
Existing 2021	**Overall: 0.22 (B) 12** WBLR = 0.14 (D) 49 NBTR = 0.15 (A) 3 SBTL = 0.22 (A) 3	WBLR = 25 m NBTR = 15 m SBTL = 15 m	**Overall: 0.35 (B) 13** WBLR = 0.21 (D) 50 NBTR = 0.17 (A) 3 SBTL = 0.36 (A) 3	WBLR = 30 m NBTR = 20 m SBTL = 35 m
Future Background 2023	**Overall: 0.27 (B) 11** WBLR = 0.15 (D) 49 NBTR = 0.19 (A) 3 SBTL = 0.27 (A) 3	WBLR = 25 m NBTR = 20 m SBTL = 20 m	**Overall: 0.42 (B) 12** WBLR = 0.23 (D) 50 NBTR = 0.21 (A) 3 SBTL = 0.43 (A) 4	WBLR = 30 m NBTR = 25 m SBTL = 40 m

Traffic Condition	AM Peak Hour		PM Peak Hour	
	Movement v/c (LOS) Delay(sec)	95th Percentile Queue	Movement v/c (LOS) Delay(sec)	95th Percentile Queue
Future Total 2023	**Overall: 0.27 (B) 11** WBLR = 0.15 (D) 49 NBTR = 0.19 (A) 3 SBTL = 0.28 (A) 3	 WBLR = 25 m NBTR = 20 m SBTL = 20 m	**Overall: 0.43 (B) 12** WBLR = 0.23 (D) 50 NBTR = 0.21 (A) 3 SBTL = 0.44 (A) 4	 WBLR = 30 m NBTR = 25 m SBTL = 45 m
Future Total 2028	**Overall: 0.25 (B) 12** WBLR = 0.18 (D) 49 NBTR = 0.26 (A) 6 SBL = 0.2 (A) 3 SBT = 0.18 (A) 3	 WBLR = 25 m NBTR = 35 m SBL = 10 m SBT = 20 m	**Overall: 0.43 (B) 15** WBLR = 0.64 (**E) 55** NBTR = 0.3 (A) 8 SBL = 0.38 (A) 4 SBT = 0.27 (A) 4	 WBLR = 60 m NBTR = 55 m SBL = 25 m SBT = 45 m
Future Total 2033	**Overall: 0.30 (B) 13** WBLR = 0.29 (D) 50 NBTR = 0.3 (A) 7 SBL = 0.23 (A) 3 SBT = 0.22 (A) 3	 WBLR = 30 m NBTR = 50 m SBL = 15 m SBT = 25 m	**Overall: 0.60 (C) 23** WBLR = **0.91 (F) 80** NBTR = 0.38 (B) 12 SBL = 0.5 (A) 8 SBT = 0.35 (A) 7	 WBLR = 130 m NBTR = 70 m SBL = 25 m SBT = 55 m

Under existing 2021 traffic conditions the intersection operates with reserve capacity, acceptable levels of delay, and negligible queuing.

In the 2023 future background conditions with corridor growth and background developments included, the intersection is expected to operate with an overall reported v/c ratio of 0.27 LOS B and 0.42 LOS B during the a.m. and p.m. peak hours with all individual movements operating with reported v/c ratios below critical except for all individual movements.

Under the 2023 total traffic scenario including the subject site trips, the overall intersection v/c ratios do not increase during the a.m. peak hour and only increase by 0.01 to 0.43 LOS B during the p.m. peak hour. Consequently, the operational impact of the added site traffic is minimal and is generally not expected to be identifiable from a driver's perspective.

In the 2028 total traffic scenario, the intersection is expected to continue operating with acceptable v/c ratios and delays with an overall reported v/c ratio of 0.25 LOS B during the a.m. peak hour and 0.43 LOS B for the p.m. peak hours with no individual movements operating at critical v/c ratio ratios. The improvement in v/c ratios and LOS is a result of planned road improvements expected to be completed by the 2028 horizon year. Signal timings have been optimized where possible to minimize delays.

Under the 2033 total traffic scenario, the intersection is expected to operate with an overall reported v/c ratio of 0.30 LOS B and 0.60 LOS C in the a.m. and p.m. peak hours with all but one individual movement operating at below critical levels. During the p.m. peak hour the westbound left/right turn is reported to operate at a v/c ratio of 0.91 LOS F. Nevertheless, the movement is operating below its theoretical maximum capacity with v/c ratios of less than 1.0.

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

6.1.2 Tiffin Street and Innisfil Street

Capacity analysis at this intersection during the weekday a.m. and p.m. peak hours for the existing, future background, and future total traffic conditions are summarized in the following table.

Table 8 Capacity Analysis for Tiffin Street and Innisfil Street

Traffic Condition	AM Peak Hour		PM Peak Hour	
	Movement v/c (LOS) Delay(sec)	95th Percentile Queue	Movement v/c (LOS) Delay(sec)	95th Percentile Queue
Existing 2021	**Overall: 0.57 (B) 15** EBL = 0.08 (A) 7 EBTR = 0.51 (B) 11 WBL = 0.01 (A) 6 WBTR = 0.38 (A) 9 NBTLR = 0.71 (C) 27 SBTLR = 0.47 (C) 20	 EBL = 10 m EBTR = 70 m WBL = 5 m WBTR = 50 m NBTLR = 50 m SBTLR = 40 m	**Overall: 0.64 (C) 22** EBL = 0.21 (B) 12 EBTR = 0.43 (B) 15 WBL = 0.1 (B) 11 WBTR = 0.35 (B) 14 NBTLR = 0.54 (B) 19 SBTLR = **0.89** (D) 37	 EBL = 20 m EBTR = 60 m WBL = 10 m WBTR = 45 m NBTLR = 60 m SBTLR = 125 m
Future Background 2023	**Overall: 0.63 (B) 16** EBL = 0.08 (A) 8 EBTR = 0.56 (B) 13 WBL = 0.03 (A) 7 WBTR = 0.42 (B) 10 NBTLR = 0.76 (C) 29 SBTLR = 0.47 (B) 20	 EBL = 10 m EBTR = 85 m WBL = 5 m WBTR = 60 m NBTLR = 60 m SBTLR = 40 m	**Overall: 0.68 (C) 23** EBL = 0.25 (B) 17 EBTR = 0.51 (B) 20 WBL = 0.18 (B) 16 WBTR = 0.42 (B) 18 NBTLR = 0.53 (B) 19 SBTLR = **0.85** (C) 32	 EBL = 30 m EBTR = 100 m WBL = 20 m WBTR = 80 m NBTLR = 70 m SBTLR = 125 m
Future Total 2023	**Overall: 0.73 (C) 21** EBL = 0.1 (B) 10 EBTR = 0.64 (B) 18 WBL = 0.03 (A) 10 WBTR = 0.46 (B) 14 NBTLR = **0.86** (D) 36 SBTLR = 0.41 (B) 18	 EBL = 10 m EBTR = 95 m WBL = 5 m WBTR = 65 m NBTLR = 95 m SBTLR = 40 m	**Overall: 0.75 (C) 25** EBL = 0.27 (B) 18 EBTR = 0.61 (C) 23 WBL = 0.22 (B) 18 WBTR = 0.43 (B) 20 NBTLR = 0.68 (C) 22 SBTLR = **0.88** (C) 34	 EBL = 30 m EBTR = 115 m WBL = 20 m WBTR = 80 m NBTLR = 90 m SBTLR = 140 m
Future Total 2028	**Overall: 0.46 (B) 14** EBL = 0.09 (A) 7 EBTR = 0.35 (A) 8 WBL = 0.02 (A) 6 WBTR = 0.26 (A) 8 NBL = 0.7 (C) 30 NBTR = 0.6 (C) 22 SBTLR = 0.6 (C) 22	 EBL = 10 m EBTR = 40 m WBL = 5 m WBTR = 30 m NBL = 35 m NBTR = 50 m SBTLR = 45 m	**Overall: 0.7 (C) 26** EBL = 0.3 (C) 22 EBTR = 0.41 (C) 22 WBL = 0.22 (C) 21 WBTR = 0.3 (C) 20 NBL = 0.23 (B) 14 NBTR = 0.47 (B) 16 SBTLR = **0.93** (D) 39	 EBL = 35 m EBTR = 70 m WBL = 25 m WBTR = 50 m NBL = 15 m NBTR = 65 m SBTLR = 165 m
Future Total 2033	**Overall: 0.54 (B) 15** EBL = 0.11 (A) 8 EBTR = 0.43 (A) 10 WBL = 0.03 (A) 7 WBTR = 0.32 (A) 9 NBL = 0.75 (C) 33 NBTR = 0.57 (C) 21 SBTLR = 0.61 (C) 22	 EBL = 10 m EBTR = 55 m WBL = 5 m WBTR = 40 m NBL = 40 m NBTR = 50 m SBTLR = 50 m	**Overall: 0.8 (C) 30** EBL = 0.42 (C) 31 EBTR = 0.55 (C) 29 WBL = 0.35 (C) 30 WBTR = 0.4 (C) 26 NBL = 0.23 (B) 12 NBTR = 0.45 (B) 14 SBTLR = **0.96** (D) 45	 EBL = 40 m EBTR = 85 m WBL = 25 m WBTR = 60 m NBL = 15 m NBTR = 75 m SBTLR = 225 m

Under existing 2021 traffic condition the intersection operates with reserve capacity, acceptable levels of delay, and negligible queuing.

Under the 2023 future background conditions, the intersection is expected to continue with reserve capacity with an overall reported v/c ratio of 0.63 LOS B during the a.m. peak hour and 0.68 LOS C. during the p.m. peak hour and with all individual movements operating with v/c ratios below critical levels except for the southbound left/through/right with a reported v/c ratio of 0.85 LOS C.

With the addition of site traffic under the future total 2023 condition, the overall intersection v/c ratio for the a.m. peak hour is expected to increase from 0.63 to 0.73 LOS C while the p.m. peak hour increases from 0.68 to 0.75 LOS C. The overall average delay per vehicle is expected to increase by 5 seconds in the a.m. peak to 21 seconds and by 3 seconds in the p.m. peak to 25 seconds. The critical southbound approached v/c ration increases from 0.85 to 0.88 LOS C due to the addition of site traffic. Despite this increase, the operational impact of the added site traffic is minimal and is generally not expected to be identifiable from a driver's perspective.

With additional corridor growth and background developments added to the 2028 future traffic conditions, the intersection is expected to operate with overall v/c ratios of 0.46 LOS B and 0.70 LOS C during the a.m. and p.m. peak hours respectively with all individual movements operating with reported v/c ratios below critical except for the southbound approach. The southbound approach increases from 0.88 to 0.93 LOS D but is still expected to operate below the theoretical maximum capacity for the movement with a v/c ratio of less than 1.0 and with only a 5 second increase in the average delay per vehicle on this approach from the 2023 horizon year. Any improvements in the reported v/c ratios for this intersection are a result of the planned road improvements which will increase capacity at the intersection. Signal timings were optimized where possible to minimize delay for all approaches. In addition, Cycle length was increased to 110 seconds in the p.m. peak hour to better accommodate future conditions.

In the 2033 total traffic scenario the intersection is expected to operate with an overall reported v/c ratio of 0.54 LOS B and 0.80 LOS C for the a.m. and p.m. peak hours respectively, with all individual movements operating with v/c ratios below critical again except for the southbound approach which increases to a v/c ratio of 0.96 LOS D. As with the 2028 traffic scenario, this movement remains below its theoretical capacity and is still operating with acceptable delays of 45 seconds per vehicle.

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

6.2 Burton Avenue and Essa Road

Capacity analysis at this intersection during the weekday a.m. and p.m. peak hours for the existing, future background, and future total traffic conditions are summarized in the following table.

Table 9 Capacity Analysis for Burton Avenue and Essa Road

Traffic Condition	AM Peak Hour		PM Peak Hour	
	Movement v/c (LOS) Delay(sec)	95th Percentile Queue	Movement v/c (LOS) Delay(sec)	95th Percentile Queue
Existing 2021	**Overall: 0.34 (B) 16** WBL = 0.71 (D) 42 WBR = 0.07 (C) 31 NBTR = 0.21 (A) 6 SBTL = 0.2 (A) 6	WBL = 70 m WBR = 15 m NBTR = 20 m SBTL = 20 m	**Overall: 0.48 (B) 18** WBL = 0.83 (D) 49 WBR = 0.17 (C) 31 NBTR = 0.23 (A) 7 SBTL = 0.34 (A) 7	WBL = 95 m WBR = 20 m NBTR = 20 m SBTL = 30 m
Future Background 2023	**Overall: 0.40 (B) 15** WBL = 0.74 (D) 43 WBR = 0.08 (C) 30 NBTR = 0.27 (A) 7	WBL = 75 m WBR = 15 m	**Overall: 0.58 (B) 16** WBL = 0.77 (D) 39 WBR = 0.17 (C) 26 NBTR = 0.31 (A) 9	WBL = 85 m WBR = 20 m

Traffic Condition	AM Peak Hour		PM Peak Hour	
	Movement v/c (LOS) Delay(sec)	95th Percentile Queue	Movement v/c (LOS) Delay(sec)	95th Percentile Queue
	SBTL = 0.28 (A) 6	NBTR = 30 m SBTL = 25 m	SBTL = 0.45 (A) 10	NBTR = 35 m SBTL = 50 m
Future Total 2023	**Overall: 0.46 (B) 15** WBL = 0.74 (D) 43 WBR = 0.09 (C) 30 NBTR = 0.28 (A) 7 SBTL = 0.35 (A) 7	WBL = 80 m WBR = 15 m NBTR = 60 m SBL = 25 m SBT = 30 m	**Overall: 0.62 (B) 16** WBL = 0.77 (D) 39 WBR = 0.2 (C) 27 NBTR = 0.34 (A) 9 SBTL = 0.51 (B) 10	WBL = 105 m WBR = 30 m NBTR = 70 m SBL = 40 m SBT = 35 m
Future Total 2028	**Overall: 0.53 (B) 18** WBL = 0.76 (D) 39 WBR = 0.12 (C) 26 NBTR = 0.43 (B) 15 SBL = 0.41 (A) 9 SBT = 0.19 (A) 7	WBLR = 25 m NBTR = 35 m SBL = 10 m SBT = 20 m	**Overall: 0.76 (C) 22** WBL = **0.85** (D) 44 WBR = 0.29 (C) 27 NBTR = 0.5 (B) 18 SBL = 0.67 (B) 16 SBT = 0.24 (A) 9	WBL = 105 m WBR = 30 m NBTR = 70 m SBL = 40 m SBT = 35 m
Future Total 2033	**Overall: 0.65 (C) 21** WBL = 0.83 (D) 43 WBR = 0.2 (C) 26 NBTR = 0.52 (B) 18 SBL = 0.53 (B) 12 SBT = 0.22 (A) 9	WBL = 100 m WBR = 20 m NBTR = 75 m SBL = 25 m SBT = 35 m	**Overall: 0.95 (C) 28** WBL = **0.92** (D) 52 WBR = 0.38 (C) 27 NBTR = 0.61 (C) 22 SBL = **0.92** (D) 49 SBT = 0.3 (B) 12	WBL = 150 m WBR = 45 m NBTR = 90 m SBL = 60 m SBT = 45 m

Under existing 2021 traffic condition the intersection is operating with reserve capacity, acceptable levels of delay, and negligible queuing.

With corridor growth and background developments added under the 2023 future background conditions, the intersection is expected to continue to operate with an overall reported v/c ratio of 0.40 LOS B and 0.58 LOS B during the a.m. and p.m. peak hours respectively with all individual movements operating with v/c ratios below critical.

Under the 2023 total traffic scenario including the subject site trips, the overall intersection v/c ratios increase by 0.06 to 0.46 LOS B during the a.m. peak hour and by 0.04 to 0.62 LOS B during the p.m. peak hour. There is no increase in the overall intersection delays and therefore, the operational impact of the added site traffic is minimal and is generally not expected to be identifiable from a driver's perspective.

In the 2028 total traffic scenario, the intersection is expected to be operate with an overall reported v/c ratio of 0.53 LOS B during the a.m. peak hour and 0.76 LOS B during the p.m. peak hour with all individual movements operating below critical levels except for westbound left turn that operates at a reported v/c ratio of 0.85 in the p.m. peak hour. Any improvements in v/c ratios and LOS is a result of planned road improvements expected to be completed by the 2028 horizon year. Signal timings have been optimized where possible to minimize delays.

Under the 2033 total traffic scenario, the intersection is expected to operate with an overall reported v/c ratio of 0.65 LOS C and 0.95 LOS C during the a.m. and p.m. peak hours respectively with most individual movements operating below critical levels. Only the westbound left and southbound left turn movements during the p.m. peak hour are reported to operate above critical levels with v/c ratios of 0.92 LOS D. However, both these critical movements are operating below their theoretical maximum capacity with v/c ratios of less than 1.0 and with delays of less than 52 second which is acceptable for an auxiliary left turn lane.

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

6.2.1 Innisfil Street and Jacobs Terrace

Capacity analysis at this intersection during the weekday a.m. and p.m. peak hours for the existing, future background, and future total traffic conditions are summarized in the following table.

Table 10 Capacity Analysis for Innisfil Street and Jacobs Terrace

Traffic Condition	AM Peak Hour		PM Peak Hour	
	Movement v/c (LOS) Delay(sec)	95th Percentile Queue	Movement v/c (LOS) Delay(sec)	95th Percentile Queue
Existing 2021	EBLR = 0.07 (B) 11 NBTL = 0.03 (A) 1 SBTR = 0.17 (A) 0	EBLR = 5 m NBTL = 5 m SBTR = 0 m	EBLR = 0.08 (B) 12 NBTL = 0.05 (A) 2 SBTR = 0.29 (A) 0	EBLR = 5 m NBTL = 5 m SBTR = 0 m
Future Background 2023	EBTLR = 0.13 (B) 11 WBTLR = 0 (A) 0 NBL = 0.04 (A) 8 NBT = 0.16 (A) 0 SBL = 0 (A) 0 SBTR = 0.15 (A) 0	EBTLR = 5 m WBTLR = 0 m NBL = 5 m NBT = 0 m SBL = 0 m SBTR = 0 m	EBTLR = 0.15 (B) 14 WBTLR = 0 (A) 0 NBL = 0.11 (A) 9 NBTR = 0.23 (A) 0 SBL = 0 (A) 0 SBTR = 0.33 (A) 0	EBTLR = 5 m WBTLR = 0 m NBL = 5 m NBTR = 0 m SBL = 0 m SBTR = 0 m
Future Total 2023	EBTLR = 0.15 (B) 13 WBTLR = 0.19 (B) 12 NBL = 0.04 (A) 8 NBT = 0.19 (A) 0 SBL = 0.02 (A) 8 SBTR = 0.16 (A) 0	EBTLR = 5 m WBTLR = 5 m NBL = 5 m NBT = 0 m SBL = 5 m SBTR = 0 m	EBTLR = 0.2 (C) 17 WBTLR = 0.23 (C) 18 NBL = 0.12 (A) 9 NBTR = 0.27 (A) 0 SBL = 0.07 (A) 8 SBTR = 0.34 (A) 0	EBTLR = 5 m WBTLR = 10 m NBL = 5 m NBTR = 0 m SBL = 5 m SBTR = 0 m
Future Total 2028	EBTLR = 0.16 (B) 13 WBTLR = 0.19 (B) 12 NBL = 0.04 (A) 8 NBTR = 0.2 (A) 0 SBL = 0.02 (A) 8 SBTR = 0.17 (A) 0	EBTLR = 5 m WBTLR = 5 m NBL = 5 m NBTR = 0 m SBL = 5 m SBTR = 0 m	EBTLR = 0.21 (C) 18 WBTLR = 0.25 (C) 19 NBL = 0.12 (A) 9 NBTR = 0.28 (A) 0 SBL = 0.07 (A) 9 SBTR = 0.36 () 0	EBTLR = 10 m WBTLR = 10 m NBL = 5 m NBTR = 0 m SBL = 5 m SBTR = 0 m
Future Total 2033	EBTLR = 0.17 (B) 13 WBTLR = 0.2 (B) 13 NBL = 0.05 (A) 8 NBTR = 0.2 (A) 0 SBL = 0.02 (A) 8 SBTR = 0.18 (A) 0	EBTLR = 5 m WBTLR = 5 m NBL = 5 m NBTR = 0 m SBL = 5 m SBTR = 0 m	EBTLR = 0.23 (C) 19 WBTLR = 0.26 (C) 20 NBL = 0.13 (A) 10 NBTR = 0.29 (A) 0 SBL = 0.07 (A) 9 SBTR = 0.38 (A) 0	EBTLR = 10 m WBTLR = 10 m NBL = 5 m NBTR = 0 m SBL = 5 m SBTR = 0 m

Under existing 2021 traffic condition the intersection operates with substantial reserve capacity, acceptable levels of delay, and negligible queuing.

Under all future conditions this intersection is expected to continue to operate with substantial reserve capacity, acceptable levels of delay, and negligible queuing.

No geometric improvements are recommended at this study intersection in response to the site traffic generated from the subject site.

6.2.2 Tiffin Street and Essa Road

Capacity analysis at this intersection during the weekday a.m. and p.m. peak hours for the existing, future background, and future total traffic conditions are summarized in the following table.

Table 11 Capacity Analysis for Tiffin Street South and Essa Road

Traffic Condition	AM Peak Hour		PM Peak Hour	
	Movement v/c (LOS) Delay(sec)	95th Percentile Queue	Movement v/c (LOS) Delay(sec)	95th Percentile Queue
Existing 2021	**Overall: 0.52 (B) 19** EBL = 0.18 (C) 21 EBTR = 0.45 (C) 24 WBL = 0.25 (B) 14 WBTR = 0.47 (B) 18 NBTLR = 0.46 (B) 19 SBTL = 0.27 (B) 18 SBR = 0.02 (B) 16	EBL = 20 m EBTR = 60 m WBL = 20 m WBTR = 65 m NBTLR = 50 m SBTL = 30 m SBR = 0 m	**Overall: 0.75 (C) 24** EBL = 0.13 (C) 23 EBTR = 0.81 (D) 41 WBL = 0.45 (B) 18 WBTR = 0.36 (B) 18 NBTLR = 0.65 (C) 21 SBTL = 0.68 (C) 22 SBR = 0.03 (B) 14	EBL = 15 m EBTR = 130 m WBL = 25 m WBTR = 55 m NBTLR = 65 m SBTL = 60 m SBR = 5 m
Future Background 2023	**Overall: 0.62 (C) 20** EBL = 0.24 (C) 23 EBTR = 0.56 (C) 28 WBL = 0.29 (B) 14 WBTR = 0.52 (B) 19 NBTLR = 0.58 (C) 21 SBTL = 0.36 (B) 18 SBR = 0.02 (B) 15	EBL = 20 m EBTR = 70 m WBL = 20 m WBTR = 75 m NBTLR = 60 m SBTL = 35 m SBR = 5 m	**Overall: 0.87 (C) 30** EBL = 0.15 (C) 24 EBTR = **0.87** (D) 48 WBL = 0.61 (C) 25 WBTR = 0.41 (C) 20 NBTLR = 0.81 (C) 27 SBTL = 0.83 (C) 29 SBR = 0.04 (B) 15	EBL = 20 m EBTR = 155 m WBL = 30 m WBTR = 65 m NBTLR = 95 m SBTL = 85 m SBR = 5 m
Future Total 2023	**Overall: 0.62 (C) 21** EBL = 0.24 (C) 23 EBTR = 0.56 (C) 28 WBL = 0.29 (B) 14 WBTR = 0.52 (B) 19 NBTLR = 0.59 (C) 21 SBTL = 0.36 (B) 18 SBR = 0.02 (B) 15	EBL = 20 m EBTR = 70 m WBL = 20 m WBTR = 75 m NBTLR = 65 m SBTL = 35 m SBR = 5 m	**Overall: 0.88 (C) 31** EBL = 0.15 (C) 25 EBTR = **0.88** (D) 48 WBL = 0.62 (C) 26 WBTR = 0.41 (C) 21 NBTLR = 0.82 (C) 28 SBTL = 0.84 (C) 30 SBR = 0.04 (B) 15	EBL = 20 m EBTR = 155 m WBL = 30 m WBTR = 65 m NBTLR = 100 m SBTL = 90 m SBR = 5 m
Future Total 2028	**Overall: 0.48 (C) 23** EBL = 0.34 (C) 31 EBTR = 0.37 (C) 28 WBL = 0.35 (B) 18 WBTR = 0.32 (B) 19 NBL = 0.27 (C) 23 NBTR = 0.61 (C) 27 SBL = 0.19 (B) 17 SBTR = 0.31 (B) 18	EBL = 30 m EBTR = 45 m WBL = 30 m WBTR = 40 m NBL = 25 m NBTR = 80 m SBL = 10 m SBTR = 40 m	**Overall: 0.71 (C) 27** EBL = 0.23 (C) 30 EBTR = 0.63 (D) 35 WBL = 0.61 (C) 26 WBTR = 0.27 (C) 21 NBL = 0.51 (C) 27 NBTR = 0.76 (C) 31 SBL = 0.7 (C) 26 SBTR = 0.45 (B) 17	EBL = 20 m EBTR = 70 m WBL = 35 m WBTR = 35 m NBL = 40 m NBTR = 110 m SBL = 45 m SBTR = 65 m

Traffic Condition	AM Peak Hour		PM Peak Hour	
	Movement v/c (LOS) Delay(sec)	95th Percentile Queue	Movement v/c (LOS) Delay(sec)	95th Percentile Queue
Future Total 2033	**Overall: 0.6 (C) 25** EBL = 0.46 (C) 35 EBTR = 0.45 (C) 30 WBL = 0.46 (B) 19 WBTR = 0.4 (C) 20 NBL = 0.35 (C) 24 NBTR = 0.73 (C) 30 SBL = 0.28 (B) 19 SBTR = 0.36 (B) 18	 EBL = 35 m EBTR = 55 m WBL = 35 m WBTR = 50 m NBL = 30 m NBTR = 100 m SBL = 15 m SBTR = 50 m	**Overall: 0.93 (C) 34** EBL = 0.3 (C) 32 EBTR = 0.77 (D) 40 WBL = **0.9** (E) 57 WBTR = 0.33 (C) 22 NBL = 0.71 (D) 39 NBTR = **0.92** (D) 43 SBL = 0**.86** (D) 48 SBTR = 0.54 (B) 18	 EBL = 25 m EBTR = 90 m WBL = 60 m WBTR = 45 m NBL = 55 m NBTR = 150 m SBL = 70 m SBTR = 80 m

Under existing 2021 traffic condition the intersection operates with reserve capacity, acceptable levels of delay, and negligible queuing.

Under the 2023 future background conditions with corridor growth and background developments included, the intersection is expected to be operate with an overall reported v/c ratio of 0.67 and 0.82 for the a.m. and p.m. peak hours with all individual movements operating with a reported v/c ratio below critical in both peak hours

With the addition of site trips, under future total 2023 conditions this intersection continues to operate with all individual movements operating with a reported v/c ratio below critical in both peak hours.

With additional corridor growth and background developments, under 2028 future conditions the intersection is expected to be operate with an overall reported v/c ratio of 0.59 and 0.80 for the a.m. and p.m. peak hours with all individual movements operating with v/c ratios below critical levels.

In the 2033 total traffic scenario, the overall intersection v/c ratio for the a.m. peak hour increases from 0.59 to 0.68 LOS B and for the p.m. peak hour from 0.80 to 0.93 LOS C due to the continued corridor growth. All individual movements are operating with a reported v/c ratio below critical except for the westbound through/right movement and eastbound left turn that operates at a reported v/c ratio of 0.90 and 0.94 respectively. Although critical, both movements are expected to operate below their theoretical maximum capacity with v/c ratios less than 1.0.

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

6.2.3 Innisfil Street and Essa Road

Capacity analysis at this intersection during the weekday a.m. and p.m. peak hours for the existing, future background, and future total traffic conditions are summarized in the following table.

Table 12 Capacity Analysis for Innisfil Street and Essa Road

Traffic Condition	AM Peak Hour		PM Peak Hour	
	Movement v/c (LOS) Delay(sec)	95th Percentile Queue	Movement v/c (LOS) Delay(sec)	95th Percentile Queue
Existing 2021	**Overall: 0.34 (B) 15** EBTLR = 0.25 (A) 8 WBTLR = 0.21 (A) 8 NBTL = 0.31 (C) 31 NBR = 0.02 (C) 29 SBTL = 0.47 (C) 33 SBR = 0.02 (C) 29	 EBTLR = 30 m WBTLR = 25 m NBTL = 35 m NBR = 0 m SBTL = 50 m SBR = 5 m	**Overall: 0.54 (B) 19** EBTLR = 0.4 (B) 14 WBTLR = 0.39 (B) 13 NBTL = 0.32 (C) 29 NBR = 0.02 (C) 26 SBTL = 0.68 (D) 37 SBR = 0.14 (C) 27	 EBTLR = 60 m WBTLR = 65 m NBTL = 50 m NBR = 0 m SBTL = 85 m SBR = 20 m
Future Background 2023	**Overall: 0.41 (B) 14** EBTLR = 0.33 (A) 9 WBTLR = 0.26 (A) 8 NBTL = 0.32 (C) 31 NBR = 0.02 (C) 29 SBTL = 0.48 (C) 33 SBR = 0.03 (C) 29	 EBTLR = 35 m WBTLR = 30 m NBTL = 40 m NBR = 0 m SBTL = 55 m SBR = 10 m	**Overall: 0.73 (C) 21** EBTLR = 0.65 (B) 19 WBTLR = 0.47 (B) 14 NBTL = 0.32 (C) 29 NBR = 0.02 (C) 26 SBTL = 0.7 (D) 38 SBR = 0.17 (C) 27	 EBTLR = 95 m WBTLR = 80 m NBTL = 50 m NBR = 0 m SBTL = 90 m SBR = 25 m
Future Total 2023	**Overall: 0.45 (B) 21** EBTLR = 0.39 (A) 9 WBTLR = 0.29 (A) 8 NBTL = 0.32 (C) 31 NBR = 0.02 (C) 29 SBTL = 0.48 (C) 33 SBR = 0.1 (C) 29	 EBTLR = 40 m WBTLR = 35 m NBTL = 40 m NBR = 0 m SBTL = 55 m SBR = 15 m	**Overall: 0.84 (C) 24** EBTLR = 0.82 (C) 26 WBTLR = 0.5 (B) 15 NBTL = 0.32 (C) 29 NBR = 0.02 (C) 26 SBTL = 0.7 (D) 38 SBR = 0.24 (C) 28	 EBTLR = 140 m WBTLR = 85 m NBTL = 50 m NBR = 0 m SBTL = 90 m SBR = 30 m
Future Total 2028	**Overall: 0.43 (B) 15** EBL = 0.22 (B) 16 EBTR = 0.38 (B) 17 WBL = 0.05 (B) 11 WBTR = 0.33 (B) 13 NBTL = 0.41 (D) 39 NBR = 0.02 (D) 35 SBL = 0.19 (C) 28 SBTR = 0.45 (C) 32	 EBL = 25 m EBTR = 70 m WBL = 5 m WBTR = 55 m NBTL = 45 m NBR = 0 m SBL = 20 m SBTR = 65 m	**Overall: 0.72 (C) 26** EBL = 0.64 (B) 19 EBTR = 0.48 (B) 18 WBL = 0.11 (B) 16 WBTR = 0.64 (C) 26 NBTL = 0.56 (D) 39 NBR = 0.02 (C) 33 SBL = 0.49 (C) 32 SBTR = 0.73 (D) 39	 EBL = 35 m EBTR = 85 m WBL = 10 m WBTR = 115 m NBTL = 65 m NBR = 0 m SBL = 40 m SBTR = 110 m
Future Total 2033	**Overall: 0.48 (C) 20** EBL = 0.25 (B) 17 EBTR = 0.45 (B) 18 WBL = 0.06 (B) 11 WBTR = 0.38 (B) 14 NBTL = 0.46 (D) 40 NBR = 0.03 (D) 35 SBL = 0.23 (C) 28 SBTR = 0.48 (C) 32	 EBL = 25 m EBTR = 85 m WBL = 5 m WBTR = 65 m NBTL = 50 m NBR = 0 m SBL = 25 m SBTR = 70 m	**Overall: 0.82 (C) 31** EBL = 0.74 (C) 31 EBTR = 0.57 (B) 20 WBL = 0.14 (B) 17 WBTR = 0.78 (C) 31 NBTL = 0.74 (D) 49 NBR = 0.02 (C) 33 SBL = 0.62 (D) 37 SBTR = 0.81 (D) 44	 EBL = 50 m EBTR = 100 m WBL = 10 m WBTR = 145 m NBTL = 80 m NBR = 0 m SBL = 50 m SBTR = 135 m

Under existing 2021 traffic condition the intersection operates with substantial reserve capacity, acceptable levels of delay, and negligible queuing.

Under all future conditions this intersection is expected to continue to operate with reserve capacity, acceptable levels of delay, and negligible queuing.

No geometric improvements are recommended at this study intersection in response to the site traffic generated from the subject site.

6.2.4 Innisfil Street and Driveway A

Capacity analysis at this intersection during the weekday a.m. and p.m. peak hours for the future total traffic conditions are summarized in the following table.

Table 13 Capacity Analysis for Jacobs Terrace and East Site Access

Traffic Condition	AM Peak Hour		PM Peak Hour	
	Movement v/c (LOS) Delay(sec)	95th Percentile Queue	Movement v/c (LOS) Delay(sec)	95th Percentile Queue
Future Total 2023	WBLR = 0.12 (B) 12 NBTR = 0.24 () 0 SBL = 0.01 (A) 8	WBLR = 5 m NBTR = 0 m SBL = 5 m	WBLR = 0.14 (B) 15 NBTR = 0.36 () 0 SBL = 0.04 (A) 9	WBLR = 5 m NBTR = 0 m SBL = 5 m
Future Total 2028	WBLR = 0.12 (B) 12 NBTR = 0.24 (A) 0 SBL = 0.01 (A) 8	WBLR = 5 m NBTR = 0 m SBL = 5 m	WBLR = 0.14 (B) 15 NBTR = 0.36 (A) 0 SBL = 0.04 (A) 9	WBLR = 5 m NBTR = 0 m SBL = 5 m
Future Total 2033	WBLR = 0.12 (B) 12 NBTR = 0.24 (A) 0 SBL = 0.01 (A) 8	WBLR = 5 m NBTR = 0 m SBL = 5 m	WBLR = 0.14 (B) 15 NBTR = 0.36 (A) 0 SBL = 0.04 (A) 9	WBLR = 5 m NBTR = 0 m SBL = 5 m

Under future conditions, the main site access is expected to operate satisfactorily with substantial reserve capacity, low levels of delay and negligible queuing.

6.2.1 Essa Road and Driveway B

Capacity analysis at this intersection during the weekday a.m. and p.m. peak hours for the future total traffic conditions are summarized in the following table.

Table 13 Capacity Analysis for Essa Road and Driveway B

Traffic Condition	AM Peak Hour		PM Peak Hour	
	Movement v/c (LOS) Delay(sec)	95th Percentile Queue	Movement v/c (LOS) Delay(sec)	95th Percentile Queue
Future Total 2023	EBLR = 0.14 (B) 11 NBTL = 0.21 (A) 0 SBTR = 0.09 (A) 0	EBLR = 5 m NBTL = 0 m SBTR = 0 m	EBLR = 0.17 (B) 14 NBTL = 0.25 (A) 0 SBTR = 0.14 (A) 0	EBLR = 5 m NBT = 0 m SBTR = 0 m

Traffic Condition	AM Peak Hour		PM Peak Hour	
	Movement v/c (LOS) Delay(sec)	95th Percentile Queue	Movement v/c (LOS) Delay(sec)	95th Percentile Queue
Future Total 2028	EBLR = 0.14 (B) 11 NBL = 0.25 (A) 0 SBTR = 0.1 (A) 0	EBLR = 5 m NBTL = 5 m NBT = 0 m SBTR = 0 m	EBLR = 0.2 (C) 16 NBTL= 0.29 (A) 0 SBTR = 0.16 (A) 0	EBLR = 5 m NBTL = 0 m SBTR = 0 m
Future Total 2033	EBLR = 0.15 (B) 11 NBT = 0.29 (A) 0 SBTR = 0.12 (A) 0	EBLR = 5 m NBTL = 5 m SBTR = 0 m	EBLR = 0.17 (B) 14 NBTL = 0.35 (A) 0 SBTR = 0.19 (A) 0	EBLR = 5 m NBTL = 0 m SBTR = 0 m

Under future conditions, the main site access is expected to operate satisfactorily with substantial reserve capacity, low levels of delay and negligible queuing.

6.2.2 Driveway B and Driveway C

Capacity analysis at this intersection during the weekday a.m. and p.m. peak hours for the future total traffic conditions are summarized in the following table.

Table 13 Capacity Analysis for Driveway B and Driveway C

Traffic Condition	AM Peak Hour		PM Peak Hour	
	Movement v/c (LOS) Delay(sec)	95th Percentile Queue	Movement v/c (LOS) Delay(sec)	95th Percentile Queue
Future Total 2023	EBTR = 0.02 () 0 WBTL = 0.02 (A) 7 NBLR = 0.22 (A) 10	EBTR = 0 m WBTL = 5 m NBLR = 10 m	EBTR = 0.07 () 0 WBTL = 0.08 (A) 8 NBLR = 0.2 (B) 11	EBTR = 0 m WBTL = 5 m NBLR = 5 m
Future Total 2028	EBTR = 0.02 () 0 WBTL = 0.02 (A) 7 NBLR = 0.22 (A) 10	EBTR = 0 m WBTL = 5 m NBLR = 10 m	EBTR = 0.07 () 0 WBTL = 0.08 (A) 8 NBLR = 0.2 (B) 11	EBTR = 0 m WBTL = 5 m NBLR = 5 m
Future Total 2033	EBTR = 0.02 () 0 WBTL = 0.02 (A) 7 NBLR = 0.22 (A) 10	EBTR = 0 m WBTL = 5 m NBLR = 10 m	EBTR = 0.07 () 0 WBTL = 0.08 (A) 8 NBLR = 0.2 (B) 11	EBTR = 0 m WBTL = 5 m NBLR = 5 m

Under future conditions, the main site access is expected to operate satisfactorily with substantial reserve capacity, low levels of delay and negligible queuing.

6.3 Transit Capacity Analysis

As per Table 6 approximately 7 and 5 two-way transit trips are expected to be generated by the subject site during the a.m. and p.m. peak hours, respectively. Given the low volumes expected to be generated by the proposed development, the future transit service in the area should be able to adequately serve the subject site.

6.4 Pedestrian Capacity Analysis

As per Table 6 approximately 53 and 1 two-way pedestrian trips are expected to be generated by the subject site during the a.m. and p.m. peak hours, respectively. The existing sidewalks are adequate to accommodate this number of additional pedestrian trips and no improvements are required.

6.5 Cycle Capacity Analysis

As per Table 6 only 1 or 2 bicycle trips are expected to be generated by the subject site during the a.m. and p.m. peak hours, respectively based on existing modal splits. The number of bicycle trips are currently low in the study given the lack of cycle infrastructure. However, with the planned bicycle lanes along the study area intersections, the number of cyclists in the area is expected to increase and can be accommodated on the planned cycle lanes.

7. Vehicular Parking

7.1 Zoning By-Law 2009-141 Requirements

As per the City of Barrie By-law 2009-141, the calculation of the parking requirement for the various components of the proposed site plan are summarized in Table 14.

Table 14 Zoning Bylaw 2009-141 Parking Requirements

Use	Rate	Units/Capacity	Minimum Requirement
Residential Dwelling in the Urban Growth Centre	1 space per dwelling unit	1,276	1,276 spaces
Retail	1 space per 30 m^2	896 m^2	30 spaces
Accessible Parking Space (residential)	1 space plus 3% of required parking space	1,276 Parking Spaces	40 spaces
Accessible Parking Space (commercial)		30 Parking Spaces	2 spaces

* The Community Centre space will be signed for a maximum capacity of 40 persons.

Application of the existing parking standards contained in Zoning By-law 2009-141 to the subject site results in a total parking requirement of 1,306 parking spaces. The proposed site plan provides a total 1,306 parking spaces consisting of 1,276 resident spaces and 30 retail parking spaces and therefore the site meets the minimum By-law requirement.

In addition, the site provides 42 accessible parking spaces that consist of 40 accessible parking spaces (residential) ad 2 accessible parking spaces (commercial), that meets the minimum By-law requirement as indicated in Table 14.

8. Conclusions and Recommendations

The site is located in in close proximity to a variety of local amenities including the Allandale GO Station which is the location of the future Allandale Transit Mobility Hub.

There are planned road improvements in the area that have been accounted for in the analysis of future traffic scenarios including along:

- Essa Road

- Tiffin Street
- Innisfil Street

The site well served by both Barrie Transit and GO Transit.

The proposed site Plan prepared by Architecture Unfolded consists of 1,276 residential units, 896 sq.m of retail Gross Floor Area (GFA).

The development proposes two driveway connections to Jacobs Terrace forming a loop with connections to the parking ramps, loading and ground level parking spaces.

The study intersections include:

- Tiffin Street and Essa Road
- Tiffin Street and Innisfil Street
- Gowan Street and Essa Road
- Jacobs Terrace and Innisfil Street
- Essa Road and Burton Avenue
- Essa Road and Innisfil Street

Existing traffic volumes were based on historic traffic data obtained from the City and factored to 2021 base conditions using growth rates provided by the City.

Future traffic forecasts were developed using corridor growth rates and proposed background developments that are expected to contribute additional traffic through the study intersections.

The subject development is estimated to generate approximately 352 new two-way vehicle trips during the a.m. peak hour consisting of 87 inbound and 265 outbound trips. During the p.m. peak hour, it is expected to generate 279 new two-way vehicle trips consisting of 191 inbound and 470 outbound trips.

Based on the TTS data and target transit mode share, the subject site is expected to also generate a total 26 two-way transit trips during the a.m. peak hour consisting of 6 inbound and 20 outbound trips. During the p.m. peak hour, a total 31 two-way transit trips are generated consisting of 19 inbound and 12 outbound trips.

A total of 53 two-way walking trips are generated during the a.m. peak hour consisting of 21 inbound and 32 outbound trips. During the p.m. peak hour, a total 1 two-way walking trips are generated consisting of 1 inbound and 0 outbound trips.

Lastly, a total 2 two-way cycle trips are generated during the a.m. peak hour consisting of 0 inbound and 2 outbound trip. During the p.m. peak hour, a total 0 two-way cycle trips are generated consisting of 0 inbound and 0 outbound trips. The aforementioned site trips are expected to increase with the proposed cycle network.

Traffic analysis was undertaken for existing conditions and expected future traffic conditions for build-out in 2023 and a period of five and ten years post build-out in 2028 and 2033. The capacity analysis was completed using the Synchro V 10 software package.

With the planned improvement highlighted in the City of Barrie Transportation Master Plan dated 2019, all intersections within the study area are expected to operate under acceptable conditions under future traffic conditions with no additional improvements recommended to accommodate the subject site traffic. Signal timings were optimized where required to reduce delays and queuing.

The proposed site plan provides a total 1,306 parking spaces consisting of 1,276 resident spaces and 30 retail parking spaces and therefore the site meets the minimum By-law requirement. In addition, the site provides 42 accessible parking spaces that consist of 40 accessible parking spaces (residential) ad 2 accessible parking spaces (commercial), that meets the minimum By-law requirement.

The overall conclusion is that the existing and future planned transportation network improvements surrounding the subject site can support the proposed development with acceptable v/c ratios, level of service and queuing.

We trust that we have addressed the pertinent transportation matters for this proposed development and please do not hesitate to contact us for further clarification of any point.

Sincerely,

GHD



William Maria, P. Eng.
Transportation Planning Lead

Appendices

Appendix A

Site Plan Details

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notes:

CONTEXT MAP



revisions: date

1 ZBA submission 07-09-21
submissions: date

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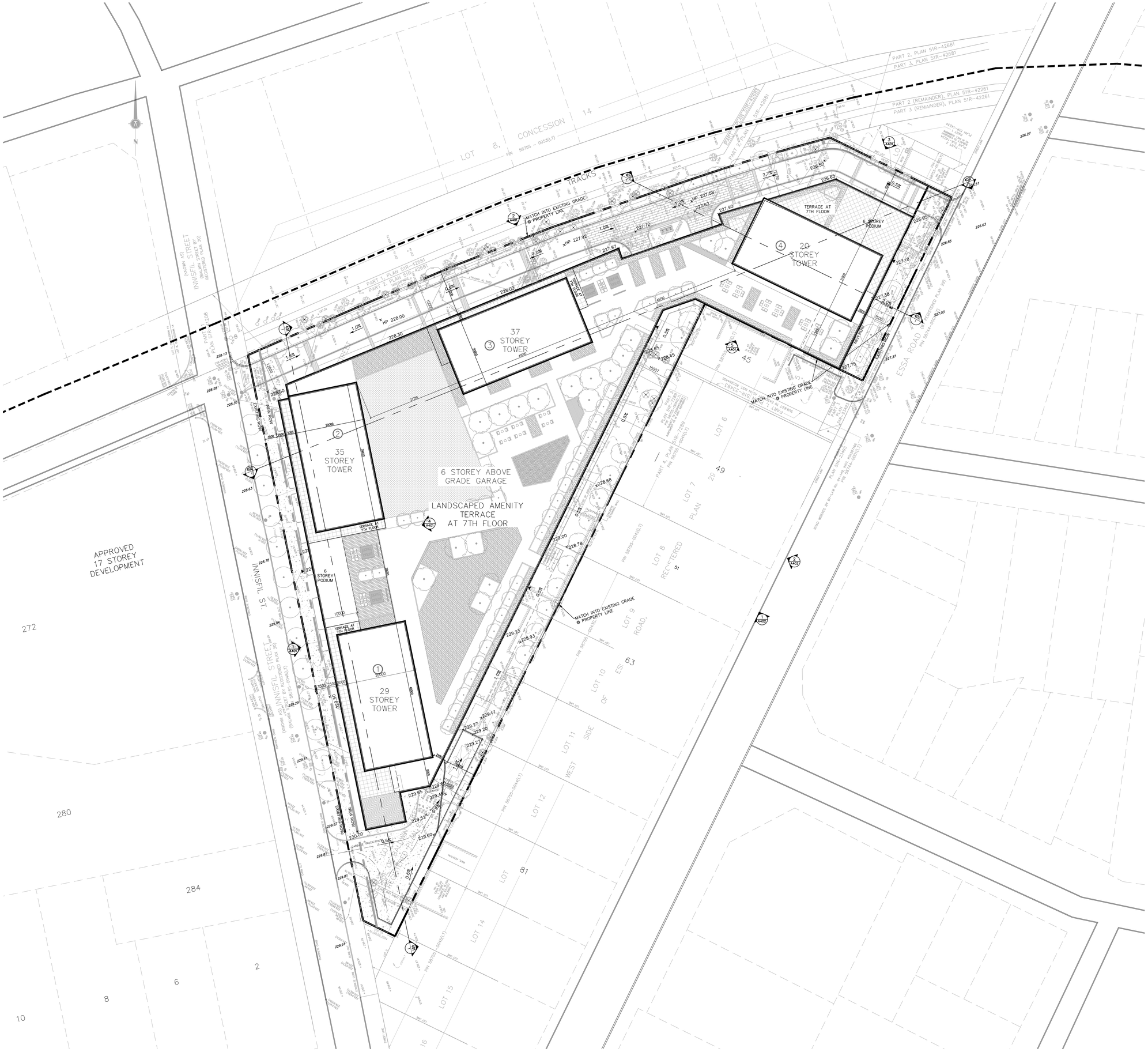
structural:
Jablonsky, Ast and Partners International
450-3 Concorde Gate, Toronto, ON, M3C 3N7

project:
259 Innisfil Street
barrie, ontario

context plan & statistics

september 24.2021 — date:
1:500 — scale:
21-04 — project:
mz - id — drawn by:

true north / construction north — drawing number: A100


LOT 8, CONCESSION 14
PIN 58755 – 0053(LT)
PART 2, PLAN 51R-42681
PART 3, PLAN 51R-42681
PART 2 (REMAINDER), PLAN 51R-42261
PART 3 (REMAINDER), PLAN 51R-42261
INNISFIL STREET
(KNOWN AS)
INNISFIL STEET BY
(BALMY BEACH PLAN 30)
REGISTERED PLAN 30
TRACKS
MATCH INTO EXISTING GRADE @ PROPERTY LINE
TERRACE AT 7TH FLOOR
6 STOREY PODIUM
29 STOREY TOWER
37 STOREY TOWER
35 STOREY TOWER
6 STOREY ABOVE GRADE GARAGE
LANDSCAPED AMENITY TERRACE AT 7TH FLOOR
APPROVED 17 STOREY DEVELOPMENT
ESSA ROAD
(RECONSTRUCTED PLAN 29)
PIN 58744-0005(LT)
LOT 45
LOT 6
LOT 7
LOT 8 REGISTERED PLAN 63
LOT 9
LOT 10
LOT 11
LOT 12
LOT 14
LOT 15
LOT 87
LOT 49
PLAN 63
WEST SIDE OF ESSA ROAD
PIN 58755–0054(LT)
PIN 58755–0055(LT)
PIN 58755–0056(LT)
PIN 58755–0057(LT)
PIN 58755–0058(LT)
PIN 58755–0059(LT)
PIN 58755–0060(LT)
PIN 58755–0061(LT)
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PIN 58755–0063(LT)
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PIN 58755–0070(LT)
PIN 58755–0071(LT)
PIN 58755–0072(LT)
PIN 58755–0073(LT)
PIN

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notes:

Legend

- Proposal
- Potential Block Development
- Residential
- City Centre
- General Commercial
- Community Centre Commercial
- Regional Centre Commercial
- Mixed Use Nodes and Corridors
- Business Park
- Highway 400 Industrial
- General Industrial
- Restricted Industrial
- Institutional
- Educational Institutional
- Major Institutional
- Open Space
- Environmental Protection Area
- Special Rural Area
- Water Treatment Centre
- Waste Management Facility
- Future Urban
- Waste Disposal Assessment Area
- City Boundary
- Application Before the Ontario Municipal Board (OMB)
- SecondaryPlanBoundary
- Settlement Area Boundary

revisions: date

1 ZBA submission 07-09-21
submissions: date

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Jablonsky, Ast and Partners International
400-3 Concorde Gate, Toronto, ON, M3C 3N7

project:
259 Innisfil Street
barrie, ontario

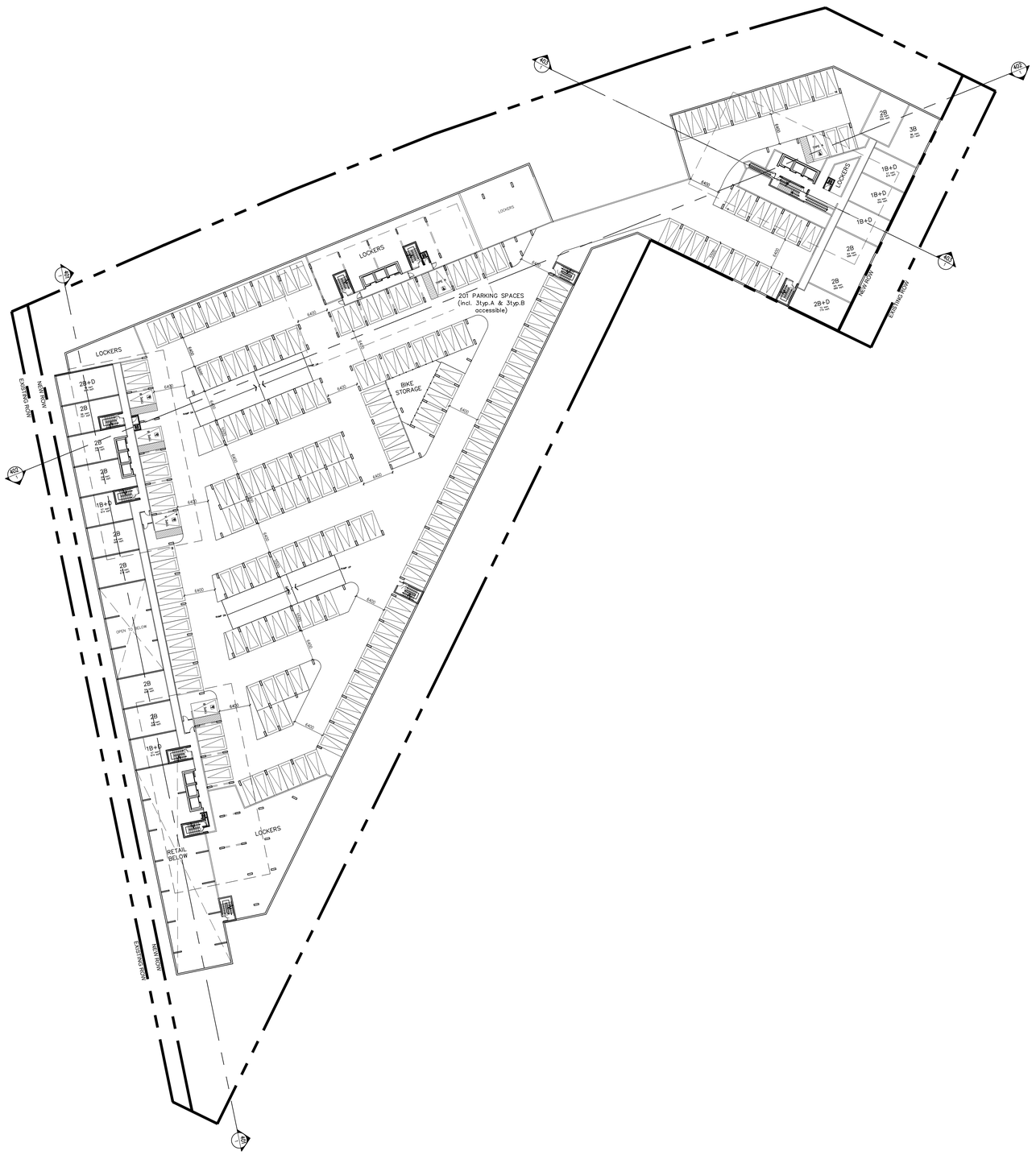
block plan

date: september 24.2021
scale: n.t.s
project: 21-04
drawn by: mz - id
drawing number: A102

true north
construction north

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INNISFIL STREET
(KNOWN AS) INNISFIL STREET
(SHOWN AS INNISFIL STREET ON REGISTERED PLAN 50)
PLAN 51R-42261
PART 1, PLAN 51R-42261
PART 2, PLAN 51R-42261
PART 3, PLAN 51R-42261
PART 2 (REMAINDER), PLAN 51R-42261
PART 3 (REMAINDER), PLAN 51R-42261
LOT 8, CONCESSION 14
PIN 58755 - 0053(LT)
TRACKS
ESSA ROAD
(REGISTERED PLAN 29)
PIN 58755-0044(LT)
ROAD WIDENED BY INSTRUMENT No. SC44
PIN 58755-0044(LT)
PART 1, PLAN 51R-42261
PART 2, PLAN 51R-42261
PART 3, PLAN 51R-42261
PART 4, PLAN 51R-42261
PART 5, PLAN 51R-42261
PART 6, PLAN 51R-42261
PART 7, PLAN 51R-42261
PART 8, PLAN 51R-42261
PART 9, PLAN 51R-42261
PART 10, PLAN 51R-42261
PART



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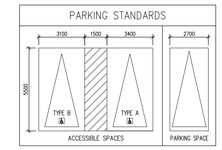
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notes:



revisions: date

1 ZBA submission 07-09-21
submissions: date

architecture**unfolded**
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848 dufferin street, toronto, on. m6h 1z8

architectural team :

mark zwicker
ihab daakour

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447 Welham Road, Unit 9A, Barrie, ON, L4N 0B7

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Studio TLA
30 Champlain Blvd., Suite 102, Toronto, ON, M2H 2Z1, Canada

traffic:
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4725 Mikenzie Drive, Unit 1, Mississauga, ON L5M 3M4

site services:
Tatham Engineering
41 King Street, Unit 4, Barrie, ON, L4N 6B5

structural:
Jablonsky, Ast and Partners International
400-3 Concorde Gate, Toronto, ON, M3C 3N7

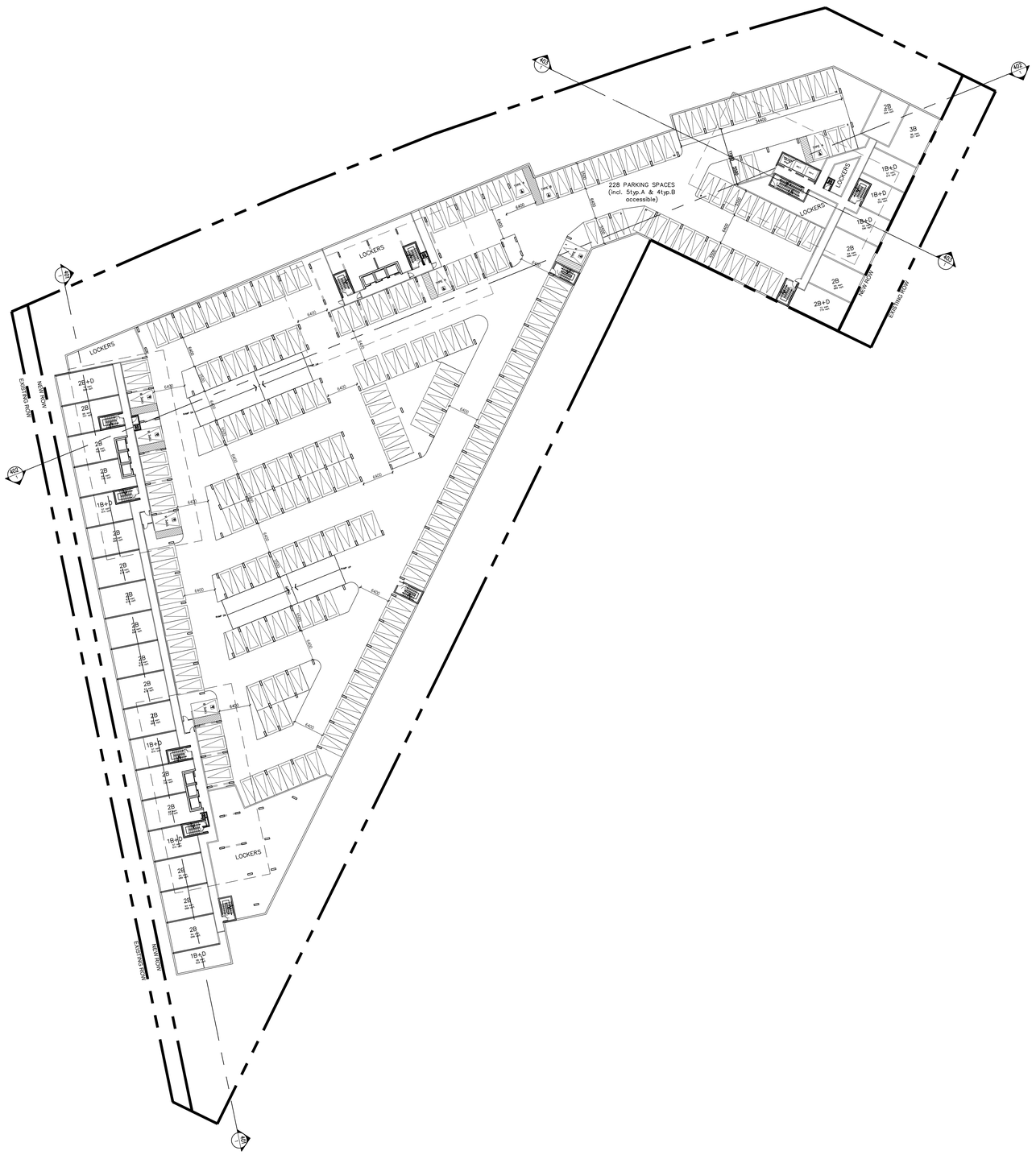
project:
259 Innisfil Street
Barrie, ontario

2nd floor plan

september 24.2021 date:
1:400 scale:
21-04 project:
mz - id drawn by:

drawing number:
A301

true north
construction north



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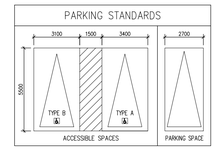
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revisions: date

1 ZBA submission 07-09-21
submissions: date

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site services:
Tatham Engineering
41 King Street, Unit 4, Barrie, ON, L4N 6B5

structural:
Jablonsky, Ast and Partners International
400-3 Concorde Gate, Toronto, ON, M3C 3N7

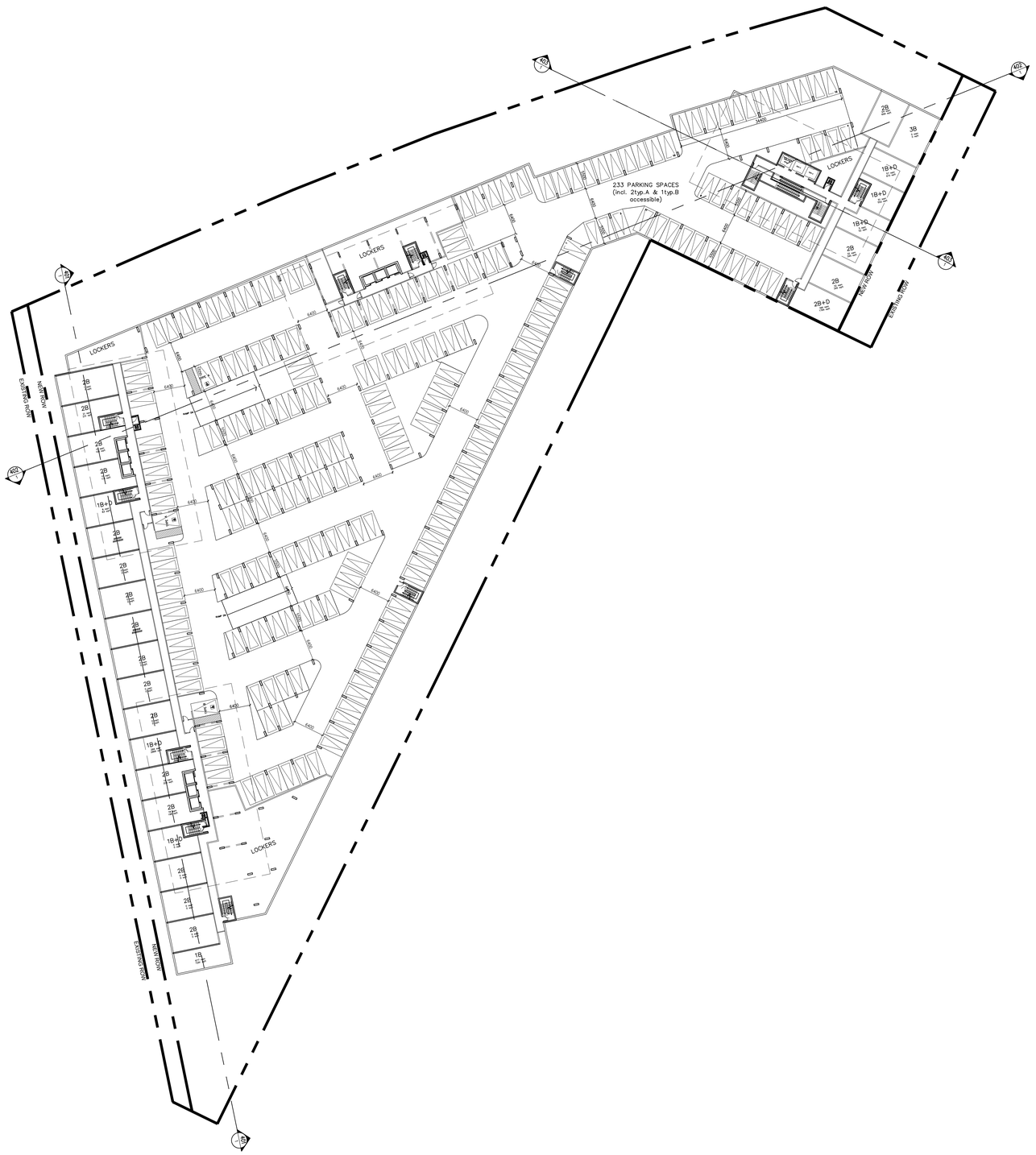
project:
259 Innisfil Street
Barrie, ontario

3rd-5th floor plan

september 24.2021 date:
1:400 scale:
21-04 project:
mz - id drawn by:
drawing number:

true north
construction north

A303



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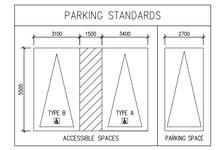
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notes:



revisions: date

1 ZBA submission 07-09-21
submissions: date

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Tatham Engineering
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structural:
Jablonsky, Ast and Partners International
400-3 Concorde Gate, Toronto, ON, M3C 3N7

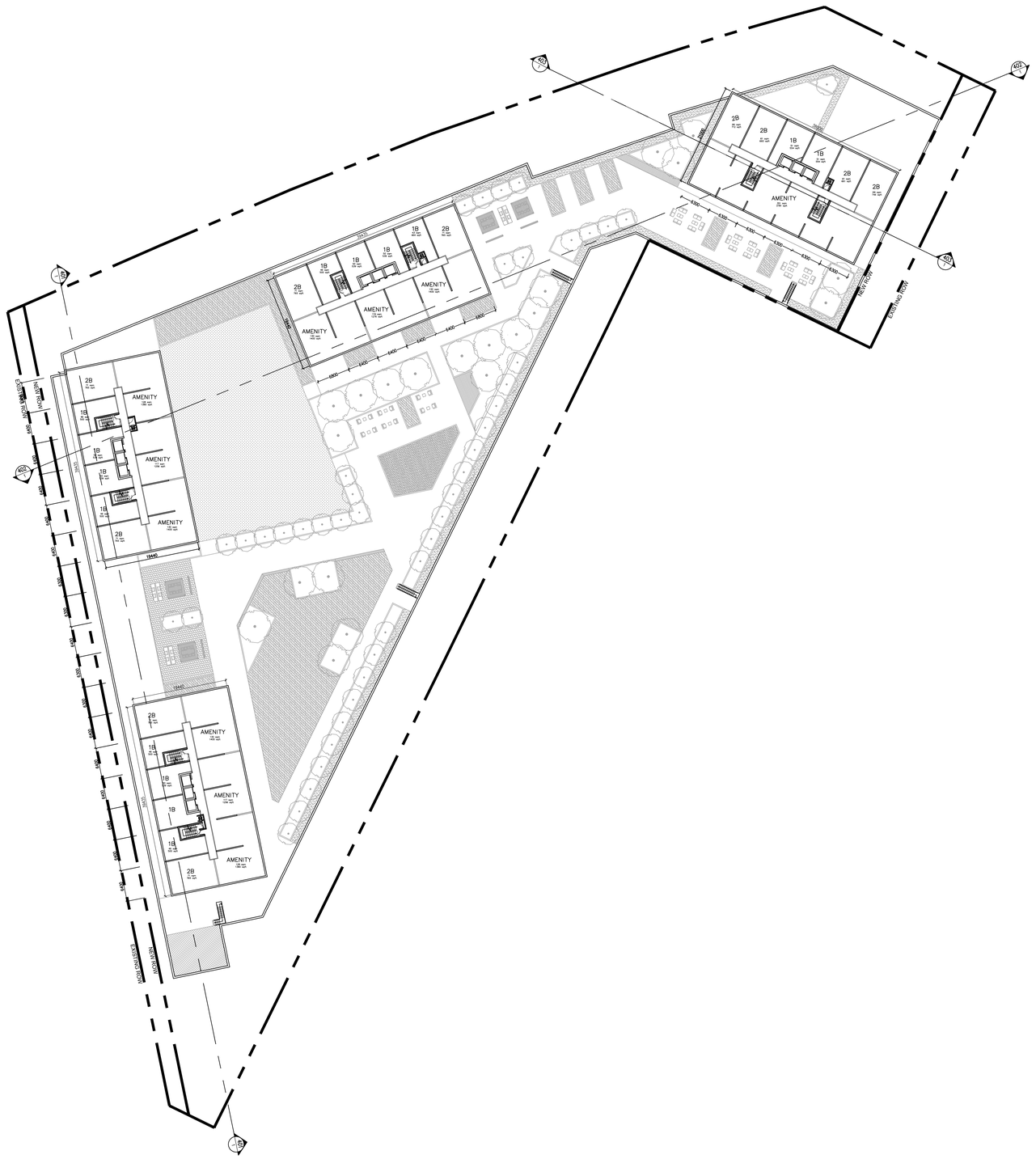
project:
259 Innisfil Street
barrie, ontario

6th floor plan

september 24.2021 date:
1:400 scale:
21-04 project:
mz - id drawn by:

drawing number:
A304

true north
construction north



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notes:

revisions: date

1 ZBA submission 07-09-21
submissions: date

architectural team :
mark zwicker
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structural:
Jablonsky, Ast and Partners International
450-3 Concorde Gate, Toronto, ON, M3C 3N7

project:
259 Innisfil Street
barrie, ontario

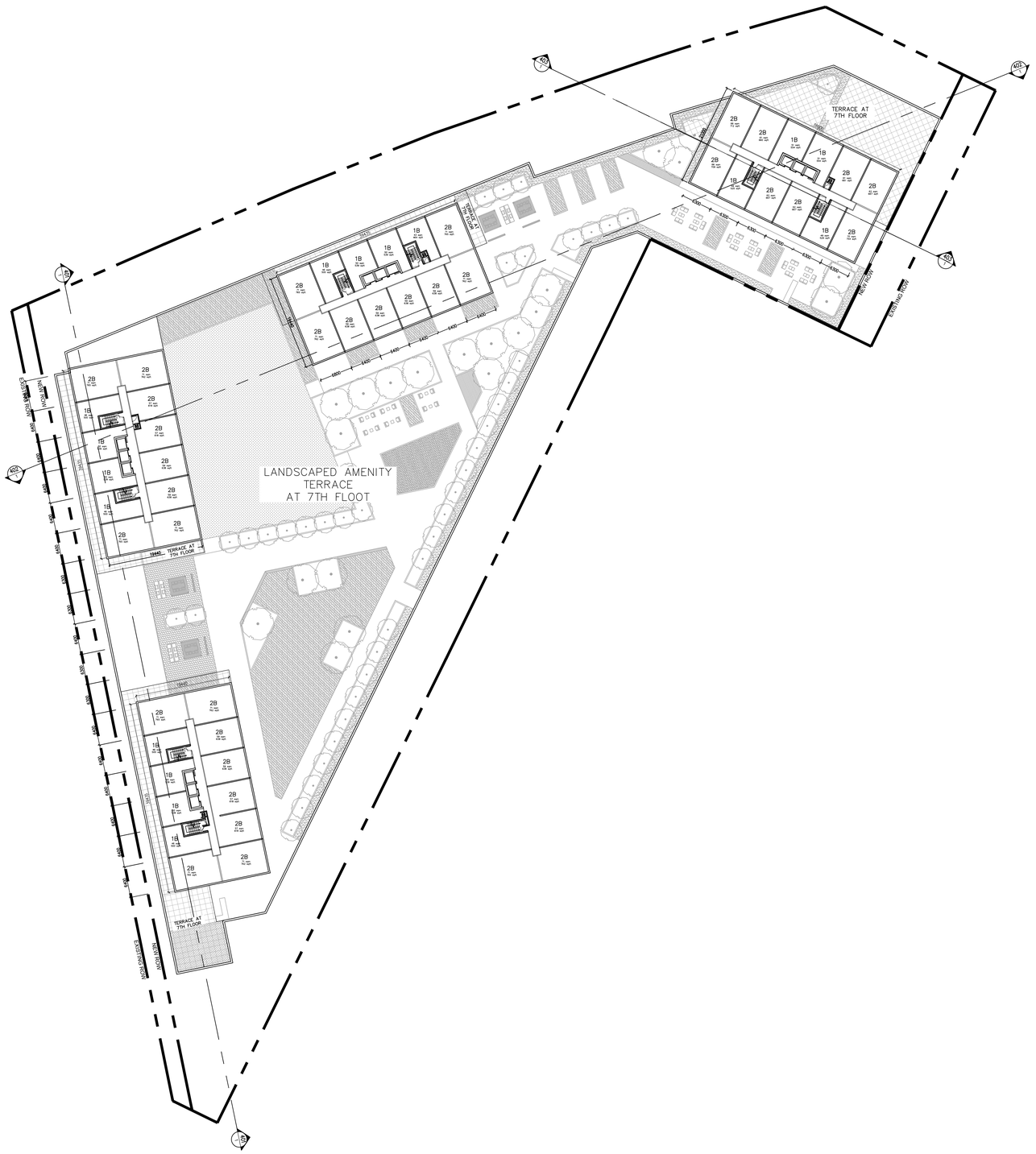
7th floor plan

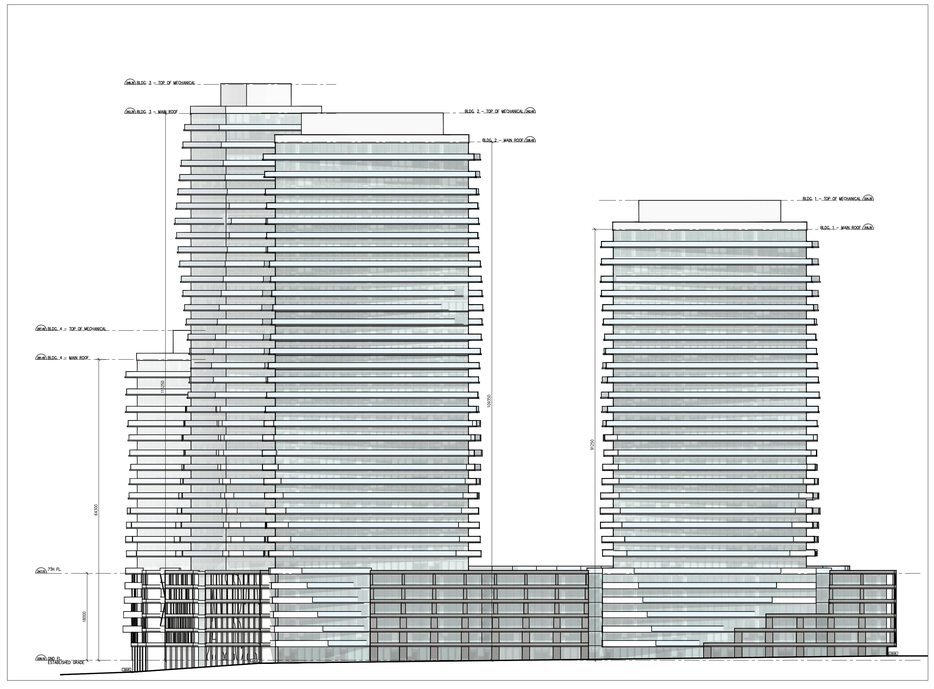
september 24.2021 date:
1:400 scale:
21-04 project:
mz - id drawn by:

drawing number:
A305

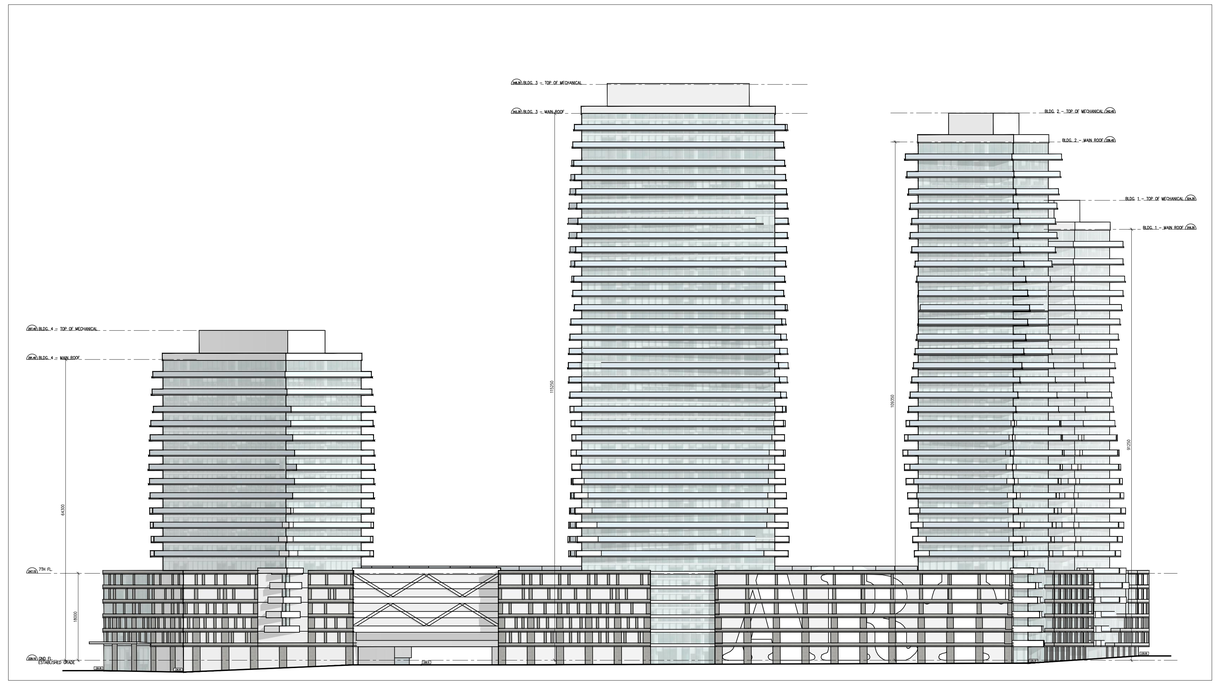
true north
construction north

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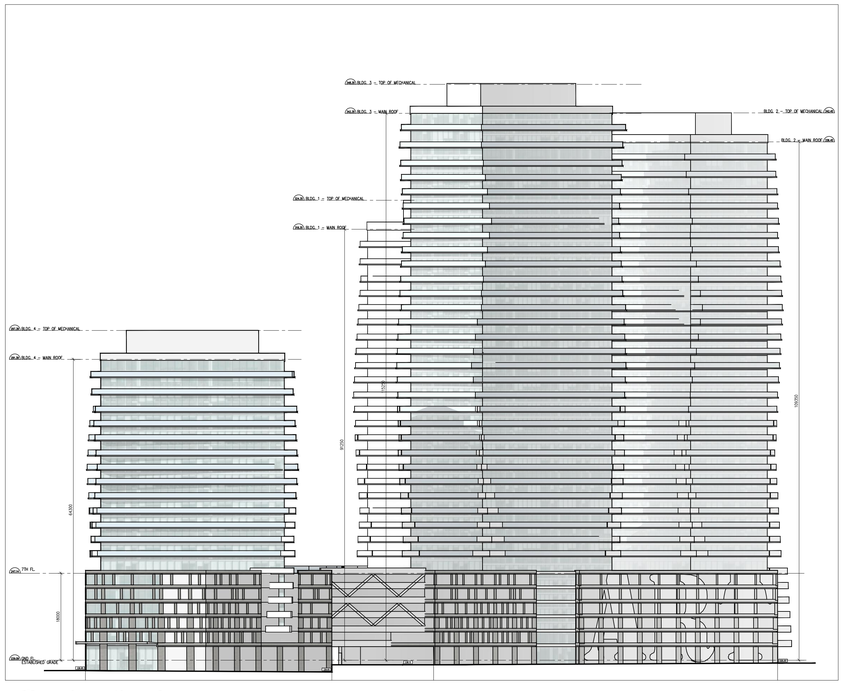

LANDSCAPED AMENITY
TERRACE
AT 7TH FLOOT
TERRACE AT
7TH FLOOR
TERRACE AT
7TH FLOOR
TERRACE AT
7TH FLOOR
TERRACE AT
7TH FLOOR
EXISTING ROW
NEW ROW
EXISTING ROW
NEW ROW
NEW LANEWAY
2B
1B
1 BED
LIVING
KITCHEN
1 BED
LIVING
KITCHEN
1 BED
LIVING
KITCHEN



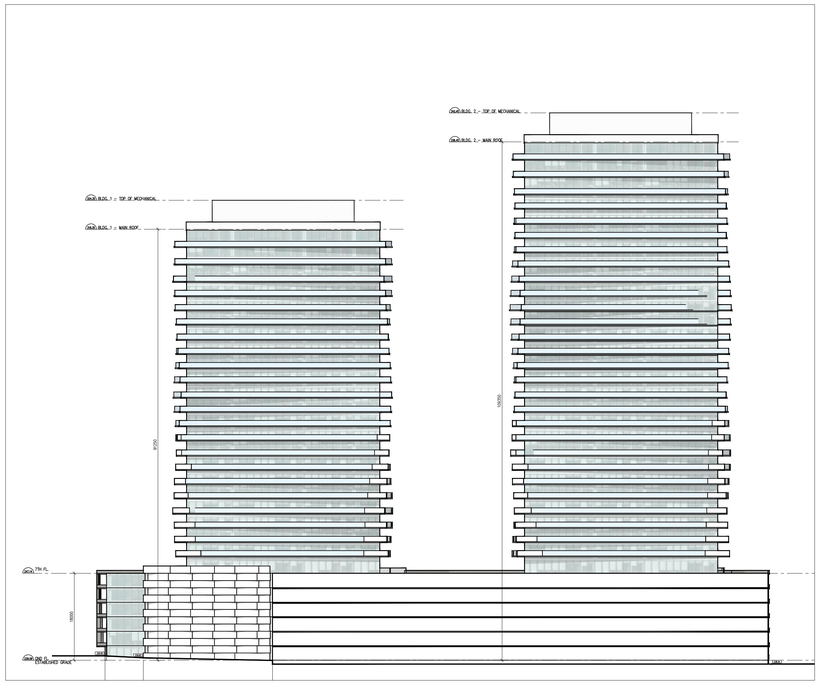
1 elevation 1



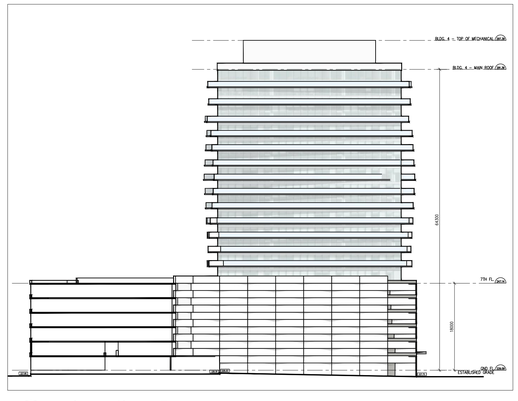
2 elevation 2



3 elevation 3



4 elevation 4



5 elevation 5

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notes:

revisions:

date

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1 ZBA submission 07-09-21
date

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41 King Street, Unit 4, Barrie, ON, L4N 6E5

structural:
Jablonsky, Ast and Partners International
401-5 Concorde Gate, Toronto, ON, M3C 3N7

project:
259 Innisfil Street
barrie, ontario

elevation

date: september 24,2021
scale: 1:500
project: 21-04
drawn by: mz - id

drawing number:
A401

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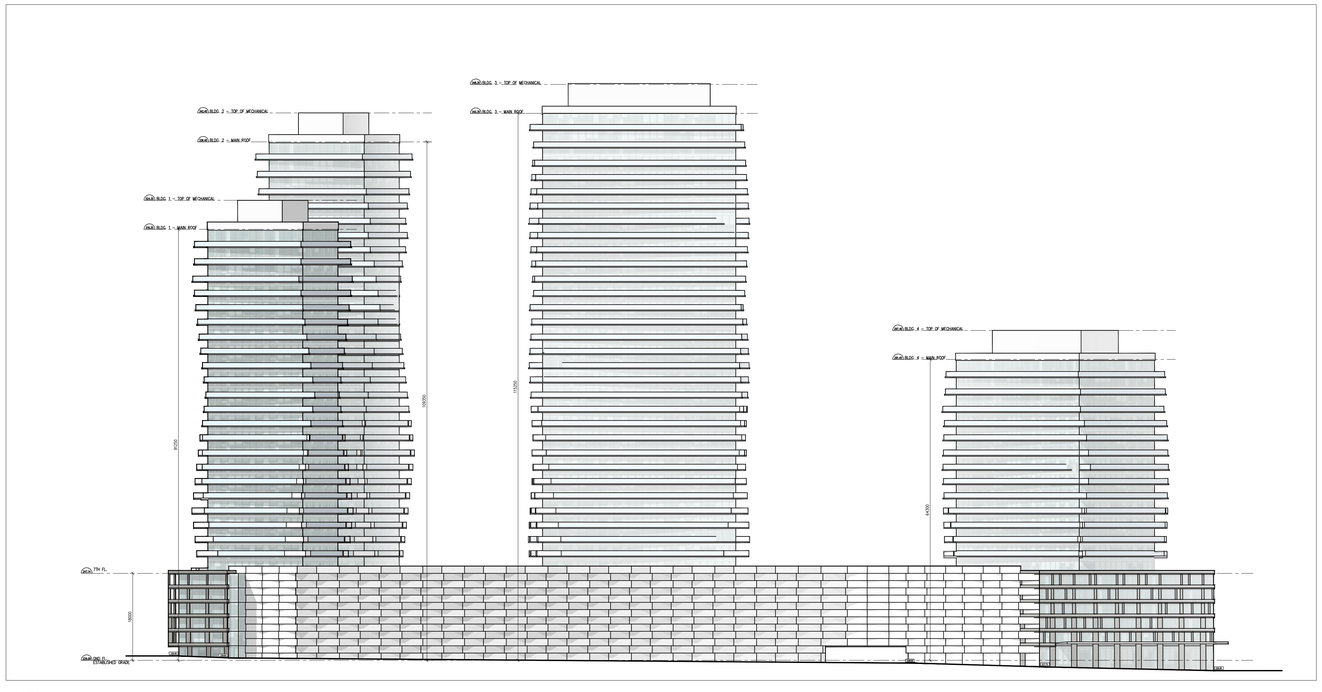
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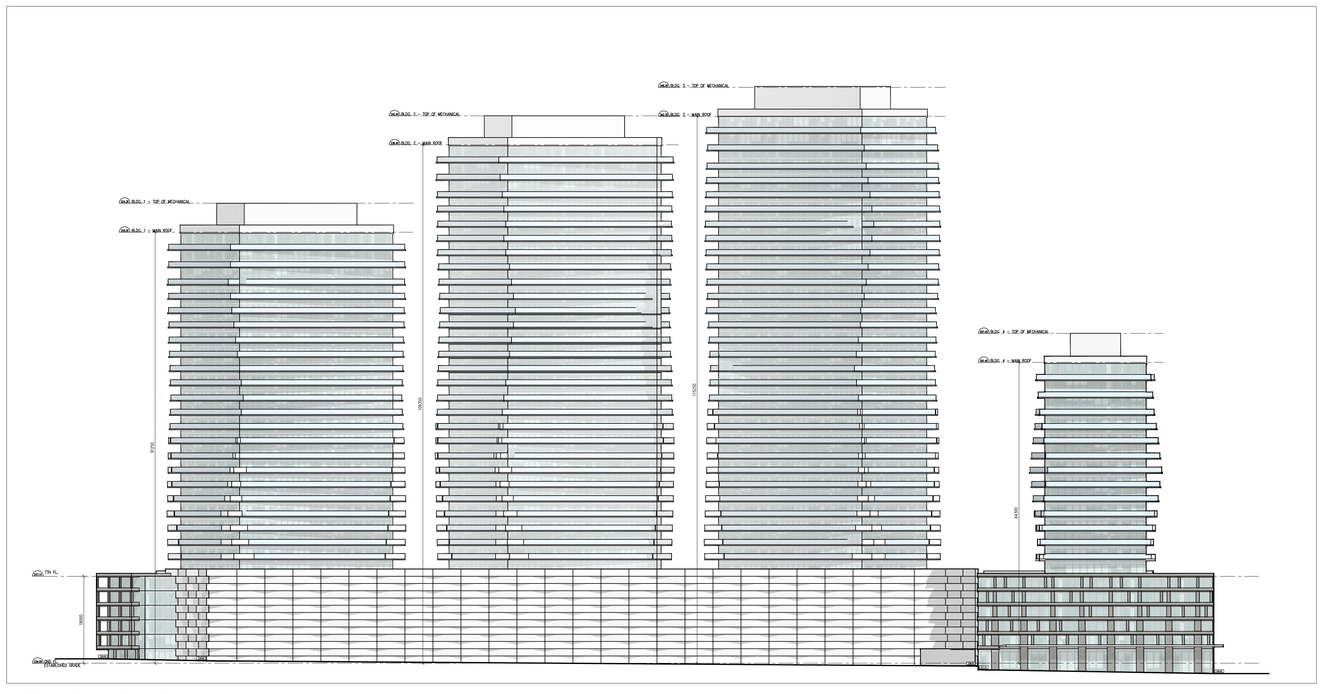
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notes:



1 elevation 6



2 elevation 7

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revisions:

submissions:
1 ZBA submission 07-09-21
date

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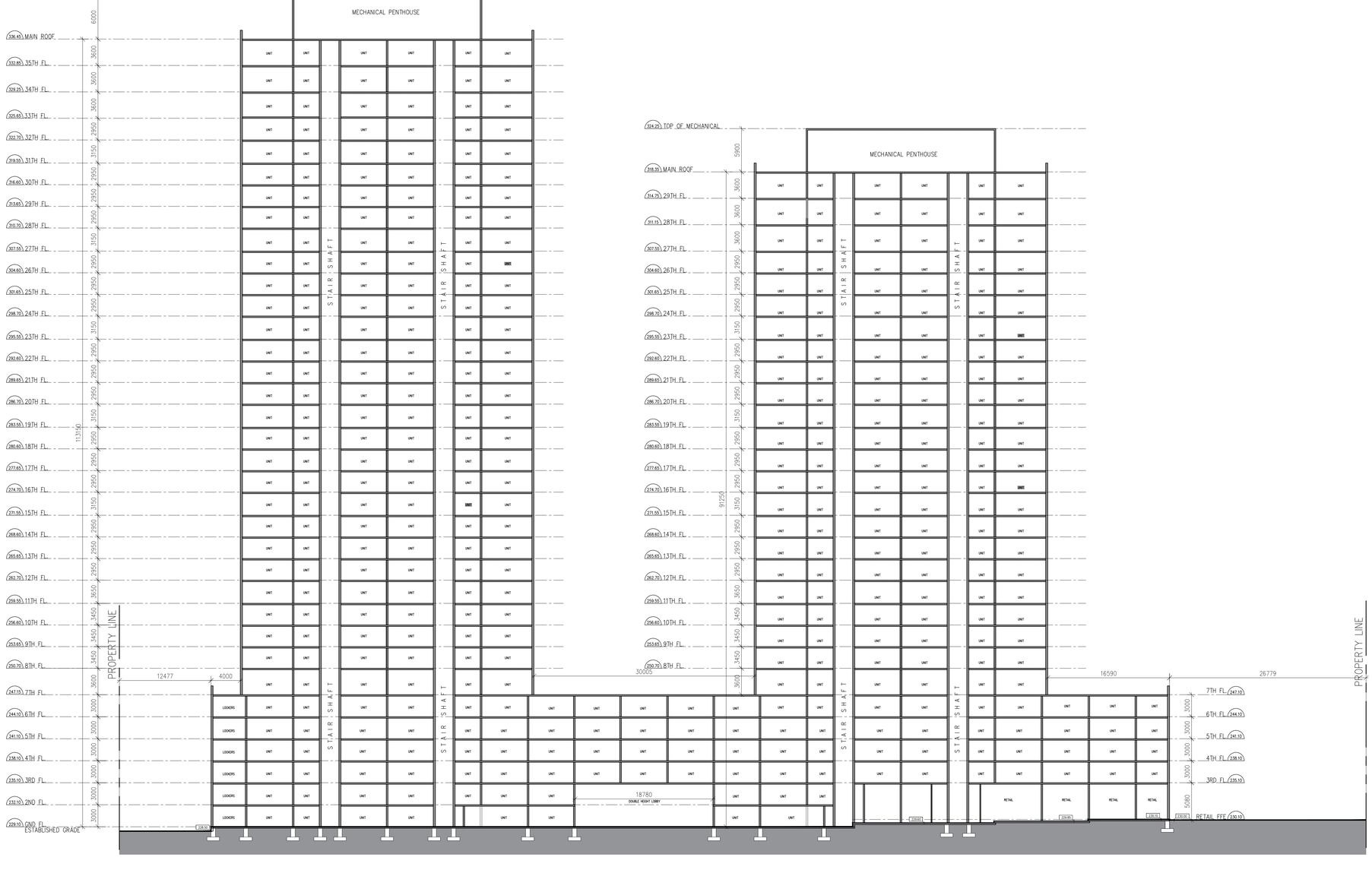
structural:
Jablonsky, Ast and Partners International
401-5 Concorde Gate, Toronto, ON, M3C 3N7

project:
259 Innisfil Street
barrie, ontario

elevation

september 24,2021 date:
1:500 scale:
21-04 project:
mz - id drawn by:

drawing number:
A402



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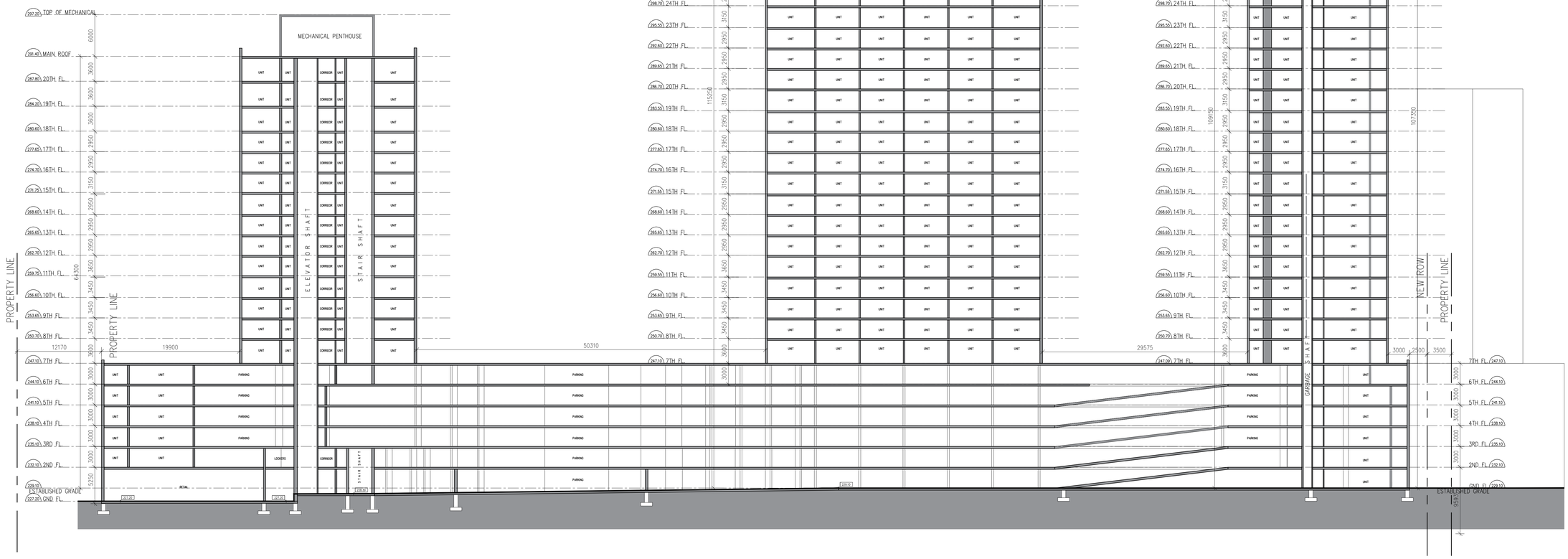
structural:
Jablonsky, Ast and Partners International
400-3 Concorde Gate, Toronto, ON, M3C 3N7

project:
259 Innisfil Street
barrie, ontario

section 1-1

september 24.2021 date:
1:250 scale:
21-04 project:
mz - id drawn by:

drawing number:
A501



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structural:
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project:
259 Innisfil Street
barrie, ontario

section 2-2

september 24.2021 date:
1:250 scale:
21-04 project:
mz - id drawn by:

drawing number:
A502

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tel: (416)01.5416
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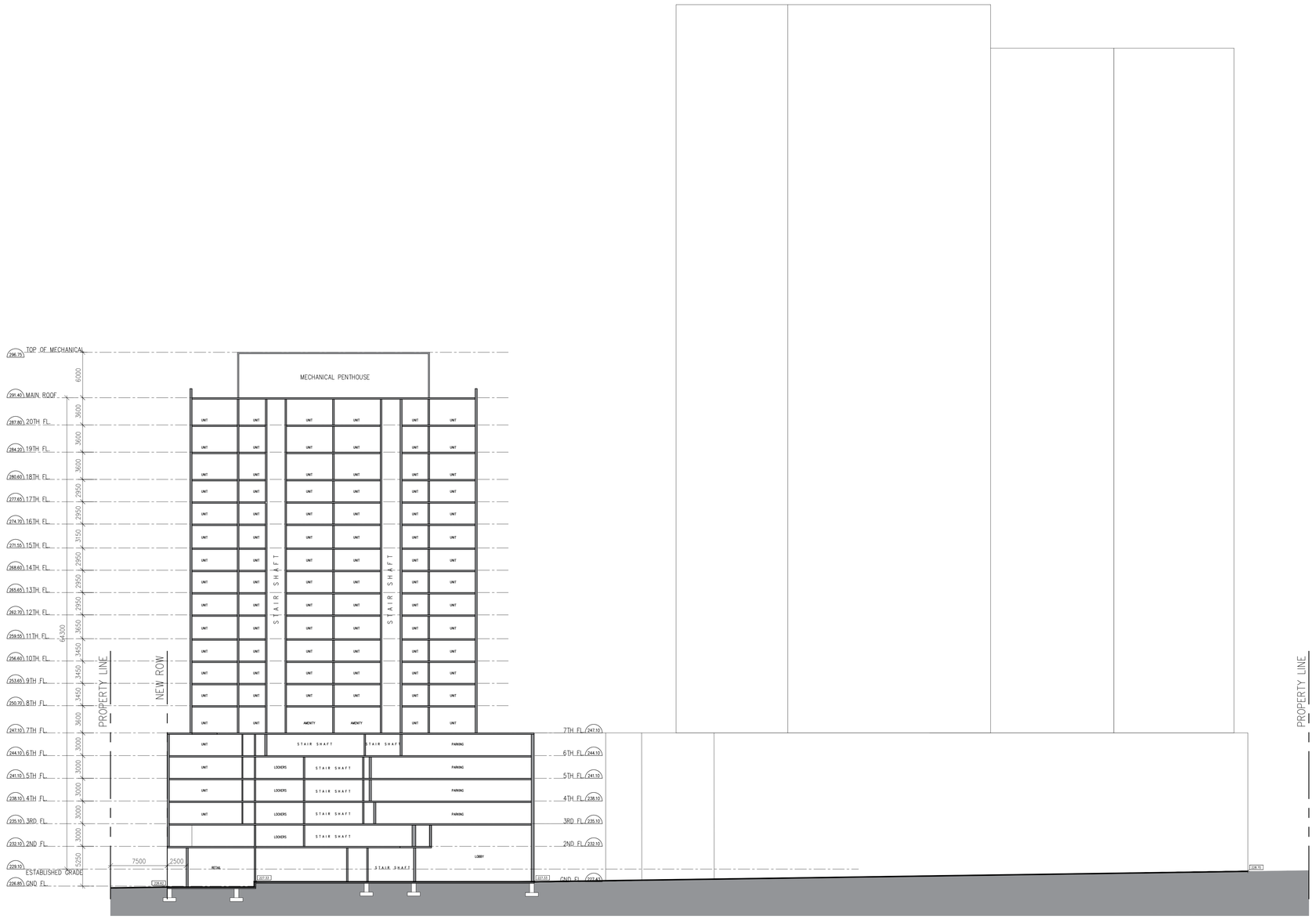
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revisions: date

submissions:
1 ZBA submission 07-09-21
date

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structural:
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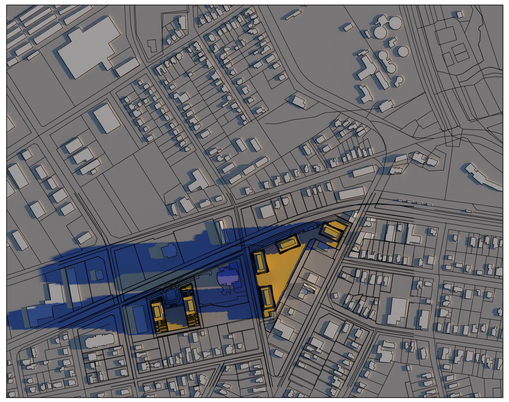
project:
259 Innisfil Street
barrie, ontario

section 3-3

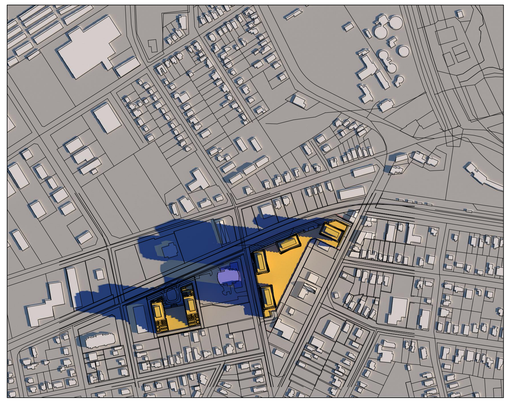
september 24.2021 date:
1:250 scale:
21-04 project:
mz - id drawn by:

drawing number:

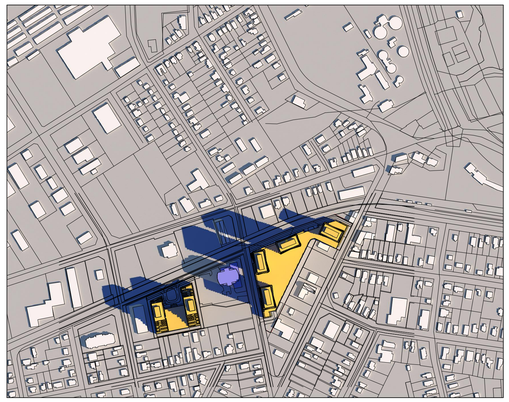
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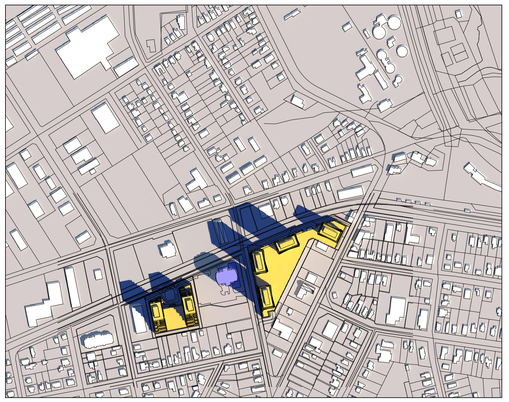
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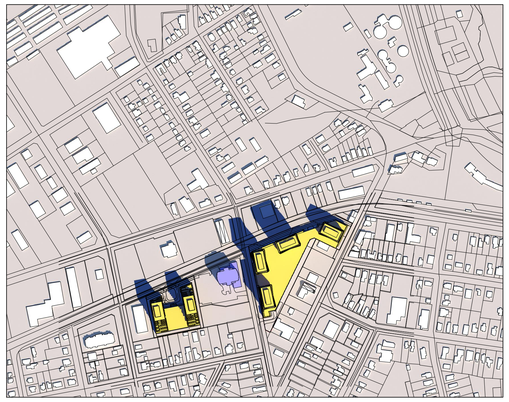
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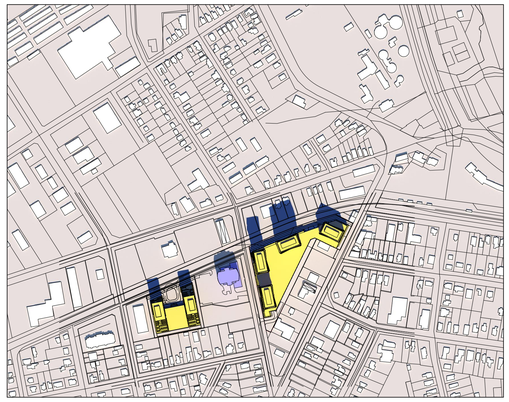
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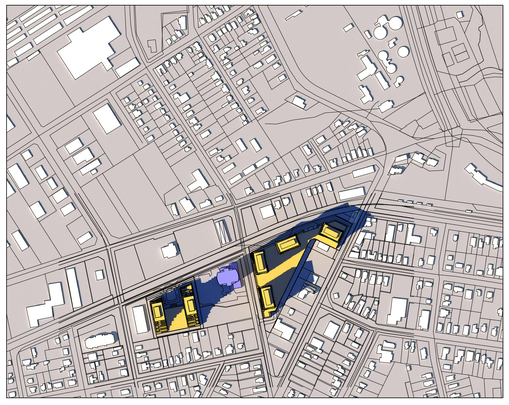
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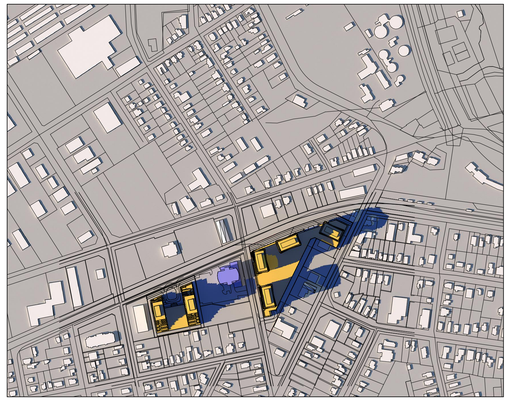
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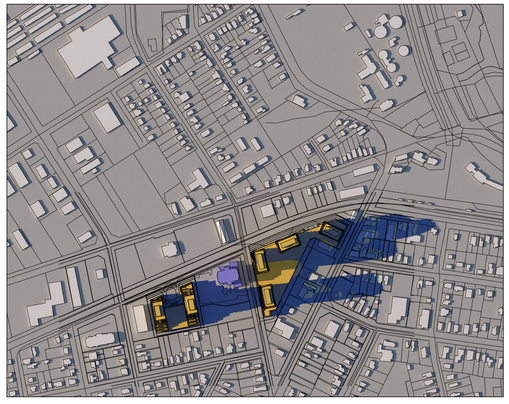
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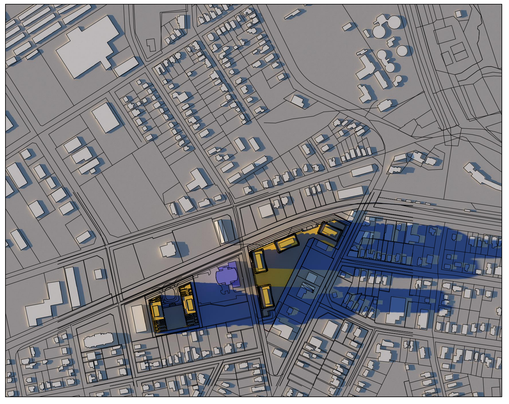
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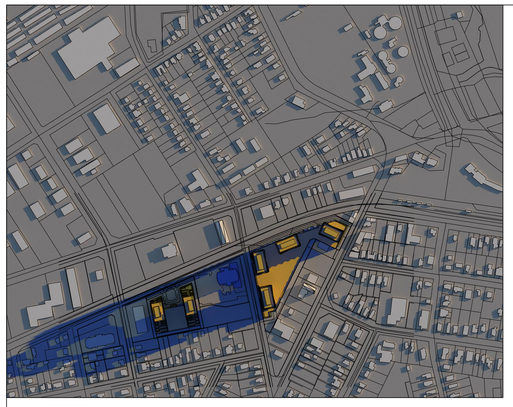
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shadow study
april 21st

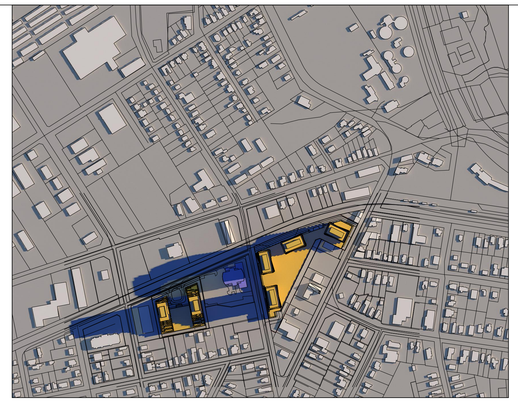
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drawing number:
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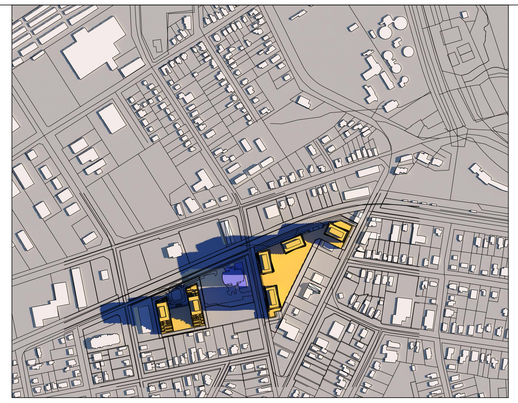
true north
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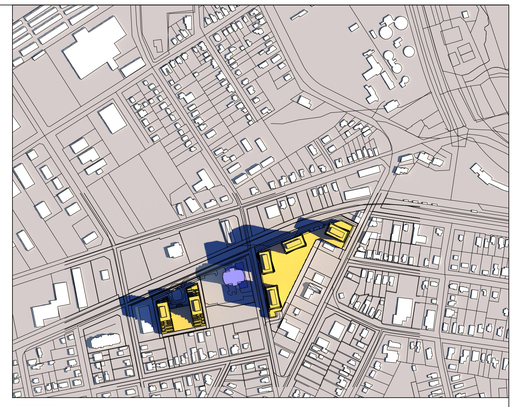
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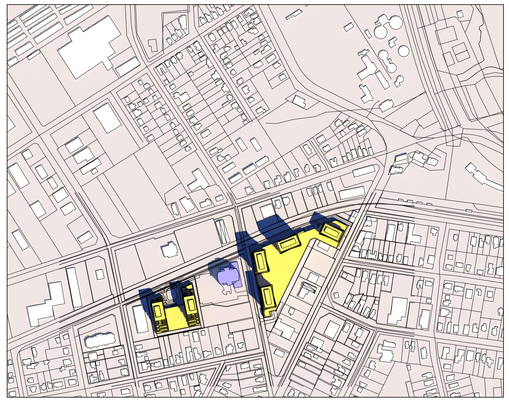
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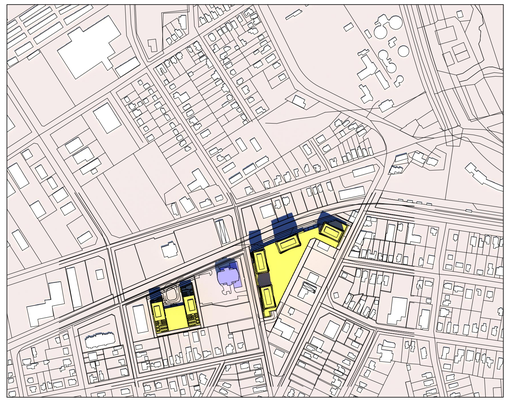
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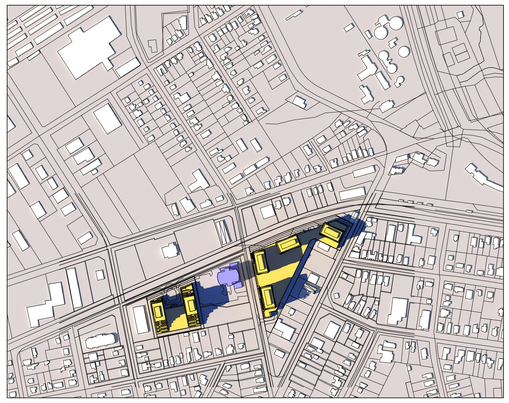
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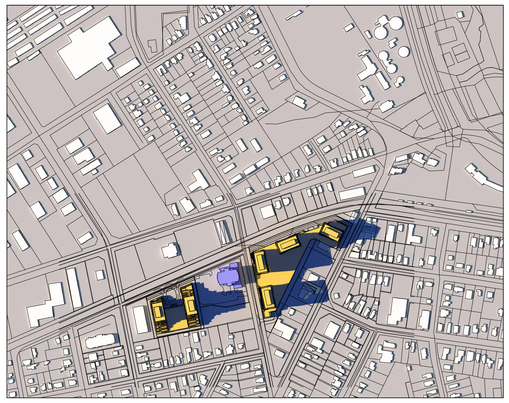
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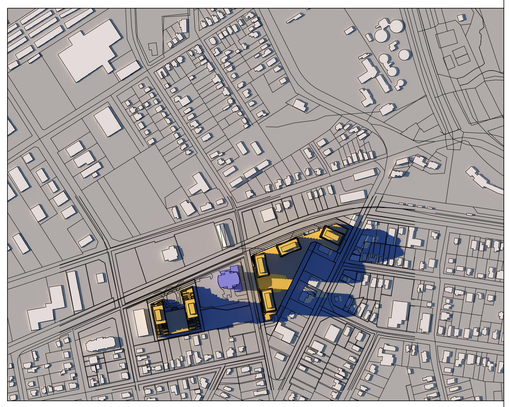
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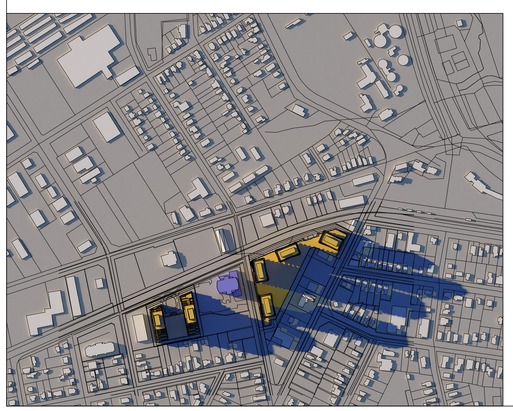
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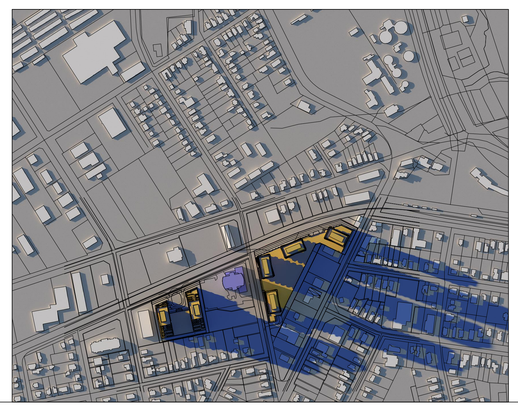
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400-3 Concorde Gate, Toronto, ON, M3C 3N7

project:
259 Innisfil Street
barrie, ontario

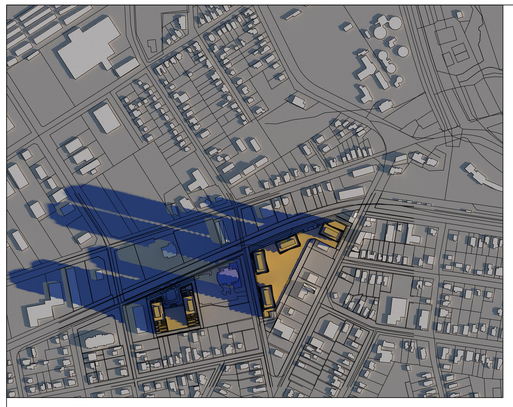
shadow study june 21st

september 24.2021	date:
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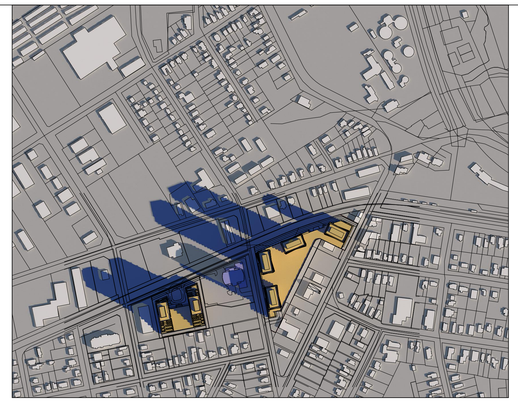
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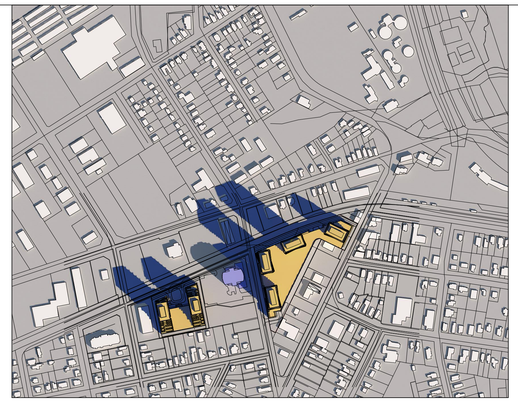
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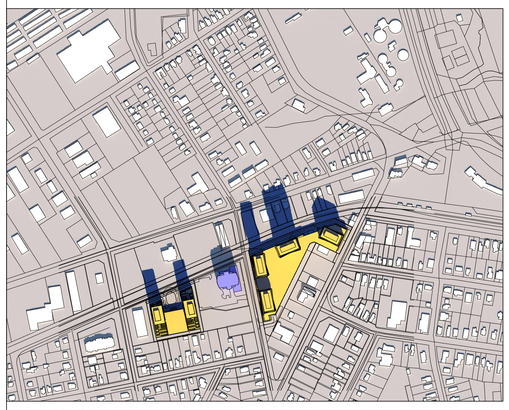
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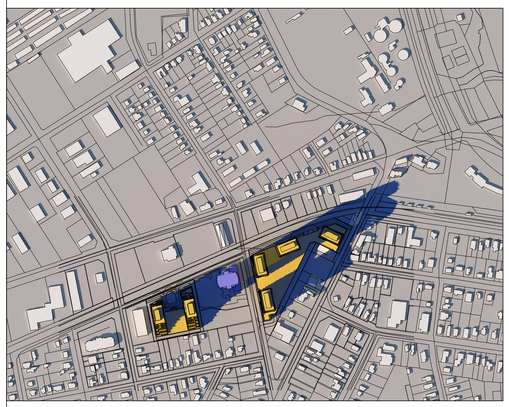
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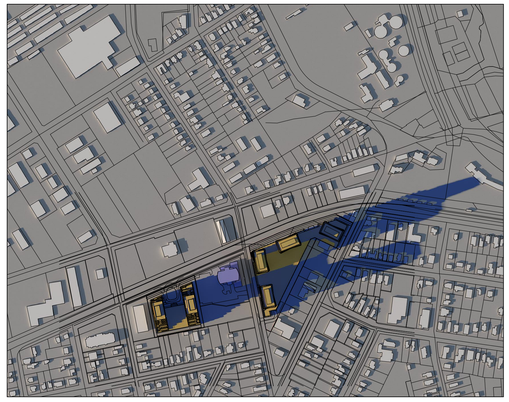
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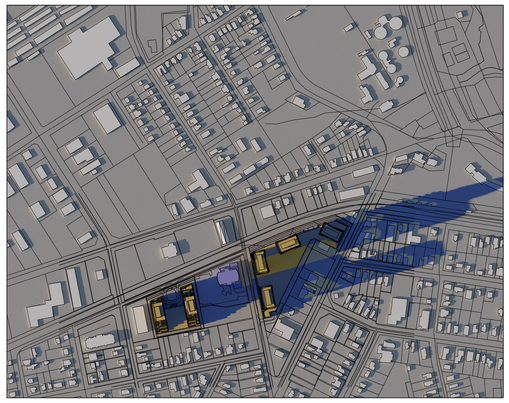
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400-3 Concorde Gate, Toronto, ON, M3C 3N7

project:
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barrie, ontario

shadow study september 21st

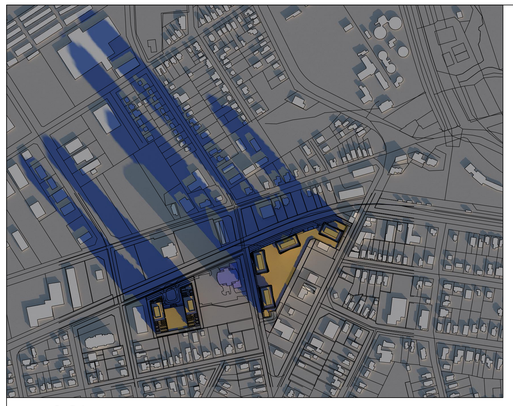
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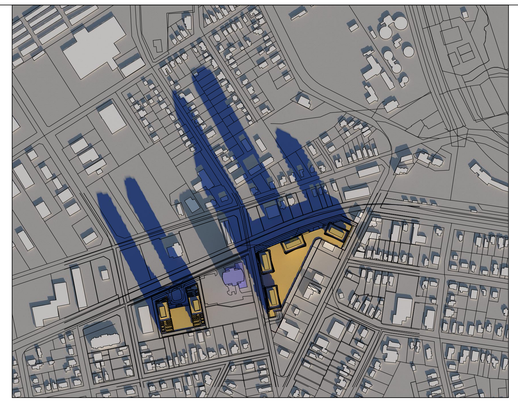
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construction north

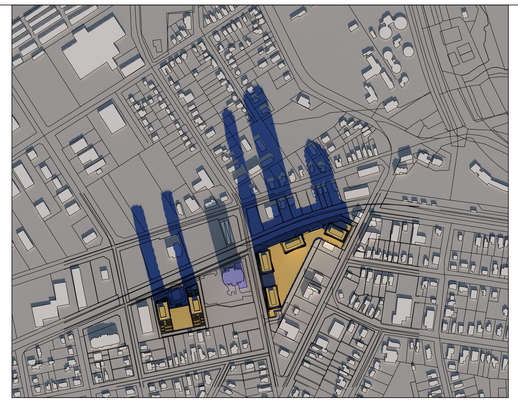
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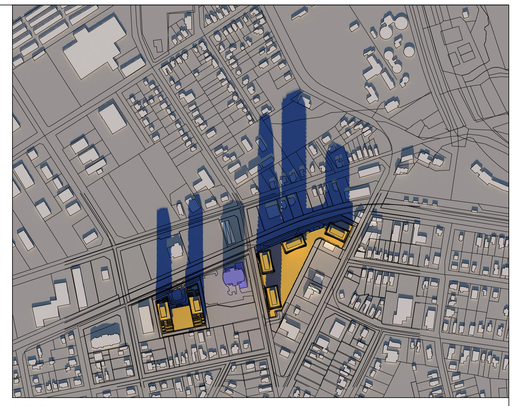
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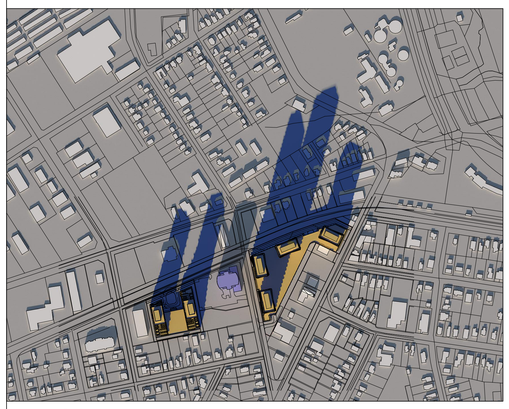
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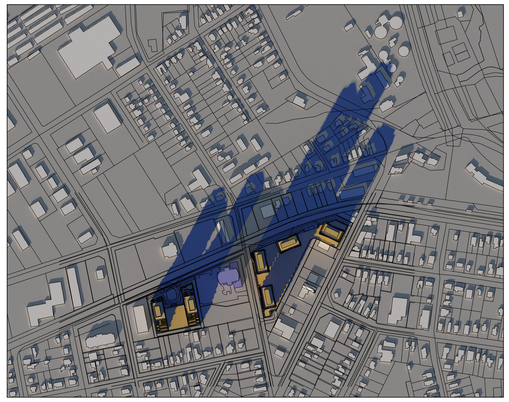
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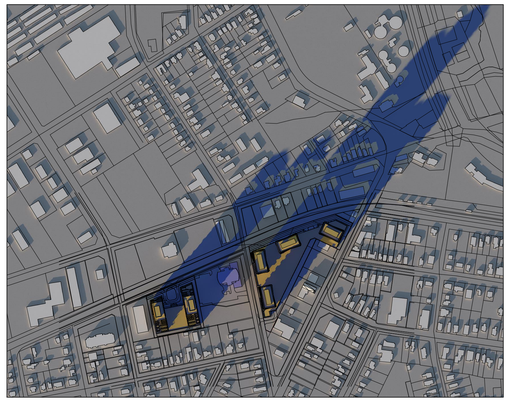
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project:
259 Innisfil Street
barrie, ontario

shadow study
december 21st

september 24.2021 date:
n.t.s scale:
21-04 project:
mz - id drawn by:

drawing number:
A604

true north

construction north

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notes:



Street View Looking West



View Looking South East



Aerial View Looking North

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submissions: 1 ZBA submission 07-09-21 date

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project:
259 Innisfil Street
barrie, ontario

renderings

september 24,2021	date:
NTS	scale:
21-04	project:
mz - id	drawn by:

drawing number:

A701

Appendix B

Existing Traffic counts and Signal Timings

THE CORPORATION OF THE CITY OF BARRIE

June 16, 2021 File: T07-SI

Justin MacDonald
City of Barrie
70 Collier Street
Barrie, ON L4M 4T5

Dear Mr. MacDonald,

RE: **Traffic Signal Timings**

With respect to your inquiry on May 28, 2021, attached are the Signal Timings for the following intersections:

- Anne Street South & Tiffin Street
- Innisfil Street & Tiffin Street
- Anne Street & Essa Road

Signalized Intersections within the City of Barrie function as a semi-actuated; meaning the signals remain green on the major road/ main street until a vehicle is detected on the minor road/ side street or a pedestrian pushes the pushbutton to activate the pedestrian phase.

Vehicles on the minor road/side street are detected by electromagnetic wires, which are embedded in the pavement on the side street near the painted stop bar. Vehicle presence only on the side street would result in a possible green time of between the minimum and maximum times, as noted, depending on vehicle demand detected.

Pedestrians must push the pedestrian push button to be detected. Pedestrian “Walk” and “Flashing Don’t Walk” times on the side street, as noted, would be used in the event that the pedestrian push button was activated.

If you require any further information please feel free to contact me at (705) 739-4220 ext. 4937.

Sincerely,

Stephen Salis, C.E.T.
Transportation Systems Technologist

Anne Street & Tiffin Street – FREE PLAN (NO COORDINATION)

		Vehicular Indications				Pedestrian Indications	
Roadway	**Direction**	**Minimum Green**	**Maximum Green**	**Amber**	**All Red**	**Walk**	**Flashing Don't Walk**
Anne Street (main street)	Advanced Northbound Left Turn	10	10	3	1	N/A	N/A
Anne Street (main street)	Advanced Southbound Left Turn	7	7	3	1	N/A	N/A
Anne Street (main street)	Northbound	34	34	4	2	23	11
Anne Street (main street)	Southbound	34	34	4	2	23	11
Tiffin Street (side street)	Advanced Eastbound Left Turn	7	12	3	1	N/A	N/A
Tiffin Street (side street)	Advanced Westbound Left Turn	7	12	3	1	N/A	N/A
Tiffin Street (side street)	Eastbound	10	26	4	2	11	17
Tiffin Street (side street)	Westbound	10	26	4	2	11	17

NOTE: All times are recorded in seconds, based on full demand.

Innisfil Street & Tiffin Street – FREE PLAN (NO COORDINATION)

		Vehicular Indications				Pedestrian Indications	
Roadway	**Direction**	**Minimum Green**	**Maximum Green**	**Amber**	**All Red**	**Walk**	**Flashing Don't Walk**
Tiffin Street (main street)	Eastbound	34	34	4	2	12	12
Tiffin Street (main street)	Westbound	34	34	4	2	12	12
Innisfil Street (side street)	Northbound	10	30	4	2	8	12
Innisfil Street (side street)	Southbound	10	30	4	2	8	12

NOTE: All times are recorded in seconds, based on full demand.

Anne Street & Essa Road – FREE PLAN (NO COORDINATION)

		Vehicular Indications				Pedestrian Indications	
Roadway	**Direction**	**Minimum Green**	**Maximum Green**	**Amber**	**All Red**	**Walk**	**Flashing Don't Walk**
Essa Road (main street)	Advanced Northbound Left Turn	7	15	3	1	N/A	N/A
Essa Road (main street)	Northbound	34	34	4	2	13	21
Essa Road (main street)	Southbound	34	34	4	2	13	21
Anne Street (side street)	Eastbound	10	20	4	2	9	14
Anne Street (side street)	Westbound	10	20	4	2	9	14

NOTE: All times are recorded in seconds, based on full demand.

Anne Street & Essa Road – AM WEEKDAY PLAN (5:00AM – 9:00AM)

Roadway	**Direction**	**Split Timings (Including Amber + All Red)**
Essa Road (main street)	Advanced Northbound Left Turn	11
Essa Road (main street)	Northbound	58
Essa Road (main street)	Southbound	47
Anne Street (side street)	Eastbound	32
Anne Street (side street)	Westbound	32
Total Cycle Length		90

NOTE: All times are recorded in seconds, based on full demand.

Refer to the FREE PLAN for the Walk and Flashing Don't Walk Timings

Anne Street & Essa Road – NOON WEEKDAY PLAN (9:00AM – 3:30PM)

Roadway	Direction	Split Timings (Including Amber + All Red)
Essa Road (main street)	Advanced Northbound Left Turn	11
Essa Road (main street)	Northbound	65
Essa Road (main street)	Southbound	54
Anne Street (side street)	Eastbound	35
Anne Street (side street)	Westbound	35
Total Cycle Length		100

NOTE: All times are recorded in seconds, based on full demand.

Refer to the FREE PLAN for the Walk and Flashing Don't Walk Timings

Anne Street & Essa Road – PM WEEKDAY PLAN (3:30PM – 9:00PM)

Roadway	Direction	Split Timings (Including Amber + All Red)
Essa Road (main street)	Advanced Northbound Left Turn	11
Essa Road (main street)	Northbound	71
Essa Road (main street)	Southbound	60
Anne Street (side street)	Eastbound	29
Anne Street (side street)	Westbound	29
Total Cycle Length		100

NOTE: All times are recorded in seconds, based on full demand.

Refer to the FREE PLAN for the Walk and Flashing Don't Walk Timings

THE CORPORATION OF THE CITY OF BARRIE

July 02, 2021 File: T07-SI

Justin MacDonald
City of Barrie
70 Collier Street
Barrie, ON L4M 4T5

Dear Mr. MacDonald,

RE: **Traffic Signal Timings**

With respect to your inquiry on June 17, 2021, attached are the Signal Timings for the following intersections:

- Essa Road / Bradford Street & Tiffin Street
- Essa Road & Burton Avenue
- Essa Road & Gowan Street
- Essa Road & Innisfil Street

Signalized Intersections within the City of Barrie function as a semi-actuated; meaning the signals remain green on the major road/ main street until a vehicle is detected on the minor road/ side street or a pedestrian pushes the pushbutton to activate the pedestrian phase.

Vehicles on the minor road/side street are detected by electromagnetic wires, which are embedded in the pavement on the side street near the painted stop bar. Vehicle presence only on the side street would result in a possible green time of between the minimum and maximum times, as noted, depending on vehicle demand detected.

Pedestrians must push the pedestrian push button to be detected. Pedestrian “Walk” and “Flashing Don’t Walk” times on the side street, as noted, would be used in the event that the pedestrian push button was activated.

If you require any further information please feel free to contact me at (705) 739-4220 ext. 4937.

Sincerely,

Stephen Salis, C.E.T.
Transportation Systems Technologist

Essa Road / Bradford Street & Tiffin Street – FREE PLAN (NO COORDINATION)

		Vehicular Indications				Pedestrian Indications	
Roadway	**Direction**	**Minimum Green**	**Maximum Green**	**Amber**	**All Red**	**Walk**	**Flashing Don't Walk**
Bradford Street (main street)	Advanced Southbound Left Turn	7	12	3	1	N/A	N/A
Essa Street (main street)	Northbound	34	40	4	2	22	12
Bradford Street (main street)	Southbound	34	40	4	2	22	12
Tiffin Street (side street)	Advanced Westbound Left Turn	7	10	3	1	N/A	N/A
Tiffin Street (side street)	Eastbound	10	24	4	2	10	15
Tiffin Street (side street)	Westbound	10	24	4	2	10	15

NOTE: All times are recorded in seconds, based on full demand.

Essa Road / Bradford Street & Tiffin Street – AM WEEKDAY PLAN (5:00AM – 9:00AM)

Roadway	**Direction**	**Split Timings (Including Amber + All Red)**
Bradford Street (main street)	Advanced Southbound Left Turn	12
Essa Street (main street)	Northbound	43
Bradford Street (main street)	Southbound	55
Tiffin Street (side street)	Advanced Westbound Left Turn	12
Tiffin Street (side street)	Eastbound	33
Tiffin Street (side street)	Westbound	45
Total Cycle Length		100

NOTE: All times are recorded in seconds, based on full demand.

Refer to the FREE PLAN for the Walk and Flashing Don't Walk Timings

Essa Road / Bradford Street & Tiffin Street – NOON WEEKDAY PLAN (9:00AM – 3:30PM)

Roadway	Direction	Split Timings (Including Amber + All Red)
Bradford Street (main street)	Advanced Southbound Left Turn	12
Essa Street (main street)	Northbound	41
Bradford Street (main street)	Southbound	53
Tiffin Street (side street)	Advanced Westbound Left Turn	14
Tiffin Street (side street)	Eastbound	33
Tiffin Street (side street)	Westbound	47
Total Cycle Length		100

NOTE: All times are recorded in seconds, based on full demand.

Refer to the FREE PLAN for the Walk and Flashing Don't Walk Timings

Essa Road / Bradford Street & Tiffin Street – PM WEEKDAY PLAN (3:30PM – 9:00PM)

Roadway	Direction	Split Timings (Including Amber + All Red)
Bradford Street (main street)	Advanced Southbound Left Turn	12
Essa Street (main street)	Northbound	45
Bradford Street (main street)	Southbound	57
Tiffin Street (side street)	Advanced Westbound Left Turn	12
Tiffin Street (side street)	Eastbound	31
Tiffin Street (side street)	Westbound	43
Total Cycle Length		100

NOTE: All times are recorded in seconds, based on full demand.

Refer to the FREE PLAN for the Walk and Flashing Don't Walk Timings

Essa Road & Burton Avenue – FREE PLAN (NO COORDINATION)

		Vehicular Indications				Pedestrian Indications	
Roadway	**Direction**	**Minimum Green**	**Maximum Green**	**Amber**	**All Red**	**Walk**	**Flashing Don't Walk**
Essa Street (main street)	Advanced Southbound Left Turn	7	15	3	1	N/A	N/A
Essa Street (main street)	Northbound	44	44	4	2	33	11
Essa Street (main street)	Southbound	44	44	4	2	33	11
Burton Street (side street)	Westbound	15	24	4	2	7	10

NOTE: All times are recorded in seconds, based on full demand.

Essa Road & Gowan Street – FREE PLAN (NO COORDINATION)

		Vehicular Indications				Pedestrian Indications	
Roadway	**Direction**	**Minimum Green**	**Maximum Green**	**Amber**	**All Red**	**Walk**	**Flashing Don't Walk**
Essa Street (main street)	Advanced Southbound Left Turn	7	10	3	1	N/A	N/A
Essa Street (main street)	Northbound	80	80	4	2	65	15
Essa Street (main street)	Southbound	80	80	4	2	65	15
Gowan Street (side street)	Westbound	10	25	4	2	10	15

NOTE: All times are recorded in seconds, based on full demand.

Essa Road & Innisfil Street– FREE PLAN (NO COORDINATION)

		Vehicular Indications				Pedestrian Indications	
Roadway	**Direction**	**Minimum Green**	**Maximum Green**	**Amber**	**All Red**	**Walk**	**Flashing Don't Walk**
Essa Street (main street)	Advanced Southbound Left Turn	7	15	3	1	N/A	N/A
Essa Street (main street)	Northbound	44	44	4	2	32	12
Essa Street (main street)	Southbound	44	44	4	2	32	12
Innisfil Street (side street)	Advanced Eastbound Left Turn	5	15	3	1	N/A	N/A
Innisfil Street (side street)	Eastbound	24	24	4	2	10	15
Innisfil Street (side street)	Westbound	24	24	4	2	10	15

NOTE: All times are recorded in seconds, based on full demand.

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Project #21-094 - GHD

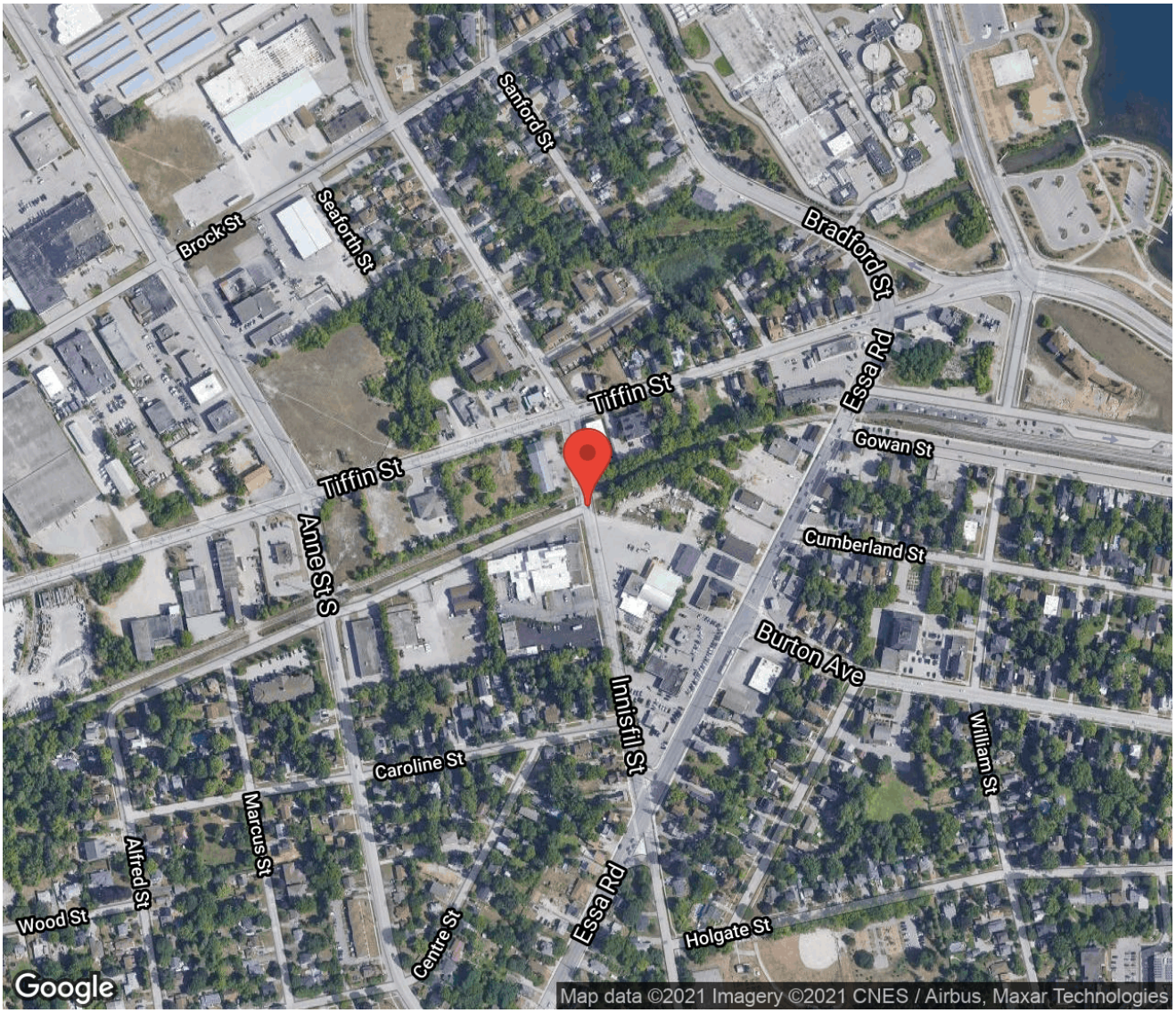
Intersection Count Report

Intersection:	Jacobs Terrace & Innisfil St
Municipality:	Barrie
Count Date:	Jun 09, 2021
Site Code:	2109400001
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 16:00-18:00
Weather:	Clear

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Traffic Count Map

Intersection:	Jacobs Terrace & Innisfil St
Site Code:	2109400001
Municipality:	Barrie
Count Date:	Jun 09, 2021



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Traffic Count Summary

Intersection:	Jacobs Terrace & Innisfil St
Site Code:	2109400001
Municipality:	Barrie
Count Date:	Jun 09, 2021

Innisfil St - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	0	125	6	0	131	0	23	109	0	0	132	0	263
08:00 - 09:00	0	172	3	0	175	1	14	165	0	0	179	0	354
BREAK													
16:00 - 17:00	0	241	0	0	241	0	22	227	0	0	249	1	490
17:00 - 18:00	0	191	9	0	200	0	21	187	0	0	208	0	408
GRAND TOTAL	**0**	**729**	**18**	**0**	**747**	**1**	**80**	**688**	**0**	**0**	**768**	**1**	**1515**

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Traffic Count Summary

Intersection: Jacobs Terrace & Innisfil St
Site Code: 2109400001
Municipality: Barrie
Count Date: Jun 09, 2021

Commerical Entrance - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	0	2	1	0	3	0	9	3	10	0	22	1	25
08:00 - 09:00	1	0	0	0	1	0	4	1	13	0	18	6	19
BREAK													
16:00 - 17:00	0	0	4	0	4	3	5	1	18	0	24	2	28
17:00 - 18:00	0	0	1	0	1	1	4	1	11	0	16	3	17
GRAND TOTAL	**1**	**2**	**6**	**0**	**9**	**4**	**22**	**6**	**52**	**0**	**80**	**12**	**89**

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Jacobs Terrace & Innisfil St
Site Code: 2109400001
Municipality: Barrie
Count Date: Jun 09, 2021

North Approach - Innisfil St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	0	23	1	0	24	0	0	0	0	0	0	0	0	0	0	0
07:15	0	24	3	0	27	0	3	0	0	3	0	3	0	0	3	0
07:30	0	33	1	0	34	0	1	0	0	1	0	0	0	0	0	0
07:45	0	36	1	0	37	0	2	0	0	2	0	0	0	0	0	0
08:00	0	33	0	0	33	0	2	0	0	2	0	0	0	0	0	1
08:15	0	33	2	0	35	0	2	0	0	2	0	0	0	0	0	0
08:30	0	53	0	0	53	0	1	0	0	1	0	2	0	0	2	0
08:45	0	45	0	0	45	0	1	1	0	2	0	0	0	0	0	0
SUBTOTAL	0	280	8	0	288	0	12	1	0	13	0	5	0	0	5	1

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Traffic Count Data

Intersection: Jacobs Terrace & Innisfil St
Site Code: 2109400001
Municipality: Barrie
Count Date: Jun 09, 2021

North Approach - Innisfil St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	0	52	0	0	52	0	2	0	0	2	0	0	0	0	0	0
16:15	0	61	0	0	61	0	5	0	0	5	0	0	0	0	0	0
16:30	0	50	0	0	50	0	3	0	0	3	0	0	0	0	0	0
16:45	0	66	0	0	66	0	2	0	0	2	0	0	0	0	0	0
17:00	0	66	3	0	69	0	2	0	0	2	0	0	0	0	0	0
17:15	0	47	1	0	48	0	2	0	0	2	0	0	0	0	0	0
17:30	0	39	1	0	40	0	0	0	0	0	0	0	0	0	0	0
17:45	0	32	4	0	36	0	3	0	0	3	0	0	0	0	0	0
SUBTOTAL	0	413	9	0	422	0	19	0	0	19	0	0	0	0	0	0
GRAND TOTAL	**0**	**693**	**17**	**0**	**710**	**0**	**31**	**1**	**0**	**32**	**0**	**5**	**0**	**0**	**5**	**1**

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Traffic Count Data

Intersection: Jacobs Terrace & Innisfil St
Site Code: 2109400001
Municipality: Barrie
Count Date: Jun 09, 2021

South Approach - Innisfil St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	6	24	0	0	30	0	1	0	0	1	0	0	0	0	0	0
07:15	2	19	0	0	21	2	0	0	0	2	0	0	0	0	0	0
07:30	5	35	0	0	40	0	2	0	0	2	1	1	0	0	2	0
07:45	7	26	0	0	33	0	1	0	0	1	0	0	0	0	0	0
08:00	2	38	0	0	40	1	2	0	0	3	0	1	0	0	1	0
08:15	4	31	0	0	35	0	1	0	0	1	0	0	0	0	0	0
08:30	4	51	0	0	55	0	3	0	0	3	0	0	0	0	0	0
08:45	3	35	0	0	38	0	3	0	0	3	0	0	0	0	0	0
SUBTOTAL	33	259	0	0	292	3	13	0	0	16	1	2	0	0	3	0

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Traffic Count Data

Intersection: Jacobs Terrace & Innisfil St
Site Code: 2109400001
Municipality: Barrie
Count Date: Jun 09, 2021

South Approach - Innisfil St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	5	59	0	0	64	0	5	0	0	5	0	0	0	0	0	0
16:15	7	50	0	0	57	0	1	0	0	1	0	0	0	0	0	1
16:30	5	65	0	0	70	0	1	0	0	1	0	2	0	0	2	0
16:45	5	43	0	0	48	0	1	0	0	1	0	0	0	0	0	0
17:00	6	59	0	0	65	0	1	0	0	1	0	1	0	0	1	0
17:15	4	49	0	0	53	0	1	0	0	1	0	0	0	0	0	0
17:30	6	44	0	0	50	0	0	0	0	0	0	1	0	0	1	0
17:45	5	31	0	0	36	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	43	400	0	0	443	0	10	0	0	10	0	4	0	0	4	1
GRAND TOTAL	**76**	**659**	**0**	**0**	**735**	**3**	**23**	**0**	**0**	**26**	**1**	**6**	**0**	**0**	**7**	**1**

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Traffic Count Data

Intersection: Jacobs Terrace & Innisfil St
Site Code: 2109400001
Municipality: Barrie
Count Date: Jun 09, 2021

East Approach - Commerical Entrance

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0
SUBTOTAL	0	1	1	0	2	1	1	0	0	2	0	0	0	0	0	0

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Traffic Count Data

Intersection: Jacobs Terrace & Innisfil St
Site Code: 2109400001
Municipality: Barrie
Count Date: Jun 09, 2021

East Approach - Commerical Entrance

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	3
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	4	0	4	0	0	1	0	1	0	0	0	0	0	4
GRAND TOTAL	0	1	5	0	6	1	1	1	0	3	0	0	0	0	0	4

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Traffic Count Data

Intersection: Jacobs Terrace & Innisfil St
Site Code: 2109400001
Municipality: Barrie
Count Date: Jun 09, 2021

West Approach - Jacobs Terrace

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	3	1	1	0	5	0	0	0	0	0	0	0	0	0	0	0
07:15	2	2	3	0	7	1	0	0	0	1	0	0	0	0	0	0
07:30	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0
07:45	2	0	4	0	6	1	0	0	0	1	0	0	0	0	0	1
08:00	0	0	5	0	5	0	0	0	0	0	0	0	0	0	0	0
08:15	1	0	3	0	4	0	0	0	0	0	0	0	0	0	0	2
08:30	1	0	4	0	5	0	0	0	0	0	0	0	0	0	0	2
08:45	2	1	1	0	4	0	0	0	0	0	0	0	0	0	0	2
SUBTOTAL	11	4	23	0	38	2	0	0	0	2	0	0	0	0	0	7

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Traffic Count Data

Intersection: Jacobs Terrace & Innisfil St
Site Code: 2109400001
Municipality: Barrie
Count Date: Jun 09, 2021

West Approach - Jacobs Terrace

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
16:00	1	0	4	0	5	0	0	0	0	0	0	0	0	0	0	0
16:15	2	1	3	0	6	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	7	0	7	0	0	0	0	0	0	0	0	0	0	0
16:45	2	0	4	0	6	0	0	0	0	0	0	0	0	0	0	2
17:00	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	1
17:15	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	1
17:30	2	1	3	0	6	0	0	0	0	0	0	0	0	0	0	0
17:45	2	0	4	0	6	0	0	0	0	0	0	0	0	0	0	1
SUBTOTAL	9	2	29	0	40	0	0	0	0	0	0	0	0	0	0	5
GRAND TOTAL	**20**	**6**	**52**	**0**	**78**	**2**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**12**

Peak Hour Diagram

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Specified Period		One Hour Peak	
From:	07:00:00	From:	08:00:00
To:	09:00:00	To:	09:00:00

Intersection: Jacobs Terrace & Innisfil St
Site Code: 2109400001
Count Date: Jun 09, 2021

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Innisfil St runs N/S

North Approach

	Out	In	Total
Cars	166	159	325
Trucks	7	9	16
Bicycles	2	1	3
	175	**169**	**344**

Innisfil St

Bicycles	0	2	0	0
Trucks	1	6	0	0
Cars	2	164	0	0
Totals	**3**	**172**	**0**	**0**

East Approach

	Out	In	Total
Cars	0	1	1
Trucks	1	0	1
Bicycles	0	0	0
	1	**1**	**2**

Peds: 1

Jacobs Terrace

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	0	4	**4**
0	0	1	**1**
0	0	13	**13**

Peds: 6



Peds: 0

Commerical Entrance

Totals	Cars	Trucks	Bicycles
0	0	0	0
0	0	0	0
0	0	0	0
1	0	1	0

Peds: 0

West Approach

	Out	In	Total
Cars	18	15	33
Trucks	0	2	2
Bicycles	0	0	0
	18	**17**	**35**

Innisfil St

Totals	**14**	**165**	**0**	**0**
Cars	13	155	0	0
Trucks	1	9	0	0
Bicycles	0	1	0	0

South Approach

	Out	In	Total
Cars	168	177	345
Trucks	10	7	17
Bicycles	1	2	3
	179	**186**	**365**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Jacobs Terrace & Innisfil St
Site Code: 2109400001
Count Date: Jun 09, 2021
Period: 07:00 - 09:00

Peak Hour Data (08:00 - 09:00)

Start Time	North Approach Innisfil St						South Approach Innisfil St						East Approach Commerical Entrance						West Approach Jacobs Terrace						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
08:00	0	35	0	0	1	35	3	41	0	0	0	44	0	0	0	0	0	0	0	0	5	0	0	5	84
08:15	0	35	2	0	0	37	4	32	0	0	0	36	0	0	0	0	0	0	1	0	3	0	2	4	77
08:30	0	56	0	0	0	56	4	54	0	0	0	58	0	0	0	0	0	0	1	0	4	0	2	5	119
08:45	0	46	1	0	0	47	3	38	0	0	0	41	1	0	0	0	0	1	2	1	1	0	2	4	93
Grand Total	**0**	**172**	**3**	**0**	**1**	**175**	**14**	**165**	**0**	**0**	**0**	**179**	**1**	**0**	**0**	**0**	**0**	**1**	**4**	**1**	**13**	**0**	**6**	**18**	**373**
Approach %	0	98.3	1.7	0		-	7.8	92.2	0	0		-	100	0	0	0		-	22.2	5.6	72.2	0		-	
Totals %	0	46.1	0.8	0		46.9	3.8	44.2	0	0		48	0.3	0	0	0		0.3	1.1	0.3	3.5	0		4.8	
PHF	**0**	**0.77**	**0.38**	**0**		**0.78**	**0.88**	**0.76**	**0**	**0**		**0.77**	**0.25**	**0**	**0**	**0**		**0.25**	**0.5**	**0.25**	**0.65**	**0**		**0.9**	**0.78**
Cars	0	164	2	0		166	13	155	0	0		168	0	0	0	0		0	4	1	13	0		18	352
% Cars	0	95.3	66.7	0		94.9	92.9	93.9	0	0		93.9	0	0	0	0		0	100	100	100	0		100	94.4
Trucks	0	6	1	0		7	1	9	0	0		10	1	0	0	0		1	0	0	0	0		0	18
% Trucks	0	3.5	33.3	0		4	7.1	5.5	0	0		5.6	100	0	0	0		100	0	0	0	0		0	4.8
Bicycles	0	2	0	0		2	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	3
% Bicycles	0	1.2	0	0		1.1	0	0.6	0	0		0.6	0	0	0	0		0	0	0	0	0		0	0.8
Peds					1	-					0	-					0	-					6	-	7
% Peds					14.3	-					0	-					0	-					85.7	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	16:00:00	From:	16:15:00
To:	18:00:00	To:	17:15:00

Intersection: Jacobs Terrace & Innisfil St
Site Code: 2109400001
Count Date: Jun 09, 2021

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Innisfil St runs N/S

North Approach

	Out	In	Total
Cars	246	224	470
Trucks	12	4	16
Bicycles	0	3	3
	258	**231**	**489**

Innisfil St

Bicycles	0	0	0	0
Trucks	0	12	0	0
Cars	3	243	0	0
Totals	**3**	**255**	**0**	**0**

East Approach

	Out	In	Total
Cars	3	1	4
Trucks	0	0	0
Bicycles	0	0	0
	3	**1**	**4**

Peds: 0

Jacobs Terrace

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	0	4	**4**
0	0	1	**1**
0	0	16	**16**

Peds: 3



Peds: 3

Commerical Entrance

Totals	Cars	Trucks	Bicycles
0	0	0	0
3	3	0	0
0	0	0	0
0	0	0	0

Peds: 1

West Approach

	Out	In	Total
Cars	21	26	47
Trucks	0	0	0
Bicycles	0	0	0
	21	**26**	**47**

Innisfil St

Totals	**23**	**224**	**0**	**0**
Cars	23	217	0	0
Trucks	0	4	0	0
Bicycles	0	3	0	0

South Approach

	Out	In	Total
Cars	240	259	499
Trucks	4	12	16
Bicycles	3	0	3
	247	**271**	**518**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Jacobs Terrace & Innisfil St
Site Code: 2109400001
Count Date: Jun 09, 2021
Period: 16:00 - 18:00

Peak Hour Data (16:15 - 17:15)

Start Time	North Approach Innisfil St						South Approach Innisfil St						East Approach Commerical Entrance						West Approach Jacobs Terrace						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:15	0	66	0	0	0	66	7	51	0	0	1	58	0	0	0	0	0	0	2	1	3	0	0	6	130
16:30	0	53	0	0	0	53	5	68	0	0	0	73	0	0	0	0	0	0	0	0	7	0	0	7	133
16:45	0	68	0	0	0	68	5	44	0	0	0	49	0	0	3	0	3	3	2	0	4	0	2	6	126
17:00	0	68	3	0	0	71	6	61	0	0	0	67	0	0	0	0	0	0	0	0	2	0	1	2	140
Grand Total	**0**	**255**	**3**	**0**	**0**	**258**	**23**	**224**	**0**	**0**	**1**	**247**	**0**	**0**	**3**	**0**	**3**	**3**	**4**	**1**	**16**	**0**	**3**	**21**	**529**
Approach %	0	98.8	1.2	0		-	9.3	90.7	0	0		-	0	0	100	0		-	19	4.8	76.2	0		-	
Totals %	0	48.2	0.6	0		48.8	4.3	42.3	0	0		46.7	0	0	0.6	0		0.6	0.8	0.2	3	0		4	
PHF	**0**	**0.94**	**0.25**	**0**		**0.91**	**0.82**	**0.82**	**0**	**0**		**0.85**	**0**	**0**	**0.25**	**0**		**0.25**	**0.5**	**0.25**	**0.57**	**0**		**0.75**	**0.94**
Cars	0	243	3	0		246	23	217	0	0		240	0	0	3	0		3	4	1	16	0		21	510
% Cars	0	95.3	100	0		95.3	100	96.9	0	0		97.2	0	0	100	0		100	100	100	100	0		100	96.4
Trucks	0	12	0	0		12	0	4	0	0		4	0	0	0	0		0	0	0	0	0		0	16
% Trucks	0	4.7	0	0		4.7	0	1.8	0	0		1.6	0	0	0	0		0	0	0	0	0		0	3
Bicycles	0	0	0	0		0	0	3	0	0		3	0	0	0	0		0	0	0	0	0		0	3
% Bicycles	0	0	0	0		0	0	1.3	0	0		1.2	0	0	0	0		0	0	0	0	0		0	0.6
Peds					0	-					1	-					3	-					3	-	7
% Peds					0	-					14.3	-					42.9	-					42.9	-	

Trans-Plan Transportation Inc.

Site ID Code:
Intersection Location: Essa Road & Burton Avenue
Municipality: Barrie, Ontario
Count Date: Tuesday April 2, 2019
Weather and Temperature: Sunny, 7 Degrees
Surveyor: TP

AM	NORTH APPROACH											EAST APPROACH											SOUTH APPROACH											WEST APPROACH											Grand Total
	CAR			TRUCKS			CYCLISTS			Peds	Total	CAR			TRUCKS			CYCLISTS			Peds	Total	CAR			TRUCKS			CYCLISTS			Peds	Total	CAR			TRUCKS			CYCLISTS			Peds	Total	
	L	T	R	L	T	R	L	T	R			L	T	R	L	T	R	L	T	R			L	T	R	L	T	R	L	T	R			L	T	R	L	T	R	L	T	R			
7:00	14	33	0	3	1	0	0	0	0	0	51	40	0	8	3	0	4	0	0	0	1	56	0	26	18	0	4	3	0	0	0	0	51	0	0	0	0	0	0	0	0	0	1	1	159
7:15	18	22	0	1	2	0	0	0	0	1	44	42	0	15	4	0	1	0	0	0	0	62	0	22	31	0	1	2	0	0	0	0	56	0	0	0	0	0	0	0	0	0	0	0	162
7:30	26	37	0	3	1	0	0	0	0	0	67	72	0	14	4	0	2	0	0	0	0	92	0	35	29	0	2	1	0	0	0	0	67	0	0	0	0	0	0	0	0	0	0	0	226
7:45	31	41	0	1	2	0	0	0	0	0	75	62	0	13	7	0	2	0	0	0	1	85	1	44	54	0	1	5	0	0	0	0	105	0	0	0	0	0	0	0	0	0	0	0	265
8:00	15	43	1	2	2	0	0	0	0	0	63	49	0	20	3	0	1	0	0	0	0	73	0	45	38	0	2	1	0	0	0	0	86	0	0	0	0	0	0	0	0	0	1	1	223
8:15	24	49	1	1	2	0	0	0	0	1	78	51	0	16	3	0	2	0	0	0	0	72	0	61	52	0	0	0	0	0	0	0	113	0	0	0	0	0	0	0	0	0	2	2	265
8:30	16	36	0	2	2	0	0	0	0	0	56	46	0	28	2	0	5	0	0	0	2	83	0	76	44	0	3	5	0	0	0	0	128	0	0	0	0	0	0	0	0	0	1	1	268
8:45	27	42	0	7	1	0	0	0	0	0	77	52	0	18	2	0	0	0	0	0	2	74	0	68	55	0	2	4	0	1	0	0	130	0	0	1	0	0	0	0	0	0	0	1	282
MD																																													
11:00	23	59	0	1	3	0	0	0	0	0	86	56	0	19	4	0	1	0	0	0	1	81	0	41	46	0	3	4	0	0	0	0	94	0	0	0	0	0	0	0	0	0	1	1	262
11:15	29	54	0	1	3	0	0	0	0	0	87	50	0	31	1	0	2	0	0	0	0	84	0	50	51	0	0	1	0	0	0	0	102	0	0	0	0	0	0	0	0	0	0	0	273
11:30	22	58	0	5	0	0	0	0	0	0	85	51	0	23	1	0	1	0	0	0	0	76	0	61	56	0	3	2	0	0	0	0	122	0	0	0	0	0	0	0	0	0	0	0	283
11:45	28	58	0	0	4	0	0	0	0	1	91	40	0	19	3	0	1	0	0	0	3	66	0	49	59	0	3	3	0	0	0	0	114	0	0	0	0	0	0	0	0	0	0	0	271
12:00	32	65	0	4	1	0	0	1	0	1	104	33	0	21	5	0	2	0	0	0	0	61	0	51	48	0	2	5	0	0	0	0	106	0	0	0	0	0	0	0	0	0	2	2	273
12:15	30	52	0	3	3	0	0	0	0	0	88	41	0	29	2	0	2	0	0	0	0	74	1	56	52	0	1	3	0	0	0	0	113	0	0	0	0	0	0	0	0	0	1	1	276
12:30	18	56	0	3	1	0	0	0	0	0	78	64	0	26	5	0	2	0	0	0	0	97	0	62	47	0	2	1	0	0	0	0	112	0	0	0	0	0	0	0	0	0	0	0	287
12:45	21	54	0	3	1	0	0	0	0	0	79	47	0	31	3	0	2	0	0	0	0	83	0	56	54	0	2	1	0	0	0	0	113	0	0	0	0	0	0	0	0	0	0	0	275
13:00	27	48	0	2	1	0	0	0	0	0	78	45	0	29	2	0	5	0	0	0	2	83	0	44	50	0	0	3	0	0	0	0	97	0	0	0	0	0	0	0	0	0	0	0	258
13:15	36	70	0	0	3	0	0	0	0	0	109	52	0	27	3	0	0	0	0	0	1	83	0	60	45	0	2	3	0	0	0	0	110	0	0	0	0	0	0	0	0	0	0	0	302
13:30	23	59	0	5	3	0	0	0	0	0	90	53	0	29	6	0	4	0	0	0	2	94	0	59	50	0	4	5	0	1	0	0	119	0	0	0	0	0	0	0	0	0	1	1	304
13:45	24	61	0	2	1	0	0	0	0	0	88	51	0	21	2	0	1	0	0	0	0	75	0	70	55	0	2	5	0	0	0	0	132	0	0	0	0	0	0	0	0	0	1	1	296
PM																																													
15:00	30	72	0	2	1	0	0	0	0	0	105	69	0	31	0	0	2	0	0	0	2	104	0	57	66	0	3	0	0	0	0	0	126	0	0	0	0	0	0	0	0	0	0	0	335
15:15	36	64	0	2	4	0	0	0	0	2	108	52	0	30	3	0	1	0	0	0	3	89	0	51	62	0	1	3	0	0	0	1	118	0	0	2	0	0	0	0	0	0	0	2	317
15:30	34	53	0	4	0	0	0	0	0	0	91	66	0	41	4	0	4	0	0	0	8	123	0	62	70	0	2	4	0	0	0	0	138	0	0	0	0	0	0	0	0	0	0	0	352
15:45	29	57	0	2	2	0	0	0	0	0	90	69	0	29	5	0	0	0	0	0	2	105	0	67	78	0	1	0	0	0	0	0	146	0	0	0	0	0	0	0	0	0	0	0	341
16:00	29	60	0	3	0	0	0	0	0	1	93	72	0	28	3	0	6	0	0	0	2	111	0	63	54	0	1	2	0	0	0	0	120	0	0	0	0	0	0	0	0	0	1	1	325
16:15	32	62	0	1	2	0	0	0	0	1	98	63	0	29	3	0	1	0	0	0	0	96	0	61	77	0	2	2	0	0	0	0	142	0	0	0	0	0	0	0	0	0	0	0	336
16:30	36	69	0	2	0	0	0	1	0	5	113	79	0	36	3	0	2	0	0	0	3	123	0	58	75	0	1	0	0	0	0	0	134	0	0	0	0	0	0	0	0	0	1	1	371
16:45	41	66	0	2	2	0	0	0	0	3	114	53	0	35	3	0	1	0	0	0	2	94	0	68	69	0	1	1	0	0	0	0	139	0	0	0	0	0	0	0	0	0	1	1	348
17:00	38	77	0	2	0	0	0	0	0	0	117	72	0	36	2	0	2	0	0	0	1	113	0	67	76	0	3	1	0	0	0	0	147	0	0	0	0	0	0	0	0	0	0	0	377
17:15	41	63	0	2	2	0	0	0	0	1	109	73	0	42	0	0	0	0	0	0	1	116	0	74	65	0	0	1	0	0	0	0	140	0	0	0	0	0	0	0	0	0	0	0	365
17:30	24	78	0	1	0	0	0	0	0	0	103	69	0	25	1	0	1	0	0	0	6	102	1	73	56	0	2	1	0	0	0	0	133	0	0	1	0	0	0	0	0	0	1	1	339
17:45	28	43	0	2	2	0	0	0	0	4	79	40	0	25	3	0	1	0	0	0	4	73	0	60	42	0	0	0	0	0	0	0	102	0	0	0	0	0	0	0	0	0	0	0	254

TRANS-PLAN
transportation engineering

Turning Movement Count Diagram

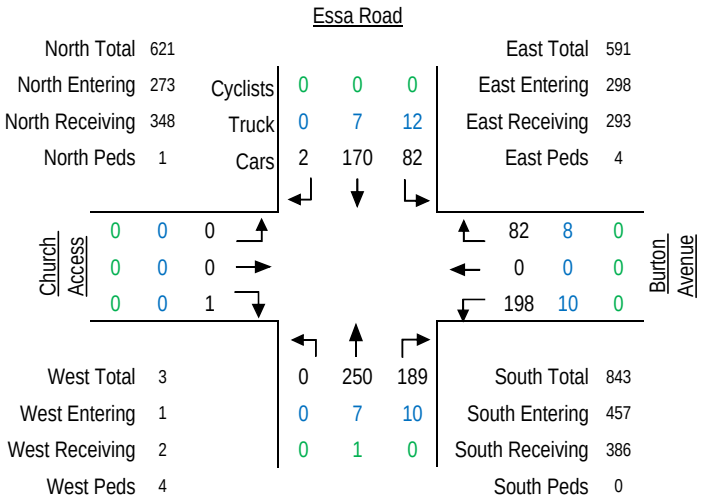
Intersection: Essa Road & Burton Avenue

Intersection ID:

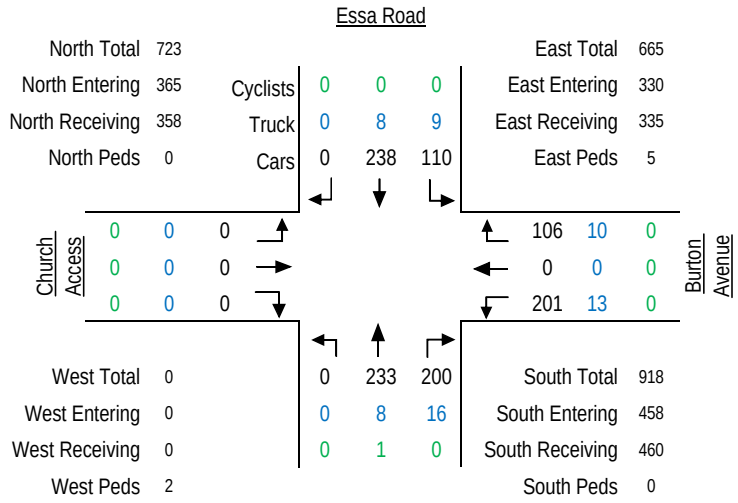
Municipality: Barrie, Ontario

Date: Tuesday April 2, 2019

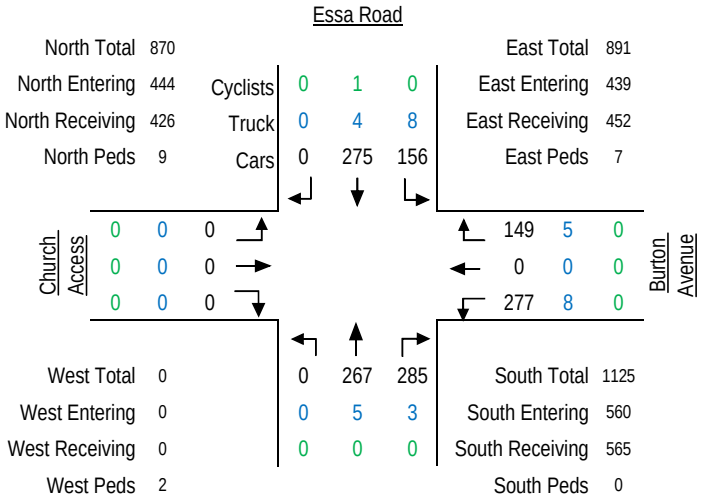
AM Peak Hour: 8:00 to 9:00



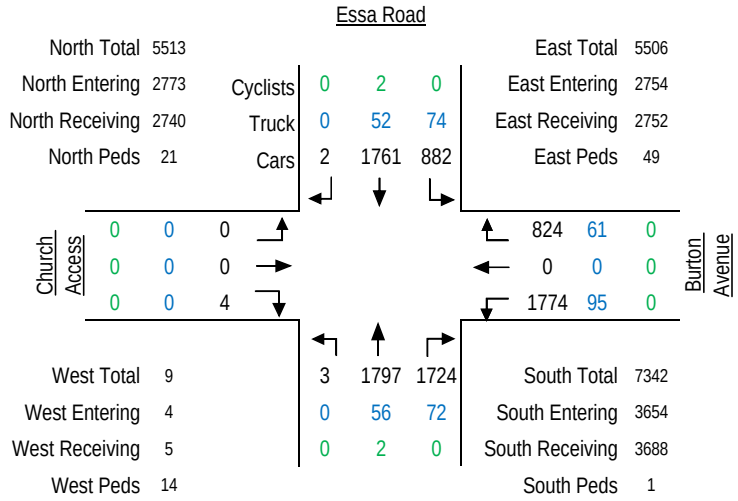
MD Peak Hour: 13:00 to 14:00



PM Peak Hour: 16:30 to 17:30



Total 8-Hour Count



Trans-Plan Transportation Inc.

Site ID Code:
Intersection Location: Essa Road & Gowan Street
Municipality: Barrie, Ontario
Count Date: Tuesday April 2, 2019
Weather and Temperature: Sunny, 7 Degrees
Surveyor: TP

AM	NORTH APPROACH											EAST APPROACH											SOUTH APPROACH											WEST APPROACH											Grand Total
	CAR			TRUCKS			CYCLISTS			Peds	Total	CAR			TRUCKS			CYCLISTS			Peds	Total	CAR			TRUCKS			CYCLISTS			Peds	Total	CAR			TRUCKS			CYCLISTS			Peds	Total	
	L	T	R	L	T	R	L	T	R			L	T	R	L	T	R	L	T	R			L	T	R	L	T	R	L	T	R			L	T	R	L	T	R	L	T	R			
7:00	34	39	0	0	4	0	0	0	0	0	77	2	0	28	0	0	0	0	0	0	4	34	0	37	2	0	8	0	0	0	0	1	48	0	0	0	0	0	0	0	0	0	0	0	159
7:15	27	42	0	0	3	0	0	0	0	0	72	0	0	24	0	0	0	0	0	0	1	25	0	33	0	0	1	0	0	0	0	0	34	0	0	0	0	0	0	0	0	0	0	0	131
7:30	43	66	0	2	3	0	0	0	0	0	114	1	0	35	0	0	0	0	0	0	1	37	0	54	0	0	4	1	0	0	0	0	59	0	0	0	0	0	0	0	0	0	0	0	210
7:45	39	73	0	0	3	0	0	0	0	0	115	0	0	44	0	0	2	0	0	0	1	47	0	57	0	0	2	0	0	0	0	0	59	0	0	0	0	0	0	0	0	0	0	0	221
8:00	31	62	0	1	4	0	0	0	0	0	98	0	0	37	0	0	2	0	0	0	2	41	0	59	0	0	3	0	0	0	0	0	62	0	0	2	0	0	0	0	0	0	0	2	203
8:15	22	61	0	1	4	0	0	0	0	0	88	0	0	41	1	0	3	0	0	0	0	45	0	80	0	0	2	0	0	0	0	0	82	0	0	0	0	0	0	0	0	0	0	0	215
8:30	24	52	0	0	3	0	0	0	0	0	79	1	0	42	0	0	2	0	0	0	2	47	0	107	2	0	8	0	0	0	0	2	119	0	0	0	0	0	0	0	0	0	0	0	245
8:45	27	69	0	0	8	0	0	0	0	0	104	0	0	38	0	0	2	0	0	0	1	41	0	83	1	0	2	0	0	0	0	0	86	0	0	0	0	0	0	0	0	0	0	0	231
MD																																													
11:00	31	83	0	1	3	0	0	0	0	0	118	0	0	51	0	0	1	0	0	0	2	54	0	63	0	0	4	0	0	0	0	1	68	0	0	0	0	0	0	0	0	0	0	0	240
11:15	31	84	0	0	4	0	0	0	0	0	119	1	0	42	0	0	0	0	0	0	7	50	0	76	3	0	1	0	0	0	0	1	81	0	0	0	0	0	0	0	0	0	0	0	250
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11:45	32	86	0	0	4	0	0	0	0	0	122	0	0	29	0	0	0	0	0	0	5	34	0	69	3	0	2	0	0	0	0	0	74	0	0	0	0	0	0	0	0	0	0	0	230
12:00	32	92	0	2	5	0	0	0	0	0	131	2	0	31	1	0	0	0	0	0	8	42	0	77	2	0	4	0	0	0	0	4	87	0	0	0	0	0	0	0	0	0	0	0	260
12:15	30	94	0	1	5	0	0	0	0	2	132	1	0	38	0	0	1	0	0	0	3	43	0	79	2	0	3	0	0	0	0	3	87	0	0	0	0	0	0	0	0	0	0	0	262
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13:00	35	78	0	0	2	0	0	0	0	0	115	3	0	43	0	0	0	0	0	0	3	49	0	82	2	0	5	0	0	0	0	0	89	0	0	0	0	0	0	0	0	0	0	0	253
13:15	32	103	0	0	3	0	0	0	0	2	140	2	0	44	0	0	0	0	0	0	3	49	0	86	5	0	1	0	0	0	0	0	92	0	0	0	0	0	0	0	0	0	0	0	281
13:30	22	82	0	1	6	0	0	0	0	0	111	3	0	37	0	0	1	0	0	0	3	44	0	97	0	0	8	1	0	1	0	1	108	0	0	0	0	0	0	0	0	0	0	0	263
13:45	30	86	0	0	3	0	0	0	0	0	119	1	0	51	0	0	0	0	0	0	6	58	0	91	1	0	3	0	0	0	0	4	99	0	0	1	0	0	0	0	0	0	0	1	277
PM																																													
15:00	42	104	0	0	4	0	0	0	0	2	152	2	0	56	0	0	1	0	0	0	4	63	0	91	2	0	5	0	0	0	0	4	102	0	0	0	0	0	0	0	0	0	0	0	317
15:15	34	91	1	1	4	0	0	0	0	0	131	3	0	56	0	0	0	0	0	0	10	69	0	83	0	0	5	0	0	0	0	3	91	0	0	0	0	0	0	0	0	0	0	0	291
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15:45	43	82	0	0	3	0	0	0	0	1	129	4	0	68	0	0	1	0	0	0	8	81	0	96	3	0	0	0	0	0	0	2	101	0	0	0	0	0	0	0	0	0	0	0	311
16:00	52	91	0	0	3	0	0	0	0	0	146	1	0	63	0	0	0	0	0	0	2	66	0	88	1	0	7	0	0	0	0	3	99	0	0	0	0	0	0	0	0	0	0	0	311
16:15	43	96	0	1	3	0	0	0	0	0	143	4	0	59	0	0	0	0	0	0	4	67	0	88	1	0	3	0	0	0	0	2	94	0	0	0	0	0	0	0	0	0	0	0	304
16:30	49	112	0	0	3	0	0	0	0	0	164	0	0	57	0	0	0	0	0	0	3	60	0	95	2	0	3	0	0	0	0	2	102	0	0	0	0	0	0	0	0	0	0	0	326
16:45	51	104	0	1	4	0	0	0	0	0	160	1	1	73	0	0	0	0	0	0	3	78	0	102	2	0	2	0	0	0	0	0	106	0	0	1	0	0	0	0	0	0	0	1	345
17:00	40	121	0	1	3	0	0	0	0	0	165	3	0	66	0	0	0	0	0	0	3	72	0	105	2	0	4	0	0	0	0	0	111	0	0	0	0	0	0	0	0	0	0	0	348
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17:45	24	56	0	0	3	0	0	0	0	0	83	4	0	50	0	0	0	0	0	0	3	57	1	75	1	0	1	0	0	0	0	0	78	0	0	0	0	0	0	0	0	0	0	0	218

TRANS-PLAN
transportation engineering

Turning Movement Count Diagram

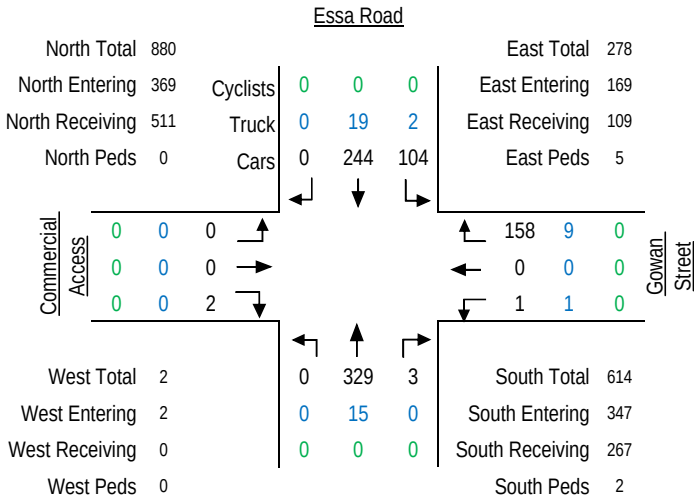
Intersection: Essa Road & Gowan Street

Intersection ID:

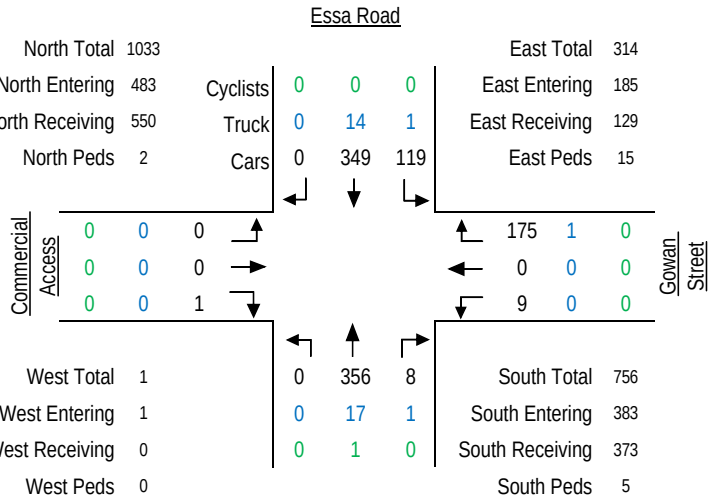
Municipality: Barrie, Ontario

Date: Tuesday April 2, 2019

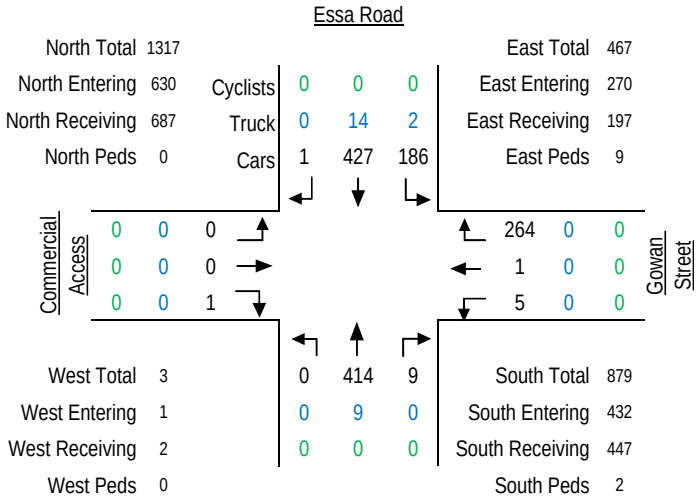
AM Peak Hour: 8:00 to 9:00



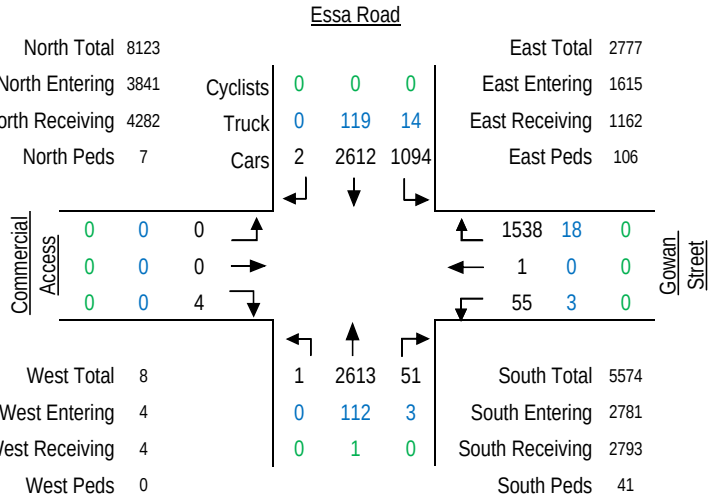
MD Peak Hour: 13:00 to 14:00



PM Peak Hour: 16:30 to 17:30



Total 8-Hour Count



Trans-Plan Transportation Inc.

Site ID Code:
Intersection Location: Essa Road & Innisfil Street
Municipality: Barrie, Ontario
Count Date: Thursday February 14, 2019
Weather and Temperature: Partly Cloudy, -1 Degree
Surveyor: TP

AM	NORTH APPROACH										Total	EAST APPROACH										Total	SOUTH APPROACH										Total	WEST APPROACH										Total	Grand Total
	CAR			TRUCKS			CYCLISTS			Peds		CAR			TRUCKS			CYCLISTS			Peds		CAR			TRUCKS			CYCLISTS			Peds		CAR			TRUCKS			CYCLISTS			Peds		
	L	T	R	L	T	R	L	T	R			L	T	R	L	T	R	L	T	R			L	T	R	L	T	R	L	T	R			L	T	R	L	T	R	L	T	R			
7:00	4	14	10	1	0	0	0	0	0	1	30	5	38	9	0	1	0	0	0	0	1	54	3	16	2	0	2	0	0	0	0	0	23	2	26	2	0	3	0	0	0	0	1	34	141
7:15	3	30	4	0	1	2	0	0	0	0	40	1	61	21	0	3	1	0	0	0	0	87	1	15	2	1	0	0	0	0	0	0	19	2	44	5	0	1	0	0	0	0	0	52	198
7:30	7	24	15	0	3	0	0	0	0	1	50	2	56	17	0	5	1	0	0	0	0	81	6	18	3	0	1	0	0	0	0	0	28	2	48	4	0	3	0	0	0	0	0	57	216
7:45	10	33	13	0	1	0	0	0	0	0	57	5	93	15	0	3	1	0	0	0	0	117	5	23	2	0	0	0	0	0	0	0	30	9	60	10	0	5	0	0	0	0	0	84	288
8:00	15	33	8	0	1	0	0	0	0	0	57	3	73	19	0	2	0	0	0	0	0	97	4	26	4	0	0	0	0	0	0	0	34	6	57	10	1	5	0	0	0	0	0	79	267
8:15	7	20	9	0	1	0	0	0	0	0	37	3	75	14	0	6	0	0	0	0	0	98	3	19	9	1	2	1	0	0	0	0	35	6	102	7	1	3	1	0	0	0	0	120	290
8:30	13	23	5	1	1	0	0	0	0	1	44	2	66	16	1	6	0	0	0	0	0	91	4	16	3	0	0	0	0	0	0	0	23	5	69	4	0	2	0	0	0	0	0	80	238
8:45	8	33	5	0	2	0	0	0	0	0	48	5	61	12	0	2	1	0	0	0	1	82	7	25	6	0	3	0	0	0	0	0	41	7	118	8	0	5	0	0	0	0	0	138	309
MD																																													
11:00	12	17	14	0	1	0	0	0	0	0	44	5	87	16	1	5	0	0	0	0	0	114	5	23	4	0	1	0	0	0	0	0	33	10	75	5	0	2	0	0	0	0	0	92	283
11:15	9	20	11	0	0	0	0	0	0	0	40	3	73	17	1	3	0	0	0	0	0	97	3	19	7	0	0	1	0	0	0	0	30	7	80	8	0	3	1	0	0	0	1	100	267
11:30	22	24	13	0	0	1	0	0	0	0	60	2	73	24	0	2	0	0	0	0	0	101	2	22	6	0	2	0	0	0	0	0	32	11	74	8	0	3	0	0	0	0	0	96	289
11:45	14	23	16	0	1	0	0	0	0	1	55	4	75	19	0	4	0	0	0	0	0	102	4	21	6	0	2	0	0	0	0	0	33	12	82	2	0	1	0	0	0	0	0	97	287
12:00	14	20	14	0	2	0	0	0	0	1	51	2	102	20	0	3	2	0	0	0	0	129	4	24	4	0	1	1	0	0	1	0	35	12	85	8	0	3	0	0	0	0	0	108	323
12:15	13	28	18	1	2	1	0	0	0	1	64	3	95	17	0	3	0	0	0	0	0	118	7	33	3	0	1	0	0	0	0	2	46	9	73	2	0	2	0	0	0	0	1	87	315
12:30	9	23	9	0	0	0	0	0	0	1	42	3	109	16	0	1	0	0	0	0	0	129	2	18	7	0	1	0	0	0	0	0	28	19	87	4	2	4	0	0	0	0	0	116	315
12:45	18	28	15	1	0	1	0	0	0	0	63	3	88	29	0	7	1	0	0	0	0	128	5	29	6	0	0	0	0	0	0	0	40	5	101	9	0	5	0	0	0	0	0	120	351
13:00	25	20	12	0	1	1	0	0	0	0	59	9	79	13	0	2	2	0	0	0	0	105	5	21	7	0	1	0	0	0	0	0	34	9	86	3	0	1	0	0	0	0	0	99	297
13:15	18	27	19	0	1	0	0	0	0	0	65	6	102	17	0	4	1	0	0	0	0	130	4	17	7	0	1	0	0	0	0	1	30	10	68	8	1	2	0	0	0	0	0	89	314
13:30	14	27	16	0	0	0	0	0	0	0	57	10	103	21	0	2	0	0	0	0	0	136	10	18	9	0	2	0	0	0	0	1	40	10	79	7	0	5	0	0	0	0	1	102	335
13:45	11	28	14	0	1	0	0	0	0	2	56	2	83	23	0	6	0	0	0	0	2	116	13	13	7	0	2	0	0	0	0	1	36	12	96	10	0	5	0	0	0	0	1	124	332
PM																																													
15:00	21	32	24	0	1	0	0	0	0	1	79	2	96	17	0	5	1	0	0	0	2	123	3	32	5	1	1	0	0	0	0	3	45	11	80	10	0	2	0	0	0	0	3	106	353
15:15	15	31	18	0	2	0	0	0	0	0	66	5	102	14	0	5	1	0	0	0	0	127	4	57	8	1	2	1	0	0	0	2	75	8	112	8	0	1	0	0	0	0	2	131	399
15:30	19	34	16	0	4	0	0	0	0	0	73	4	108	20	0	3	0	0	0	0	0	135	11	43	6	0	2	0	0	0	0	0	62	12	92	5	0	2	1	0	0	0	0	112	382
15:45	15	29	18	0	1	0	0	0	0	0	63	6	107	12	0	4	0	0	0	0	3	132	4	36	6	1	2	0	0	0	0	0	49	11	103	6	0	1	0	0	0	0	0	121	365
16:00	20	32	29	0	0	0	0	0	0	0	81	6	138	23	0	4	2	0	0	0	0	173	4	36	8	0	1	0	0	0	0	0	49	18	99	8	0	3	0	0	0	0	2	130	433
16:15	23	40	19	0	2	0	0	0	0	0	84	6	119	16	0	4	1	0	0	0	0	146	4	39	7	0	1	1	0	0	0	1	53	15	98	5	0	2	0	0	0	0	1	121	404
16:30	26	35	28	0	1	0	0	0	0	0	90	8	142	14	1	4	0	0	0	0	0	169	4	50	4	0	0	0	0	0	0	0	58	13	105	11	0	4	0	0	0	0	0	133	450
16:45	19	37	28	1	1	2	0	0	0	1	89	1	140	18	0	9	0	0	0	0	0	168	6	36	5	0	0	0	0	0	0	1	48	20	123	12	0	3	0	0	0	0	0	158	463
17:00	28	48	23	0	3	0	0	0	0	0	102	10	137	22	0	3	0	0	0	0	0	172	5	33	7	0	1	0	0	0	0	1	47	12	115	12	0	3	0	0	0	0	2	144	465
17:15	30	50	25	0	2	1	0	0	0	0	108	11	117	19	0	3	0	0	0	0	0	150	3	37	7	0	1	0	0	0	0	1	49	23	117	11	0	2	1	0	0	0	0	154	461
17:30	25	33	12	0	2	0	0	0	0	0	72	9	143	20	0	4	0	0	0	0	0	176	6	30	7	0	0	0	0	0	0	1	44	11	103	8	0	1	0	0	0	0	0	123	415
17:45	9	14	12	0	3	0	0	0	0	0	38	5	123	22	0	1	1	0	0	0	0	152	2	22	8	0	1	0	0	0	0	1	34	13	85	8	0	0	0	0	0	0	0	106	330

TRANS-PLAN
transportation engineering

Turning Movement Count Diagram

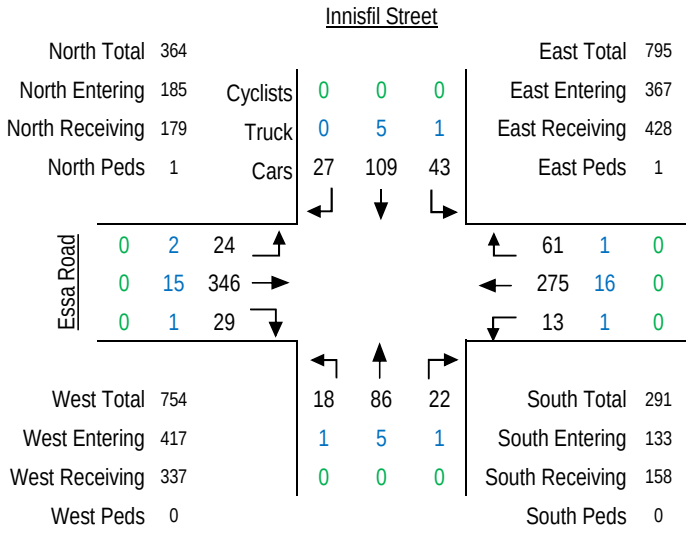
Intersection: Essa Road & Innisfil Street

Intersection ID:

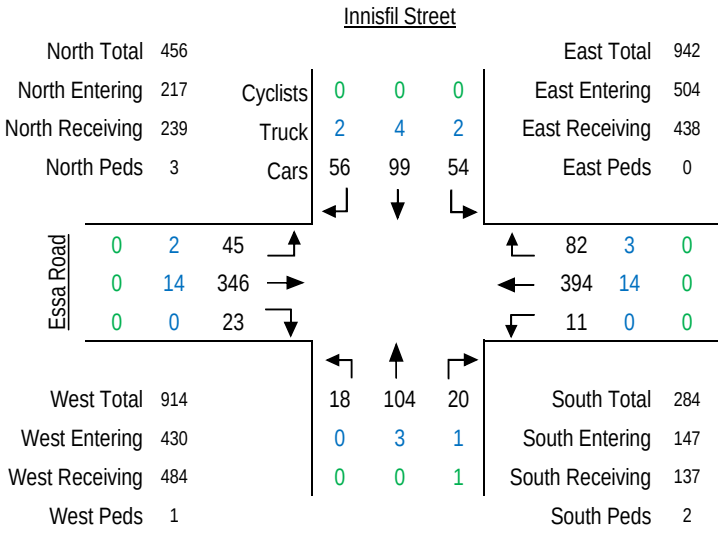
Municipality: Barrie, Ontario

Date: Thursday February 14, 2019

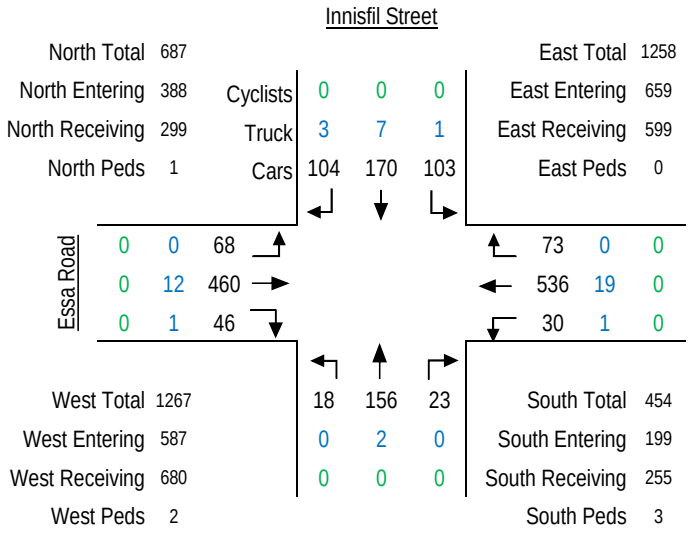
AM Peak Hour: 8:00 to 9:00



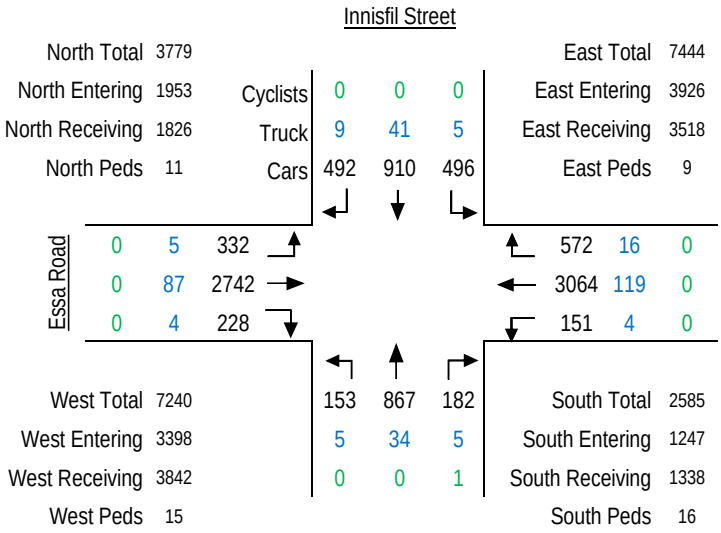
MD Peak Hour: 12:00 to 13:00



PM Peak Hour: 16:30 to 17:30



Total 8-Hour Count



Trans-Plan Transportation Inc.

Site ID Code:
Intersection Location: Essa Road & Tiffin Street
Municipality: Barrie, Ontario
Count Date: Tuesday April 2, 2019
Weather and Temperature: Sunny, 7 Degrees
Surveyor: TP

AM	NORTH APPROACH											EAST APPROACH											SOUTH APPROACH											WEST APPROACH											Grand Total
	CAR			TRUCKS			CYCLISTS			Peds	Total	CAR			TRUCKS			CYCLISTS			Peds	Total	CAR			TRUCKS			CYCLISTS			Peds	Total	CAR			TRUCKS			CYCLISTS			Peds	Total	
	L	T	R	L	T	R	L	T	R			L	T	R	L	T	R	L	T	R			L	T	R	L	T	R	L	T	R			L	T	R	L	T	R	L	T	R			
7:00	9	45	3	0	2	0	0	1	0	0	60	14	44	21	3	3	3	0	0	0	0	88	8	37	18	0	4	1	0	0	0	1	69	4	31	8	0	4	2	0	0	0	0	49	266
7:15	3	33	5	0	2	0	0	0	0	0	43	17	44	21	5	1	0	0	0	0	1	89	12	35	12	0	0	0	0	0	0	0	59	3	33	11	0	2	1	0	0	0	0	50	241
7:30	5	55	7	0	1	0	0	0	0	0	68	32	53	35	2	1	3	0	0	0	2	128	17	52	17	1	1	0	0	0	0	0	88	4	34	24	1	1	3	0	0	0	0	67	351
7:45	6	70	7	0	5	0	0	0	0	0	88	21	73	38	1	1	1	0	0	0	2	137	14	70	18	0	3	0	0	0	0	1	106	13	52	18	0	0	0	0	0	0	0	83	414
8:00	9	59	4	0	2	0	0	0	0	0	74	21	48	20	3	0	2	0	0	0	0	94	12	69	18	1	2	1	0	0	0	0	103	4	43	14	0	2	1	0	0	0	0	64	335
8:15	8	52	4	0	6	0	0	0	0	1	71	20	38	30	1	3	0	0	0	0	1	93	7	91	21	1	1	1	0	0	0	0	122	20	52	11	0	1	1	0	0	0	0	85	371
8:30	9	41	6	0	2	0	0	0	0	0	58	24	53	28	1	3	3	0	0	0	3	115	17	105	24	0	4	2	0	0	0	1	153	17	38	8	0	4	1	0	0	0	2	70	396
8:45	7	65	7	0	9	2	0	0	0	0	90	16	55	31	2	3	0	0	0	0	0	107	9	86	27	0	4	0	0	0	0	0	126	13	51	16	0	3	1	0	0	0	0	84	407
MD																																													
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13:30	8	68	2	0	1	0	0	0	0	2	81	26	45	21	3	2	2	0	0	0	2	101	13	75	31	0	4	2	0	1	0	0	126	9	63	11	2	0	5	0	0	0	2	92	400
13:45	11	66	9	0	5	1	0	0	0	2	94	31	41	14	1	2	2	0	0	0	3	94	17	84	41	1	1	1	0	0	0	2	147	12	41	13	0	3	0	0	0	0	0	69	404
PM																																													
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15:15	9	74	7	0	5	2	0	0	0	0	97	18	41	9	1	5	0	0	0	0	0	74	18	89	37	0	1	0	0	0	0	0	145	6	66	25	0	0	3	0	0	0	0	100	416
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16:00	27	88	11	0	3	0	0	0	0	0	129	23	64	33	2	1	3	0	0	0	0	126	17	93	40	0	4	0	0	0	0	0	154	11	89	29	0	0	1	0	0	0	2	132	541
16:15	23	86	8	0	4	0	0	0	0	0	121	25	35	9	2	1	0	0	0	0	2	74	23	87	33	0	3	0	0	0	0	3	149	12	82	17	0	0	0	0	0	0	1	112	456
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17:00	27	124	11	0	2	0	0	0	0	2	166	20	46	16	2	0	3	0	0	0	0	87	19	108	42	0	2	0	0	0	0	1	172	10	86	15	0	0	2	0	0	0	1	114	539
17:15	34	82	6	0	3	0	0	0	0	0	125	28	48	11	1	1	1	0	0	0	3	93	21	127	42	0	0	0	0	0	0	0	190	11	81	23	0	1	1	0	0	0	1	118	526
17:30	23	92	14	0	2	0	0	0	0	0	131	21	62	13	1	0	2	0	0	0	1	100	26	101	38	0	2	0	0	0	0	3	170	10	67	9	0	0	1	0	0	0	0	87	488
17:45	13	60	9	0	3	0	0	0	0	2	87	18	53	17	2	1	1	0	0	0	3	95	17	76	28	0	0	0	0	0	0	0	121	6	46	6	0	0	0	0	0	0	5	63	366

TRANS-PLAN
transportation engineering

Turning Movement Count Diagram

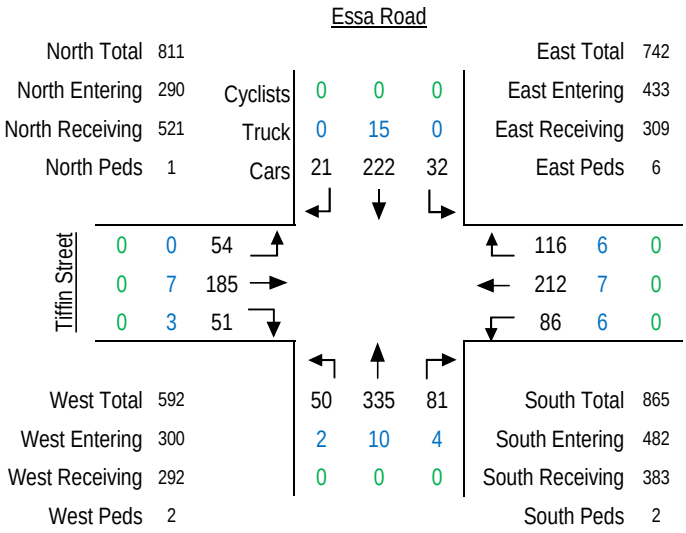
Intersection: Essa Road & Tiffin Street

Intersection ID:

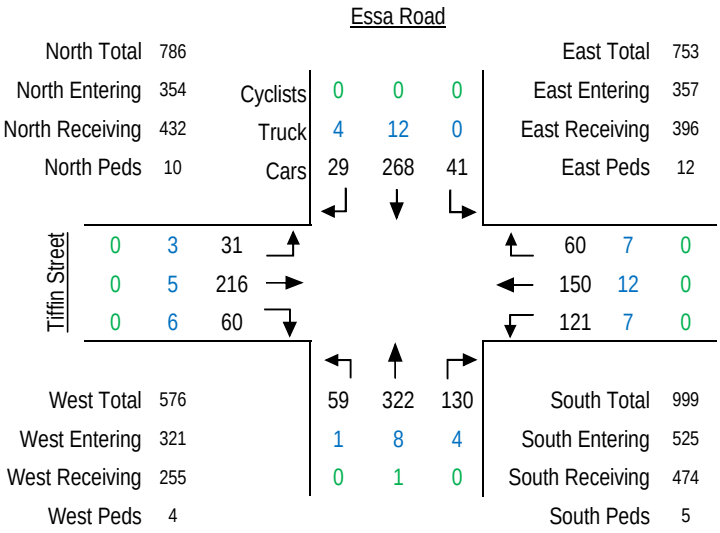
Municipality: Barrie, Ontario

Date: Tuesday April 2, 2019

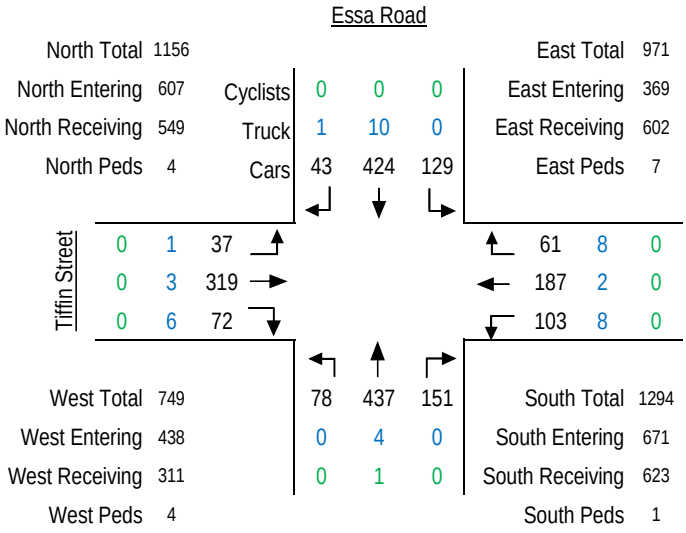
AM Peak Hour: 7:45 to 8:45



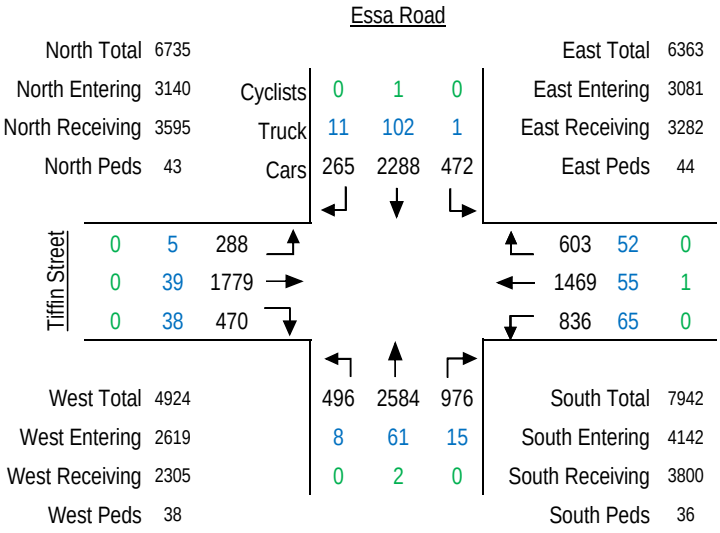
MD Peak Hour: 13:00 to 14:00



PM Peak Hour: 16:30 to 17:30



Total 8-Hour Count



Trans-Plan Transportation Inc.

Site ID Code:
Intersection Location: Tiffin Street and Innisfil Street
Municipality: Barrie, Ontario
Count Date: Wednesday, May 31 2017
Weather and Temperature: Clear 20 Degrees
Surveyor: TP

AM	NORTH APPROACH											EAST APPROACH											SOUTH APPROACH											WEST APPROACH											Grand Total
	CAR			TRUCKS			CYCLISTS			Peds	Total	CAR			TRUCKS			CYCLISTS			Peds	Total	CAR			TRUCKS			CYCLISTS			Peds	Total	CAR			TRUCKS			CYCLISTS			Peds	Total	
	L	T	R	L	T	R	L	T	R			L	T	R	L	T	R	L	T	R			L	T	R	L	T	R	L	T	R			L	T	R	L	T	R	L	T	R			
7:15	4	22	5	0	0	0	0	0	0	0	31	1	36	6	0	4	0	0	0	0	0	47	10	18	0	0	1	0	0	0	0	0	29	5	39	8	0	2	1	0	0	0	1	56	163
7:30	5	18	4	0	0	0	0	0	0	1	28	3	44	7	0	5	0	0	1	0	0	60	12	19	0	0	0	0	0	0	0	0	31	6	41	10	0	1	0	0	0	0	2	60	179
7:45	4	44	6	0	0	0	0	0	0	1	55	1	63	8	0	5	0	0	1	0	0	78	17	35	0	0	1	0	0	0	1	0	54	8	55	14	0	5	1	0	0	0	1	84	271
8:00	7	26	8	0	1	0	0	1	0	2	45	1	75	8	0	6	0	0	0	0	1	91	11	27	1	0	1	0	0	0	0	2	42	12	79	9	0	4	0	0	2	0	1	107	285
8:15	4	36	6	0	0	0	1	0	0	0	47	3	53	4	0	1	0	0	0	0	1	62	16	31	1	1	0	0	0	1	0	0	50	8	63	21	0	4	2	0	0	0	0	98	257
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8:45	5	39	7	0	1	2	0	0	0	0	54	0	70	6	0	2	1	0	0	0	0	79	18	37	2	0	2	0	0	0	0	0	59	12	73	14	0	7	0	0	1	0	0	107	299
9:00	4	27	7	0	1	0	0	0	0	1	40	1	63	6	0	4	0	0	1	0	0	75	20	49	3	1	0	0	0	1	0	0	74	9	89	25	0	3	0	0	1	0	1	128	317
MD																																													
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11:45	8	68	20	0	4	0	0	1	0	0	101	6	39	13	0	2	1	1	1	0	0	63	2	41	8	0	5	0	1	1	0	2	58	17	43	4	0	0	0	0	0	0	0	64	286
12:00	3	66	12	0	4	1	0	1	0	1	87	11	36	9	0	0	0	0	1	0	2	57	7	54	10	0	5	0	0	0	1	0	77	13	33	5	1	1	0	0	2	1	1	56	277
12:15	8	44	7	0	0	0	0	1	0	0	60	11	61	9	0	2	0	0	1	1	0	85	13	47	7	1	3	0	0	0	0	0	71	9	70	15	0	2	0	0	0	0	0	96	312
12:30	6	58	11	0	4	1	0	1	0	0	81	16	32	8	0	1	0	0	1	1	0	59	7	58	14	0	0	1	1	0	0	2	81	8	52	8	0	1	0	0	0	0	1	69	290
12:45	5	87	7	0	1	0	0	0	0	2	100	13	29	3	0	0	0	1	1	0	1	47	5	75	13	0	5	1	0	0	0	0	99	10	35	6	0	1	0	0	0	0	0	52	298
13:00	4	82	6	0	7	0	0	0	0	2	99	13	47	14	0	1	0	0	0	0	0	75	5	62	10	0	6	1	0	0	0	2	84	11	38	3	0	1	0	0	1	0	2	54	312
13:15	14	61	14	0	5	0	0	0	0	2	94	15	33	10	0	0	0	0	0	0	6	58	5	62	17	0	2	0	0	2	1	7	89	15	54	8	0	0	0	1	0	0	0	78	319
13:30	13	75	13	0	5	0	0	0	0	3	106	12	41	10	0	1	0	0	0	0	0	64	3	67	8	0	3	0	0	0	0	1	81	26	37	3	0	1	0	0	0	0	2	67	318
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14:00	4	70	7	0	3	0	0	2	1	0	87	11	42	0	1	1	0	0	0	0	1	55	4	88	10	0	3	1	0	0	0	0	106	4	31	9	0	1	1	0	1	0	0	47	295
PM																																													
15:15	1	60	5	0	2	0	0	0	0	0	68	21	40	4	0	2	0	0	0	0	1	68	10	83	20	0	1	1	0	0	1	0	116	11	40	3	0	0	0	0	0	0	0	54	306
15:30	1	75	11	0	3	0	0	0	0	1	91	15	54	3	0	0	0	0	0	0	2	74	10	80	19	0	6	0	0	1	0	1	117	6	49	6	0	1	0	1	2	1	1	67	349
15:45	7	55	14	0	1	0	0	0	0	1	78	13	44	6	1	0	0	0	1	0	2	67	3	73	10	0	2	0	1	0	0	0	89	12	53	13	1	1	0	0	0	0	1	81	315
16:00	9	90	27	0	4	0	0	1	0	0	131	17	42	16	0	3	1	0	0	0	1	80	9	61	13	0	3	0	1	1	0	1	89	15	53	3	0	0	0	0	0	0	0	71	371
16:15	6	102	23	0	5	0	0	0	0	2	138	10	56	9	0	0	0	0	0	0	1	76	4	81	13	0	1	0	0	1	0	3	103	23	55	7	0	0	1	0	0	0	1	87	404
16:30	11	86	10	0	3	1	0	1	1	0	113	9	25	7	0	1	0	0	0	0	0	42	3	68	3	0	2	0	0	0	0	1	77	19	60	0	0	1	0	0	2	0	0	82	314
16:45	4	106	21	1	2	1	0	1	0	1	137	7	55	8	0	1	0	0	0	0	1	72	3	75	7	0	5	0	0	0	0	4	94	14	62	2	0	0	0	0	1	0	2	81	384
17:00	10	107	18	0	1	0	1	1	0	1	139	8	54	6	0	0	0	0	1	0	2	71	2	85	6	0	4	0	0	0	0	2	99	23	84	6	0	1	0	0	0	0	2	116	425
17:15	5	71	18	0	4	0	0	0	0	1	99	9	68	6	0	0	0	0	1	0	0	84	7	83	17	0	1	0	0	0	0	0	108	19	54	8	0	0	0	0	0	0	0	81	372
17:30	16	106	20	0	4	0	0	0	0	1	147	11	61	9	0	1	0	0	1	0	2	85	2	53	5	0	2	0	0	0	0	1	63	23	76	3	1	2	0	0	0	1	2	108	403
17:45	16	86	33	0	1	0	0	1	0	1	138	12	51	4	0	0	0	0	0	0	4	71	7	46	10	0	0	0	0	1	0	1	65	26	83	3	0	1	0	0	0	0	0	113	387
18:00	9	109	18	0	0	0	0	0	0	1	137	7	32	5	0	2	0	0	2	0	0	48	2	49	7	0	2	0	0	0	0	2	62	22	104	2	1	2	0	0	1	1	0	133	380

TRANS-PLAN
transportation engineering

Turning Movement Count Diagram

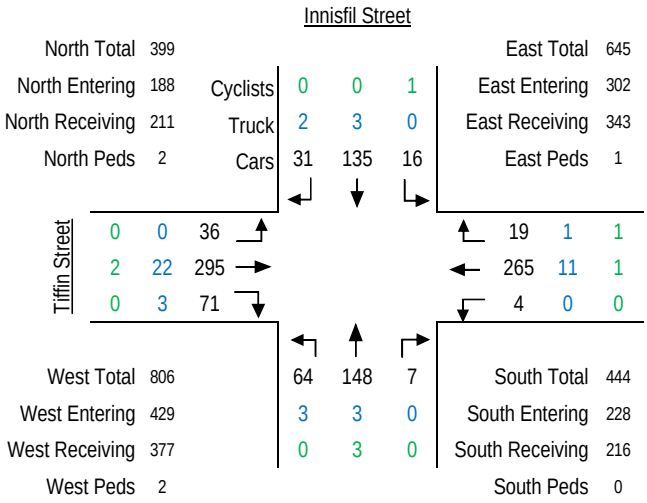
Intersection: Tiffin Street and Innisfil Street

Intersection ID:

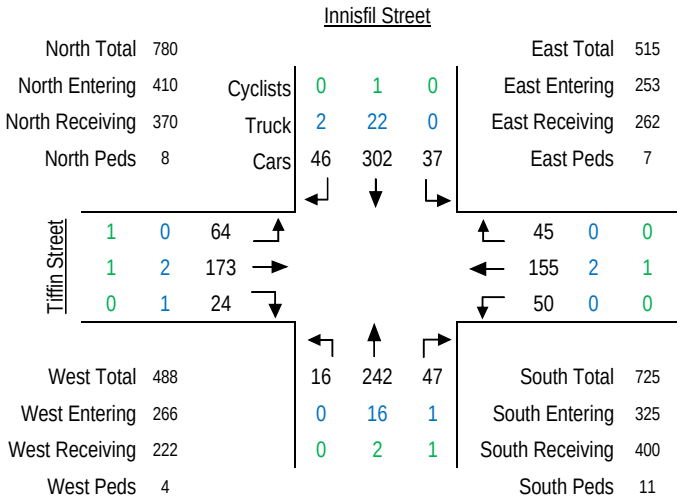
Municipality: Barrie, Ontario

Date: Wednesday, May 31 2017

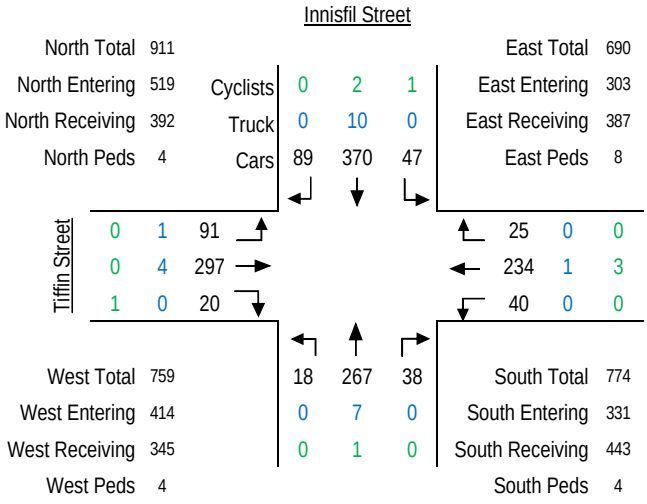
AM Peak Hour: 8:00 to 9:00



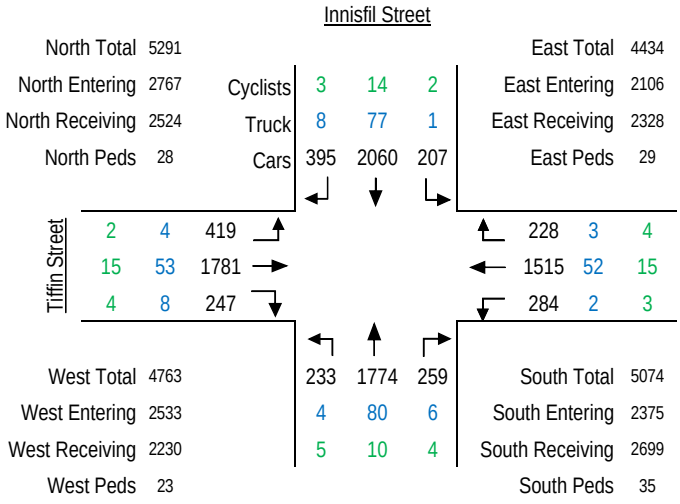
MD Peak Hour: 12:45 to 13:45



PM Peak Hour: 16:45 to 17:45



Total 8-Hour Count



Appendix C

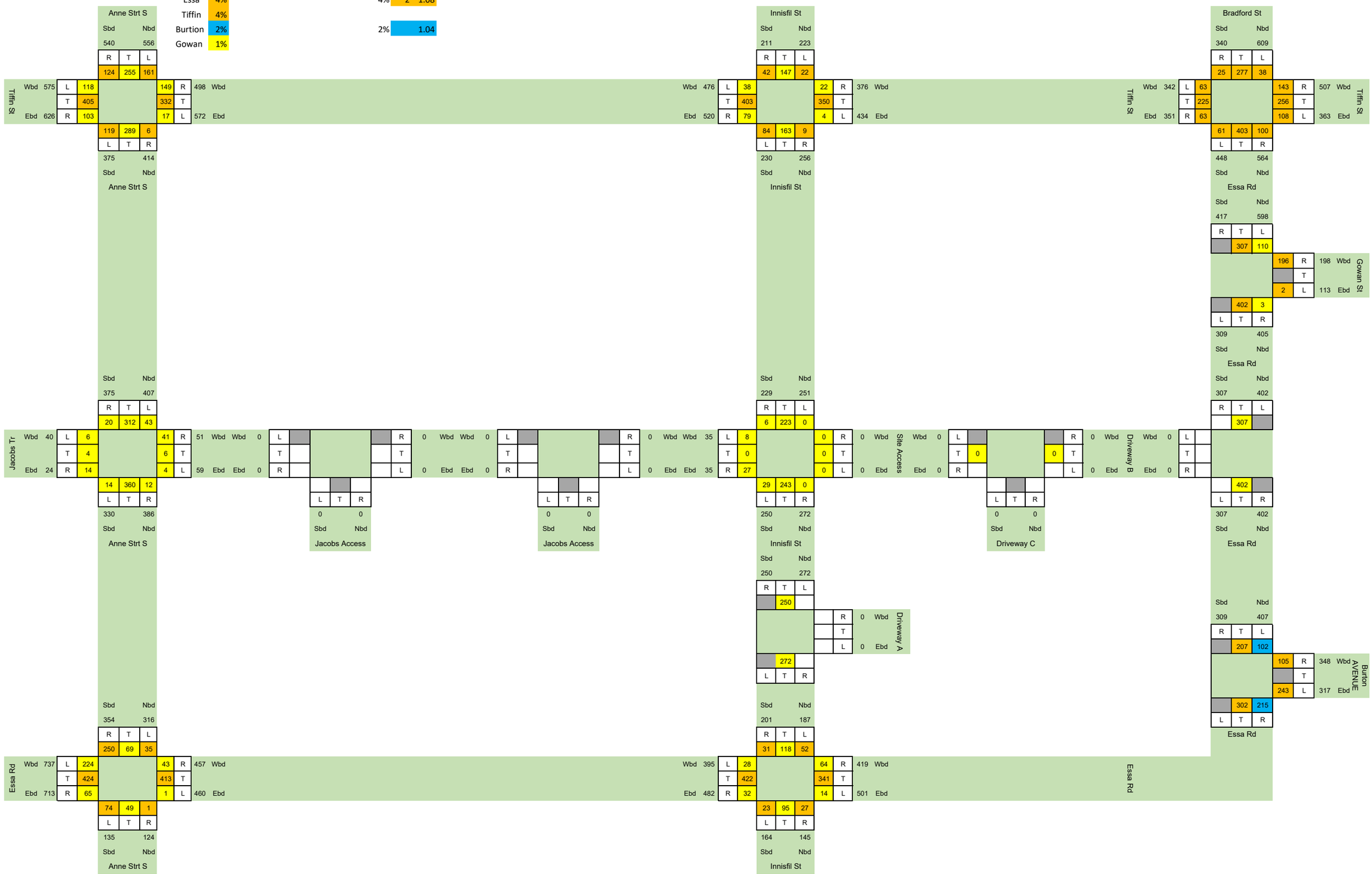
Background Traffic

AM Peak Hour

GROWTH 2023

ANNE	1%			2023	Diff	
Innisfil	1%	Growth	1%	2021	2	
Jacobs	1%					
Essa	4%		4%			
Tiffin	4%					
Burtion	2%		2%			
Gowan	1%					

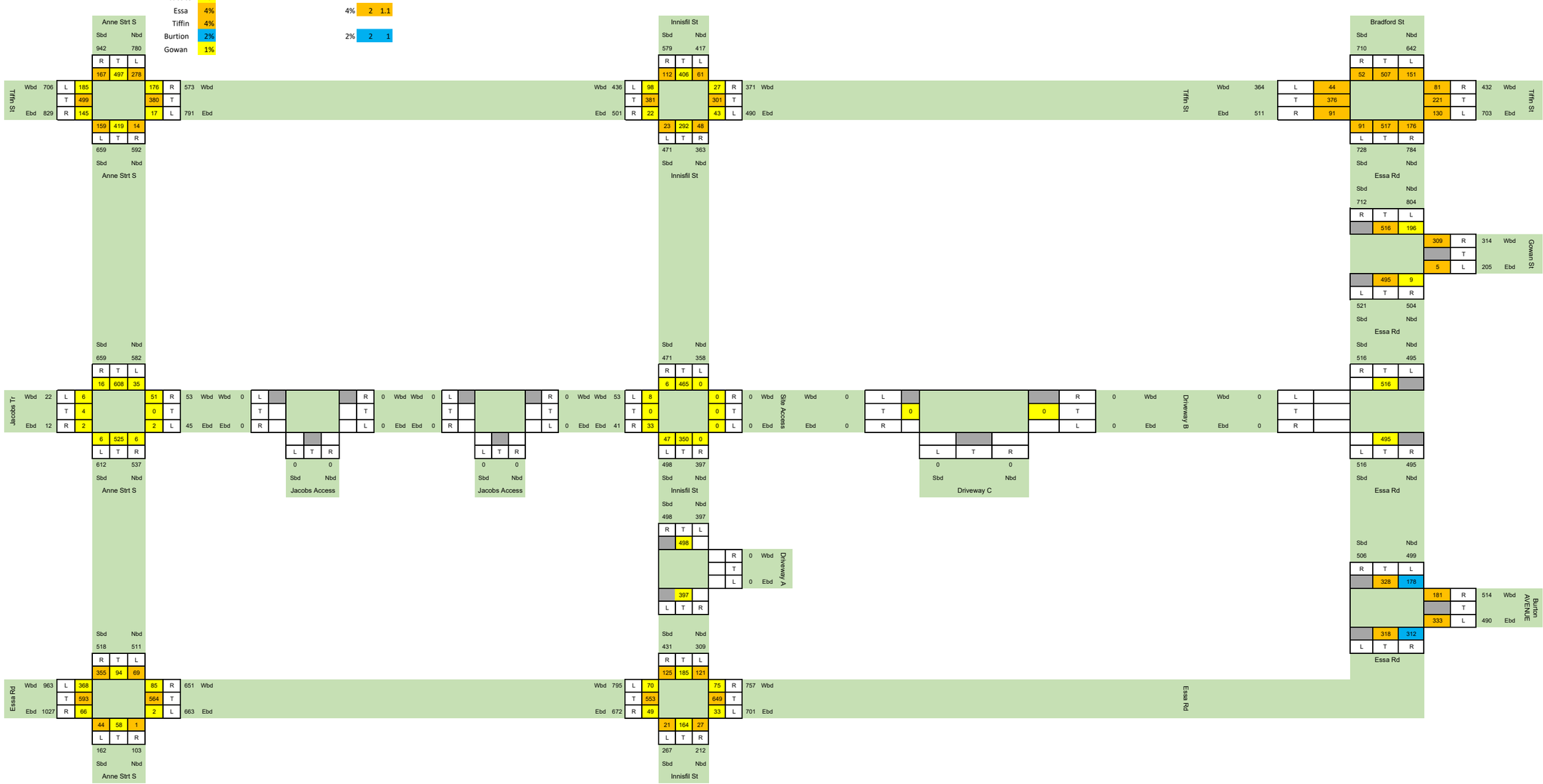
	yrs	
	2	1.02
	2	1.08
		1.04



PM Peak Hour

GROWTH 2023

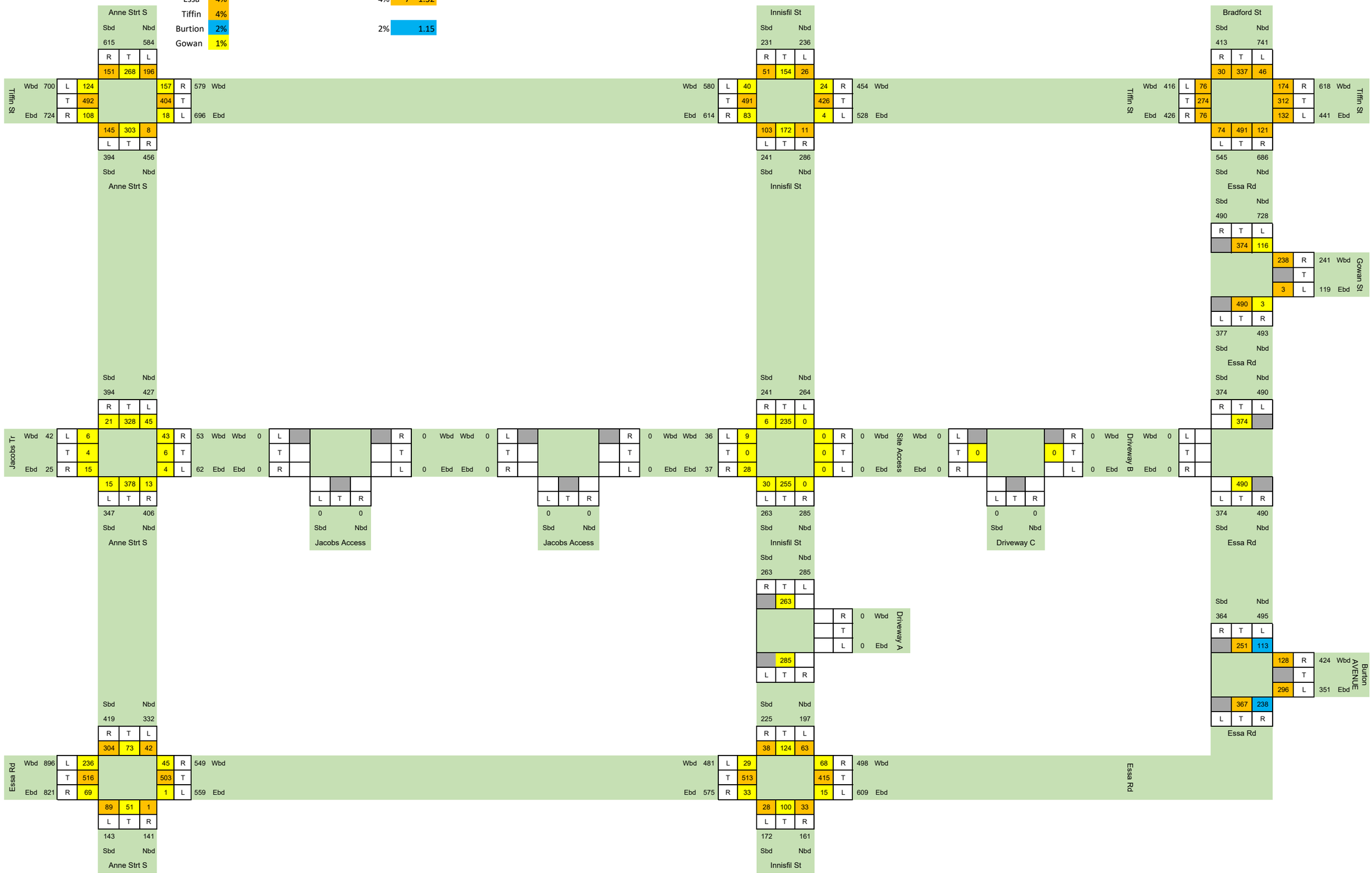
ANNE	1%				**2023**	Diff
Innisfil	1%		Growth	1% 2 1.02	2021	2
Jacobs	1%					
Essa	4%			4% 2 1.1		
Tiffin	4%					
Burtion	2%			2% 2 1		
Gowan	1%					



AM Peak Hour

GROWTH 2028

ANNE	1%			2028	Diff	
Innisfil	1%	Growth	1%	7	1.07	2021 7
Jacobs	1%					
Essa	4%		4%	7	1.32	
Tiffin	4%					
Burtion	2%		2%		1.15	
Gowan	1%					

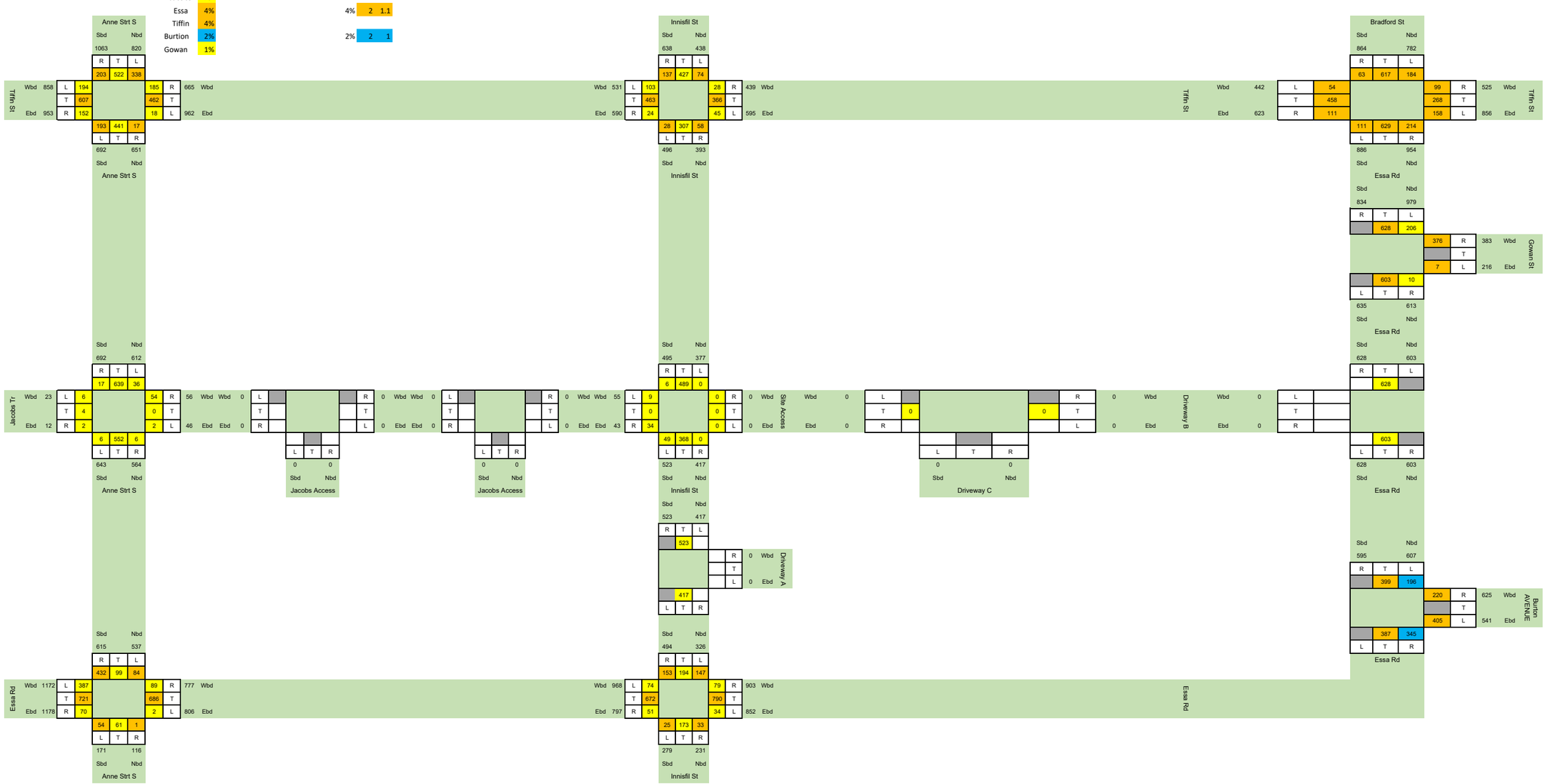


PM Peak Hour

ANNE	1%			2023	Diff
Innisfil	1%		Growth 1%	2021	2
Jacobs	1%				
Essa	4%		4%		
Tiffin	4%				
Burtion	2%		2%		
Gowan	1%				

yrs: 2 1.02 | 2 1.1 | 2 1

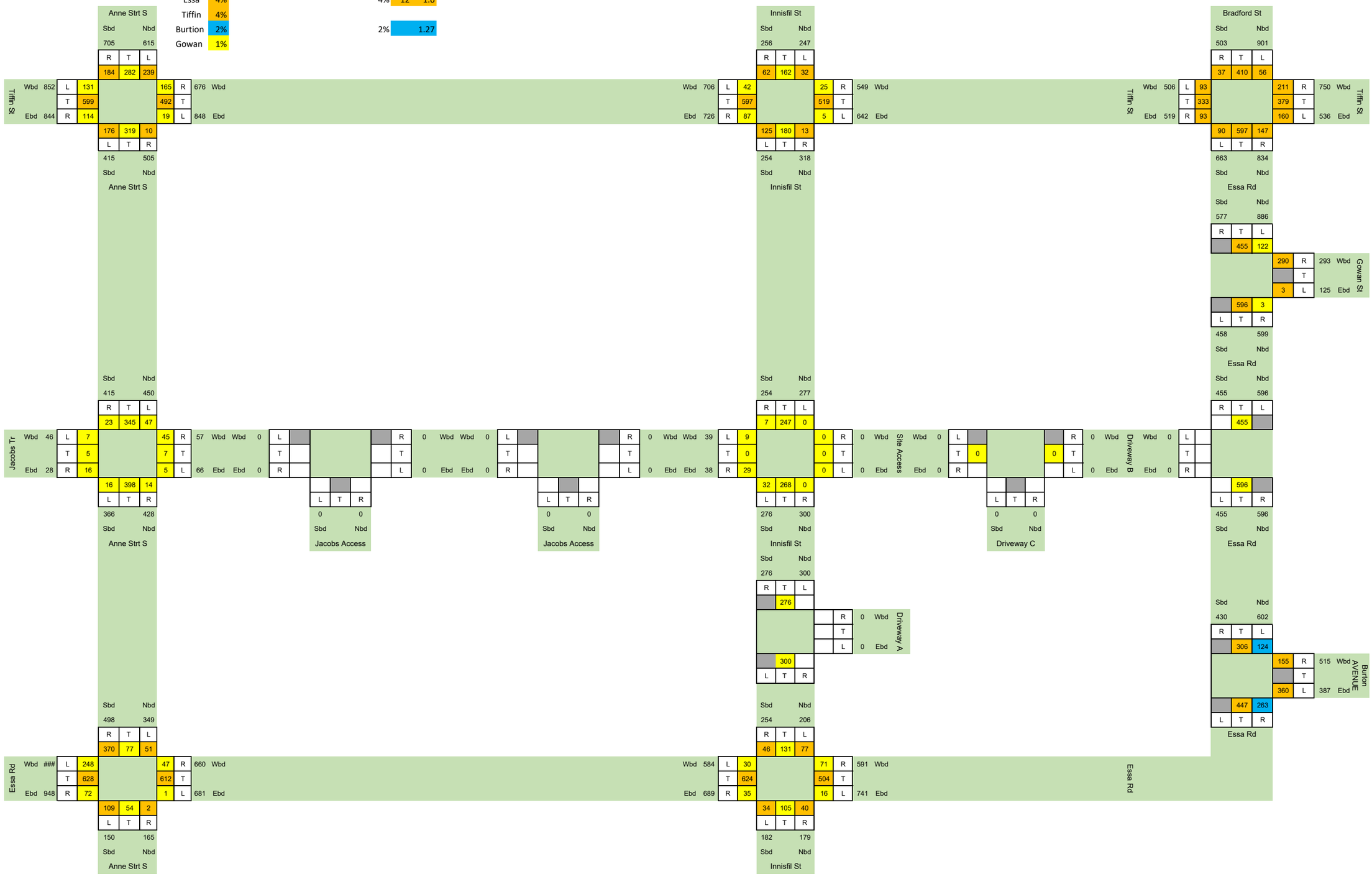
GROWTH 2028



AM Peak Hour

GROWTH 2033

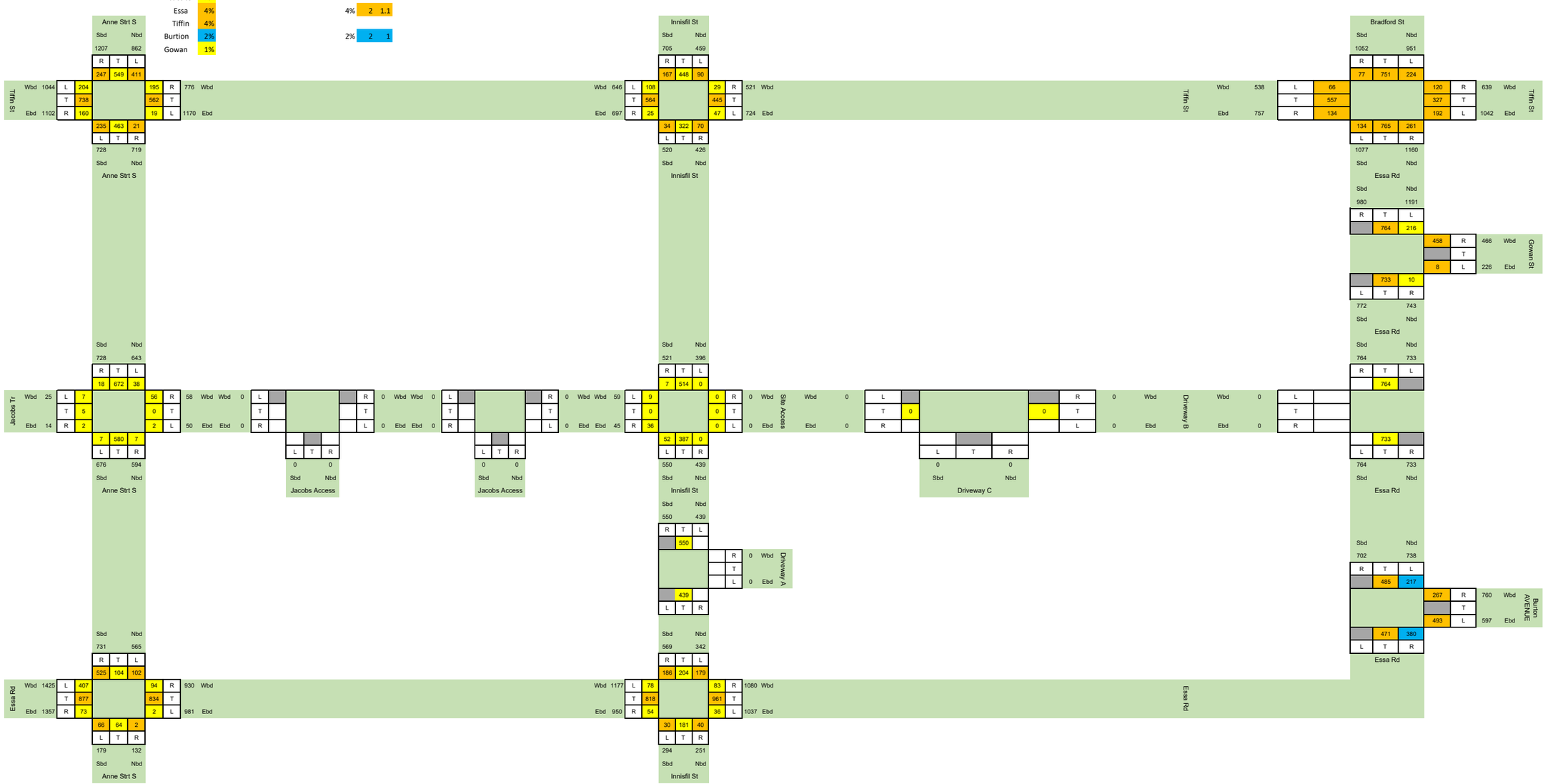
ANNE	1%			2033	Diff	
Innisfil	1%		yrs			
Jacobs	1%	Growth	1%	12	1.13	2021	12
Essa	4%		4%	12	1.6	
Tiffin	4%					
Burtion	2%		2%		1.27	
Gowan	1%					



PM Peak Hour

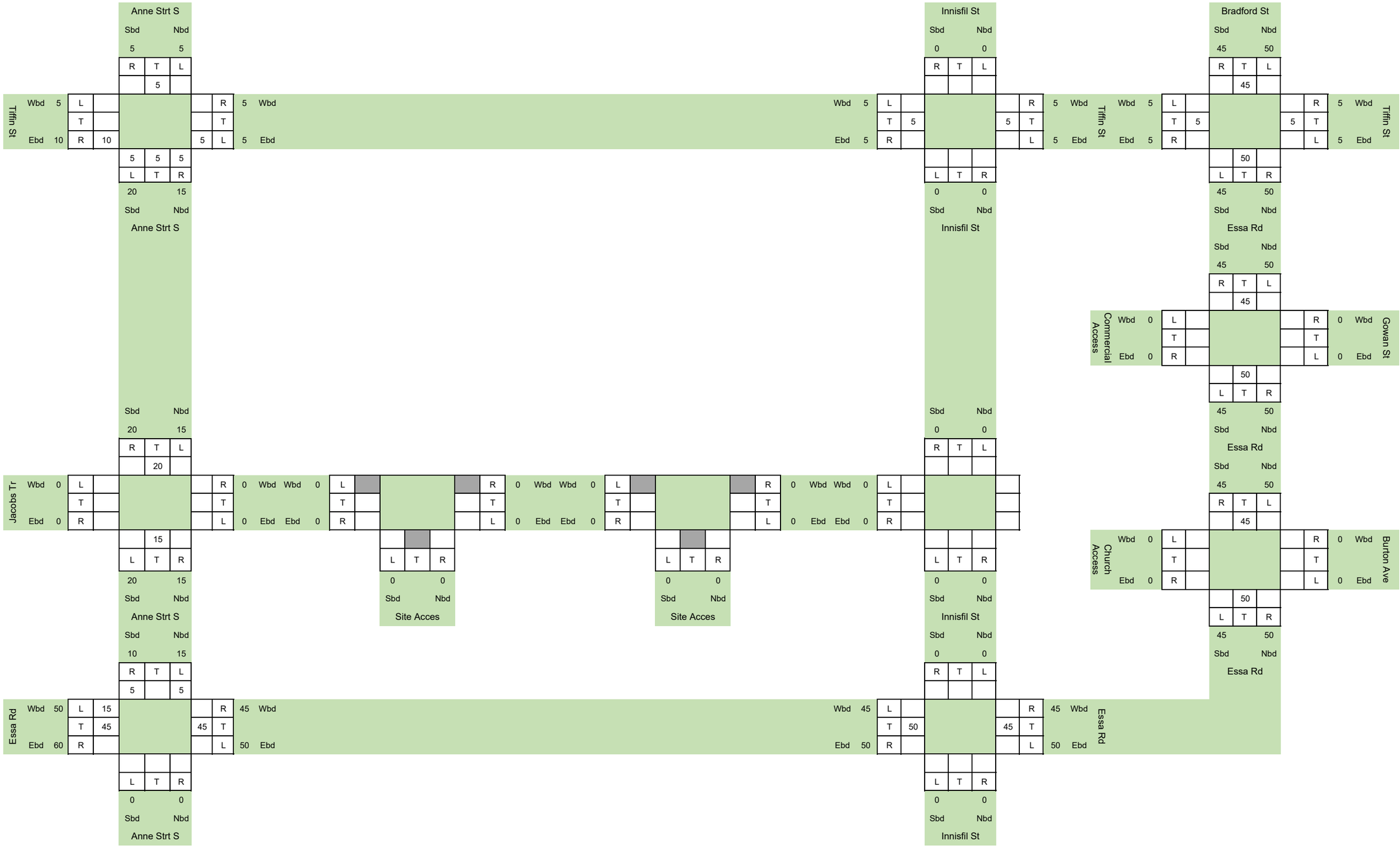
GROWTH 2033

ANNE	1%				**2023**	Diff
Innisfil	1%	Growth	1%	2 1.02	2021	2
Jacobs	1%					
Essa	4%		4%	2 1.1		
Tiffin	4%					
Burtion	2%		2%	2 1		
Gowan	1%					



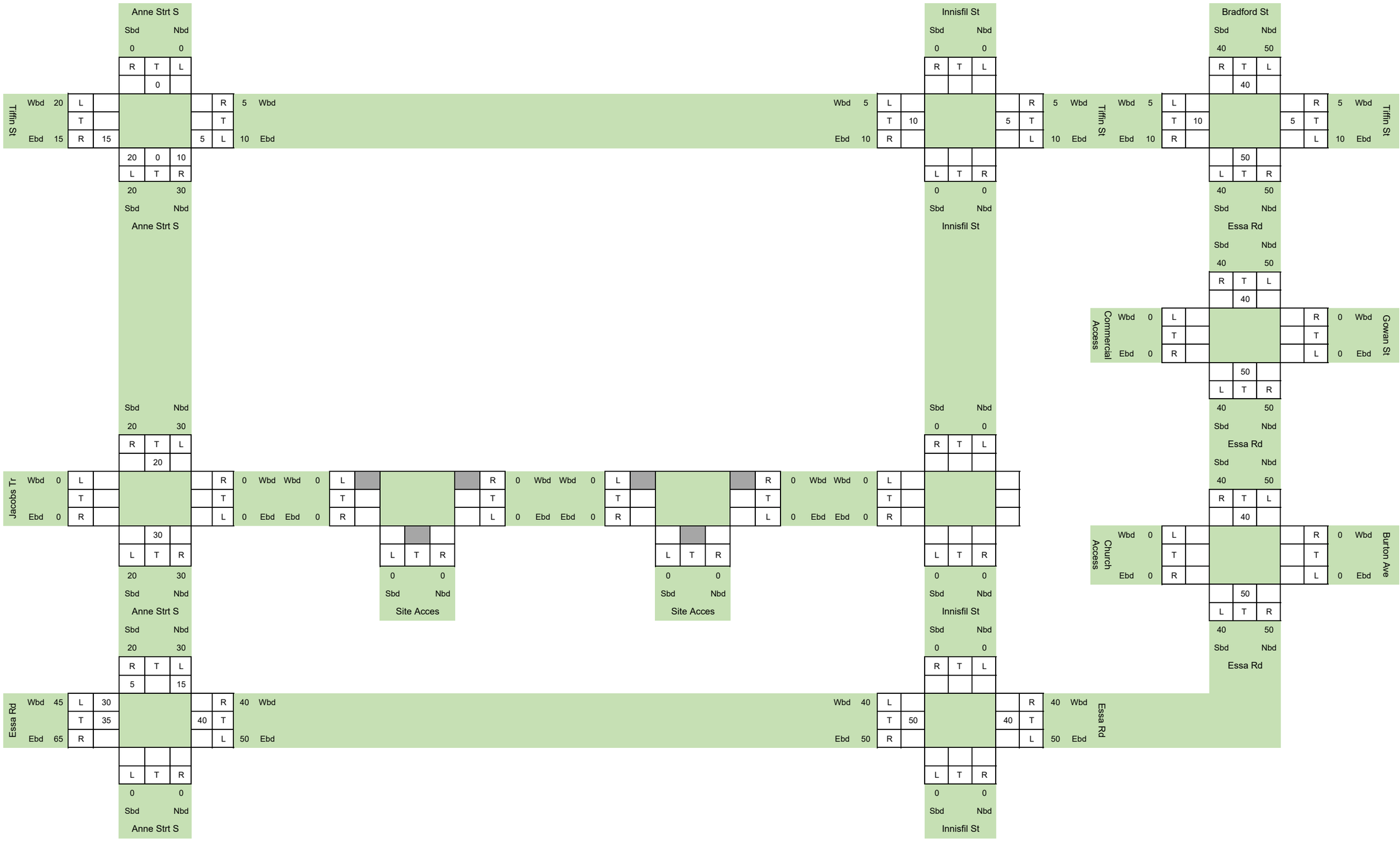
AM Peak Hour

199 ESSA



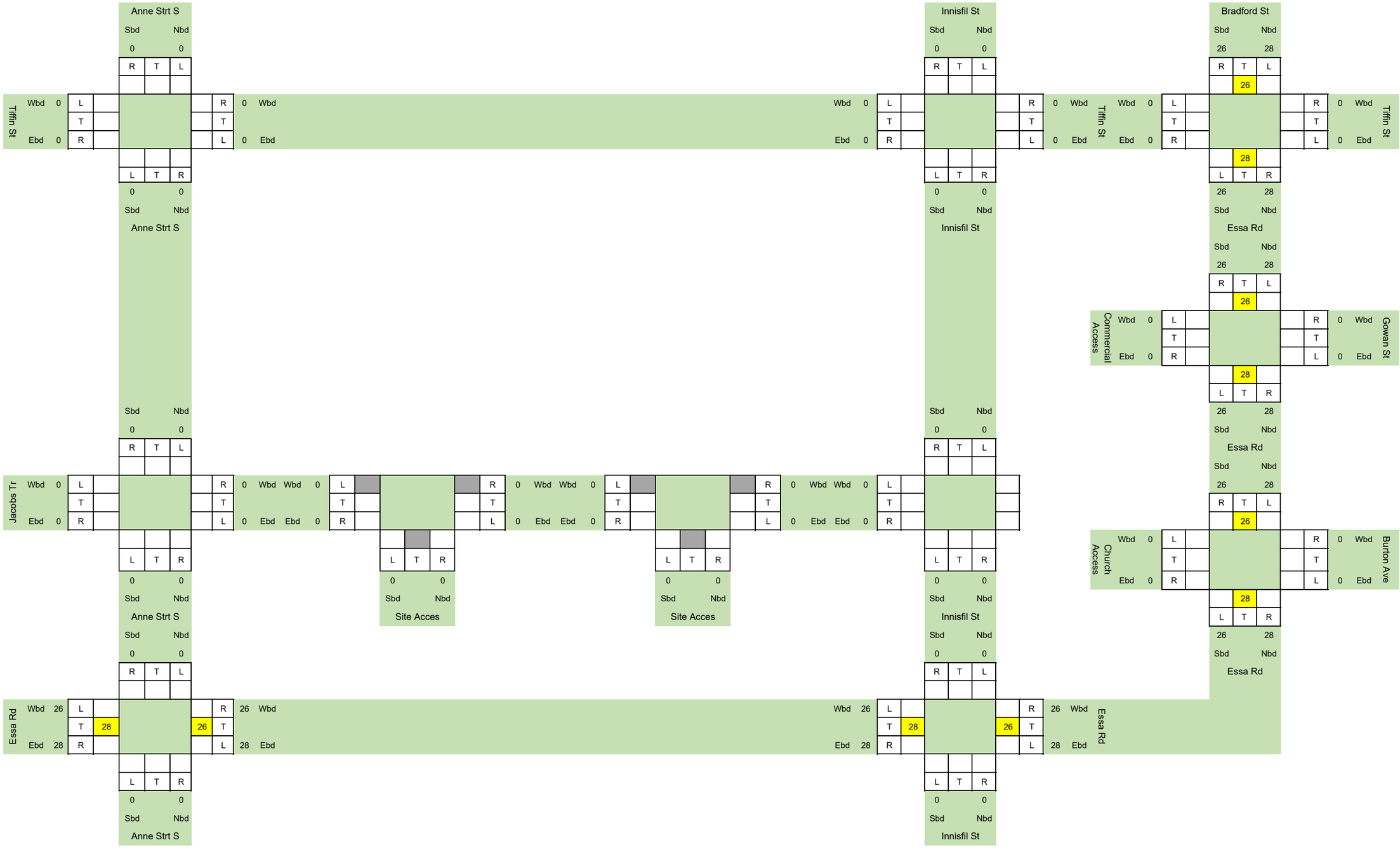
PM Peak Hour

199 ESSA



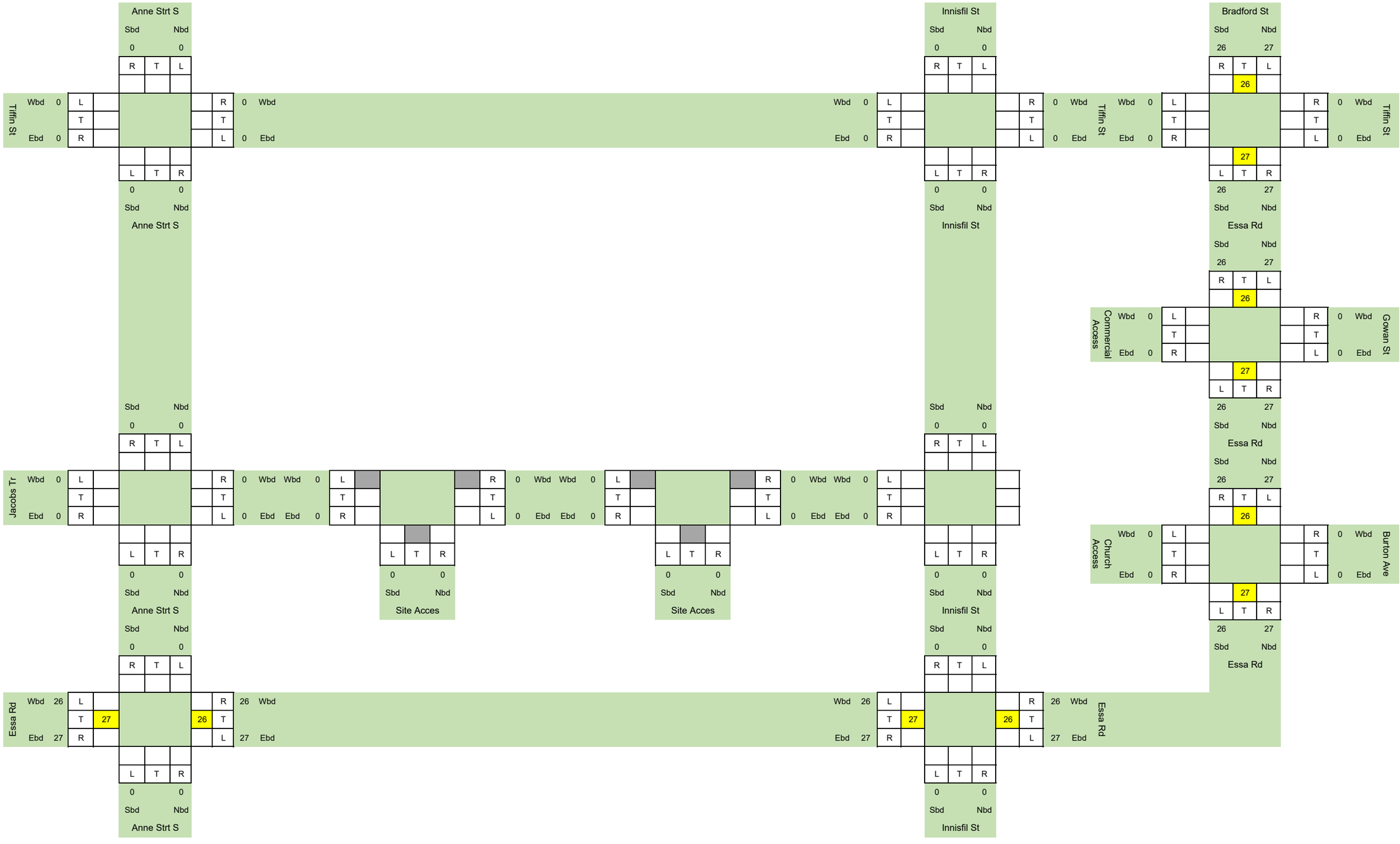
AM Peak Hour

202 Bradford



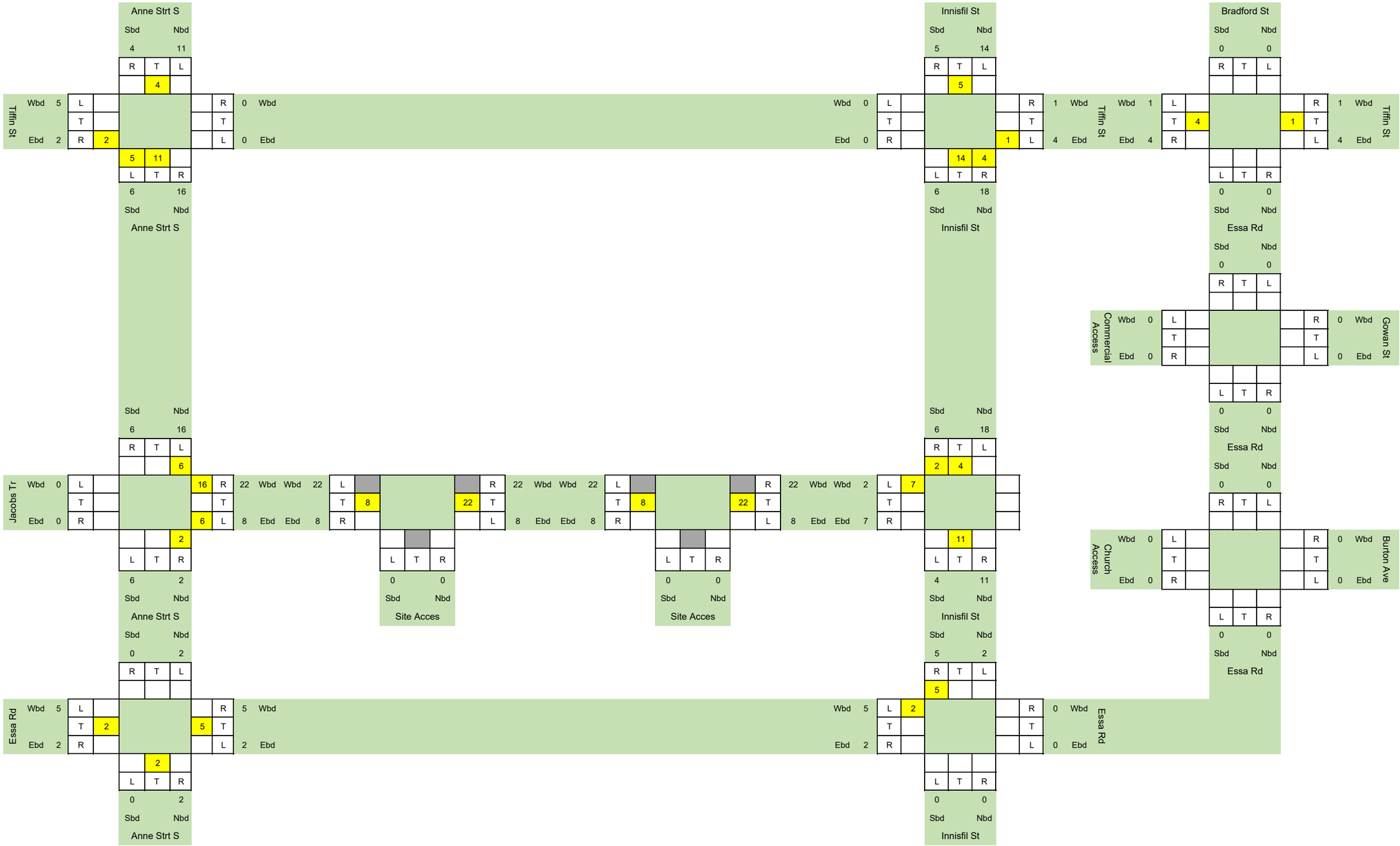
PM Peak Hour

202 Bradford



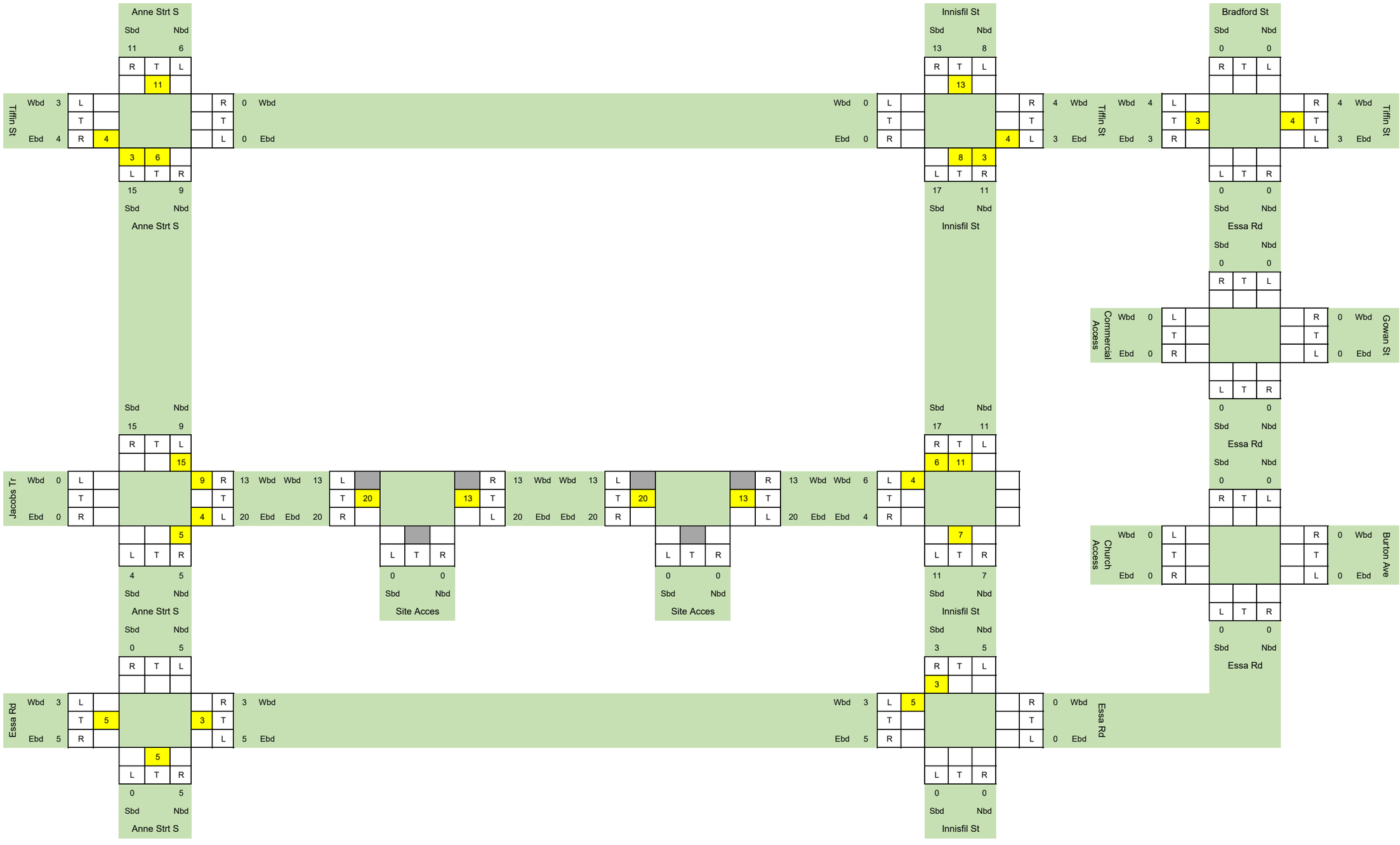
AM Peak Hour

272 Innisfil



PM Peak Hour

272 Innisfil

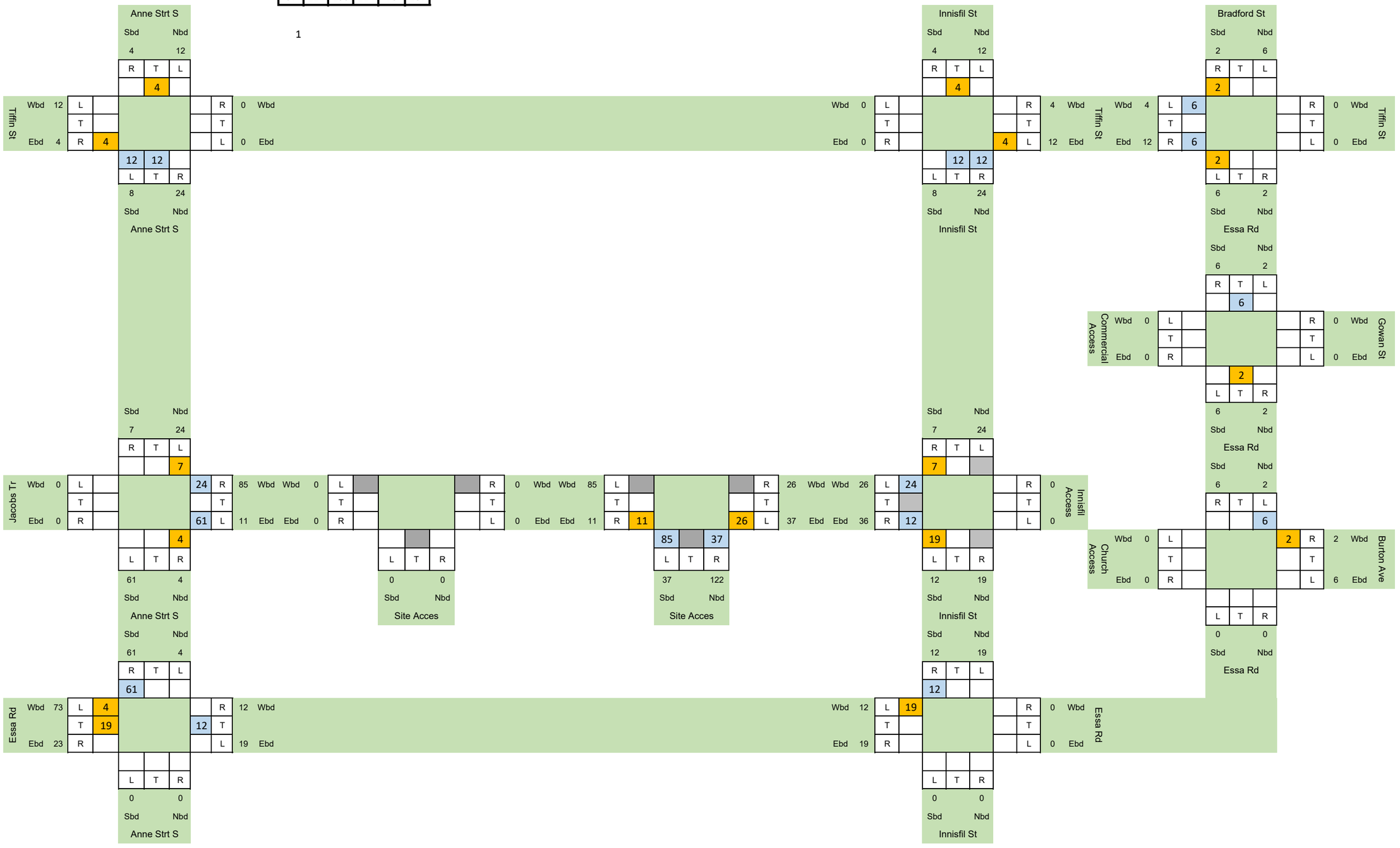


AM Peak Hour

AM			PM		
IN	OUT	Total	IN	OUT	Total
37	122	159	114	73	187

Jacobs Terrace

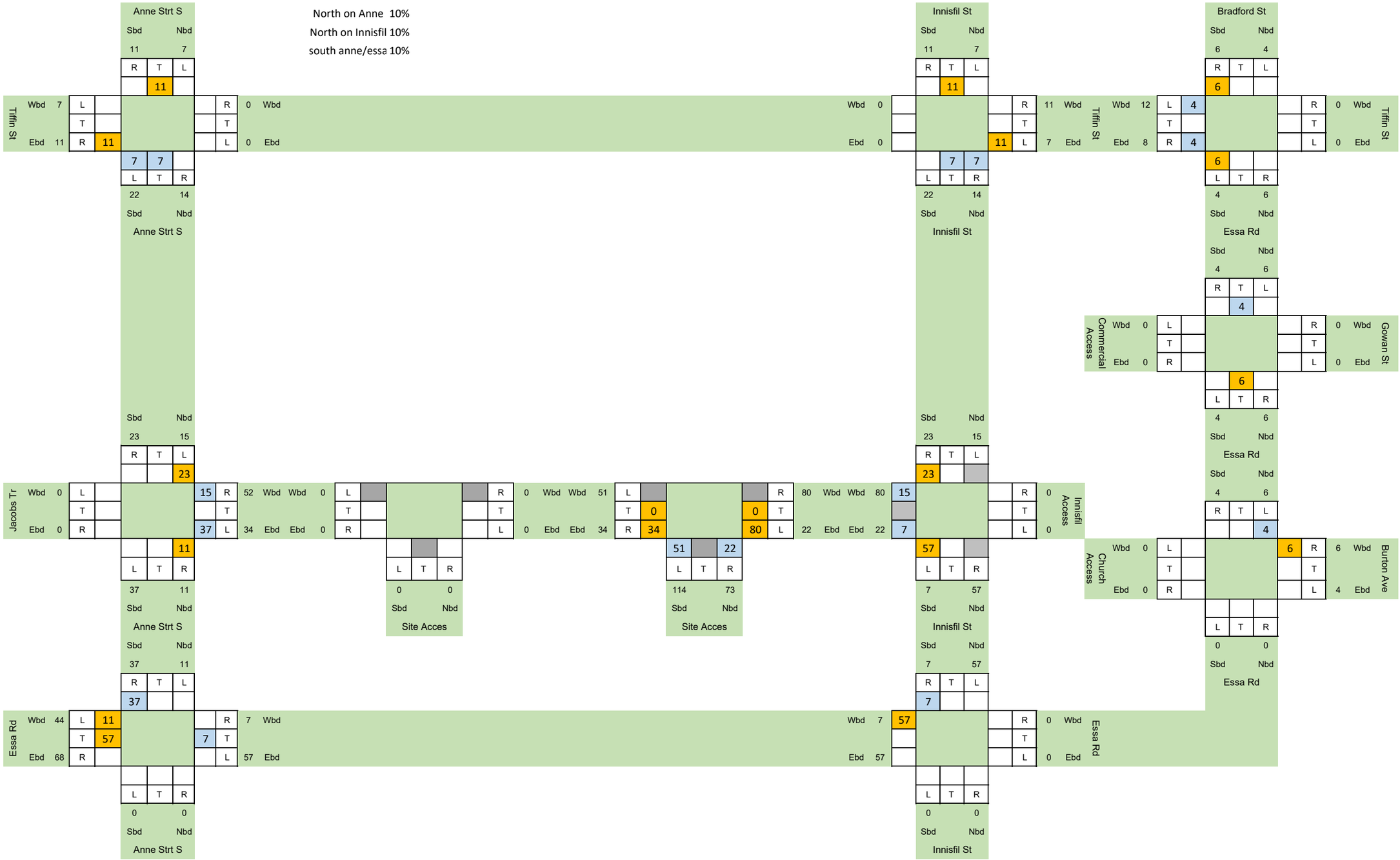
1



PM Peak Hour

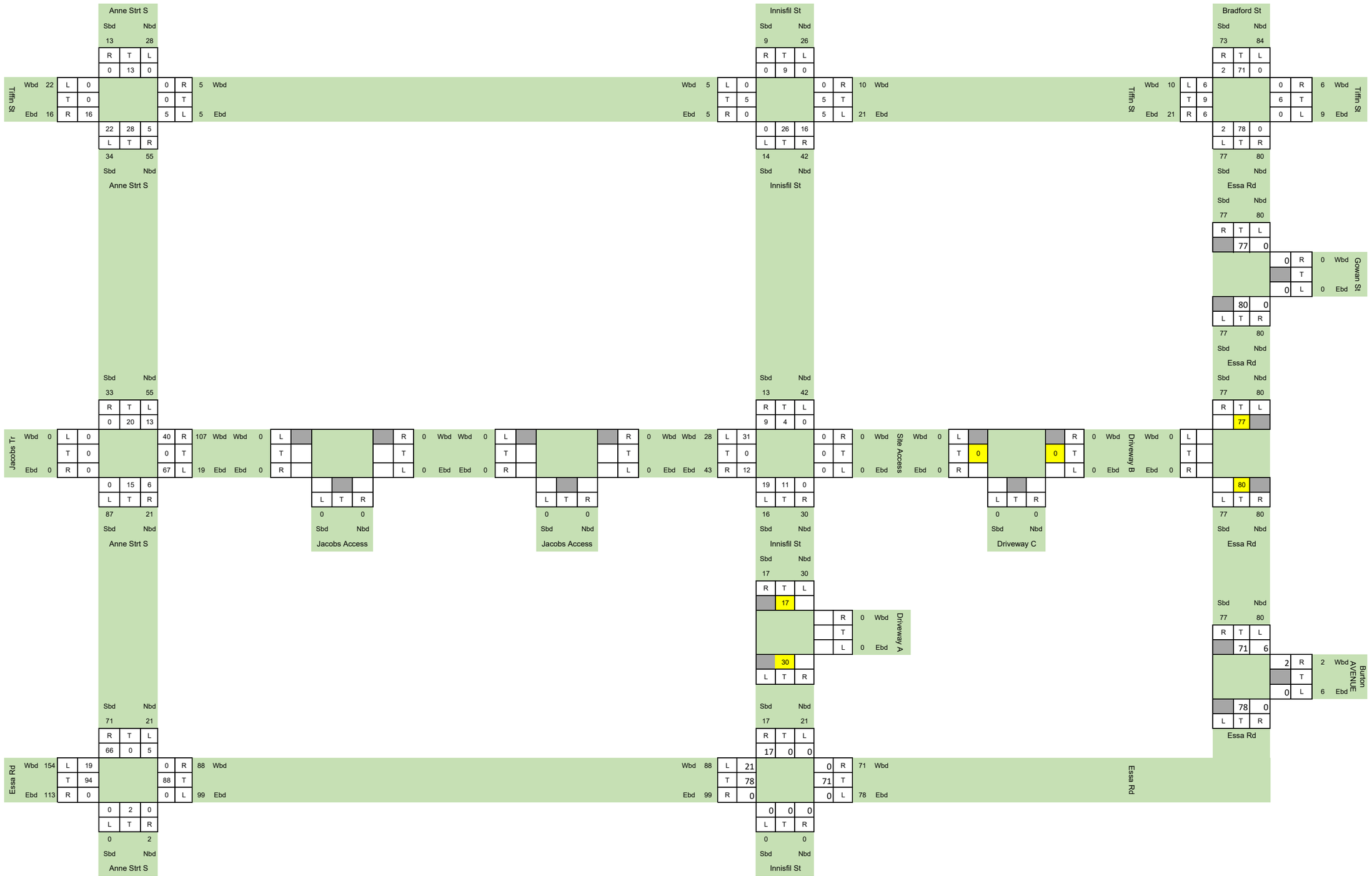
West Essa	50%
East Essa	5%
East on Burton	5%
West on Tiffin	10%
North on Anne	10%
North on Innisfil	10%
south anne/essa	10%

Jacobs Terrace



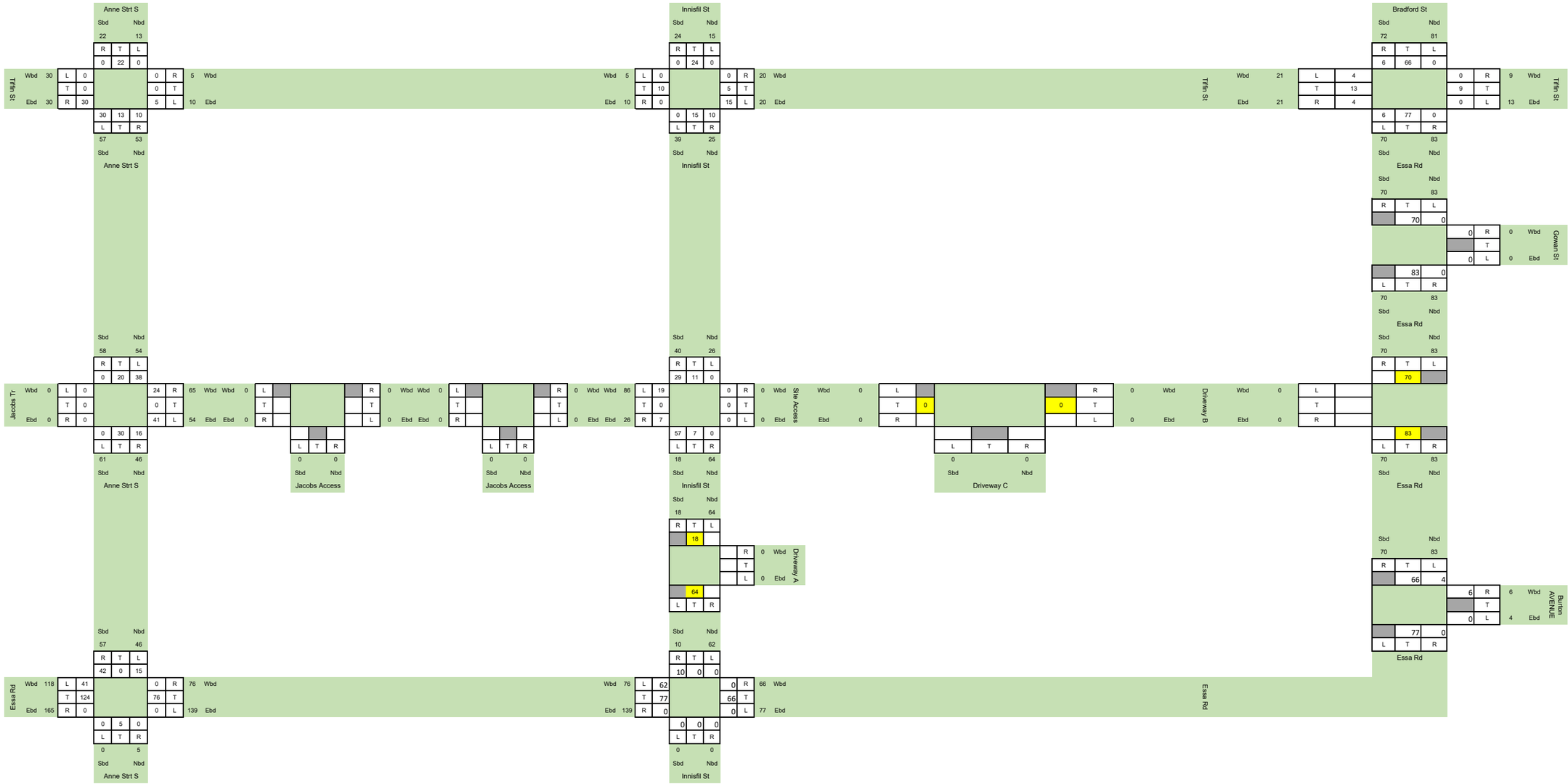
AM Peak Hour

Total Background Development



PM Peak Hour

Total Background Development



Appendix D

Trip Generation

Building 1,2,3,4

AM

Land Use	222 Multifamily Housing (High-Rise)
Dwelling Units	1,276
Land Use Code	220 AM Peak of Adjacent Street Traffic, 1Hr 7-9
Eqn	ln(T) = 0.28(x)+12.86
ITE 10th Avg.Rate	0.31
IN	24%
Out	76%
Pass by	0%
Internal	0%
Transit Reduction	7%

Source ITE	IN	OUT	Total	Avg	Eqn
Gross	88	282	370	396	370
Gross Rate	0.069	0.221	0.29		
Pass By	0	0	0		
Internal	0	0	0	ADJ	-1
Transit Reduction	6	20	26		
New	82	262	344		
Rate	0.064	0.206	0.270		

Building 1,2,3,4

PM

Land Use	222 Multifamily Housing (High-Rise)
Dwelling Units	1,276
Land Use Code	220 PM Peak of Adjacent Street Traffic, 1Hr 4-6pm
Eqn	ln(T) = 0.34(x)+8.56
ITE 10th Avg.Rate	0.36
IN	61%
Out	39%
Pass by	0%
Internal	0%
Transit Reduction	7%

Source ITE	IN	OUT	Total	Avg	Eqn
Gross	270	172	442	459	442
Gross Rate	0.212	0.134	0.346		
Pass By	0	0	0		
Internal	0	0	0		
Transit Reduction	19	12	31		
New	251	160	411		
Rate	0.197	0.125	0.322		

Building 4

AM

Land Use	820 Shopping Centre
GFA	9.0
Land Use Code	820 AM Peak of Adjacent Street Traffic, 1Hr 7-9
Eqn	ln(T) = 0.5(x)+151.78
ITE 10th Avg.Rate	0.94
IN	62%
Out	38%
Pass by	0%
Internal	0%
Transit Reduction	0%

Source ITE	IN	OUT	Total	Avg	Eqn
Gross	5	3	8	8	156
Gross Rate	0.556	0.333	0.889		
Pass By	0	0	0		
Internal	0	0	0		
Transit Reduction	0	0	0		
New	5	3	8		
Rate	0.556	0.333	0.889		

Building 4

PM

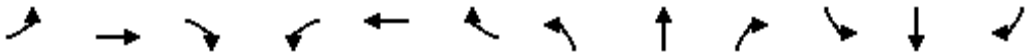
Land Use	820 Shopping Centre
GFA	9.0
Land Use Code	820 PM Peak of Adjacent Street Traffic, 1Hr 4-6pm
Eqn	ln(T) = 0.74 Ln(X) + 2.89
ITE 10th Avg.Rate	3.81
IN	48%
Out	52%
Pass by	34%
Internal	0%
Transit Reduction	0%

Source ITE	IN	OUT	Total	Avg	Eqn
Gross	44	47	91	34	91
Gross Rate	4.889	5.222	10.111		
Pass By	16	16	32		
Internal	0	0	0		
Transit Reduction	0	0	0		
New	28	31	59		
Rate	3.111	3.445	6.556		

AM			PM		
IN	OUT	Total	IN	OUT	Total
87	265	352	279	191	470

Appendix E

Capacity Analysis

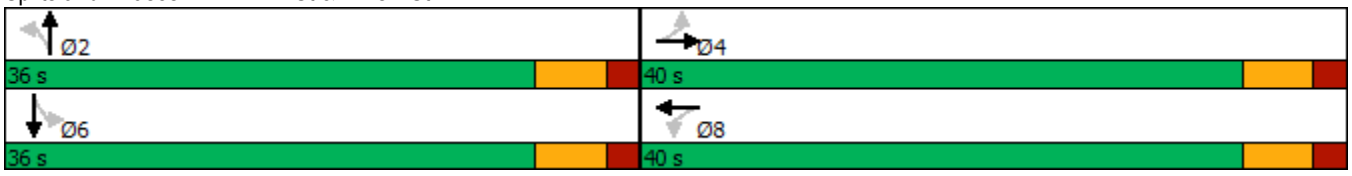


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	373	77	4	324	22	78	160	8	20	144	39
Future Volume (vph)	37	373	77	4	324	22	78	160	8	20	144	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	20.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00			1.00			1.00	
Frt		0.974			0.991			0.996			0.974	
Flt Protected	0.950			0.950				0.984			0.995	
Satd. Flow (prot)	1825	1744	0	1825	1821	0	0	1811	0	0	1796	0
Flt Permitted	0.513			0.418				0.800			0.953	
Satd. Flow (perm)	984	1744	0	803	1821	0	0	1471	0	0	1720	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			6			3			19	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		274.0			328.8			111.6			76.6	
Travel Time (s)		20.6			24.7			8.4			5.7	
Confl. Peds. (#/hr)	2					2	2		1	1		2
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	8%	4%	0%	4%	10%	4%	4%	0%	6%	2%	6%
Bus Blockages (#/hr)	0	0	1	0	0	1	0	0	1	0	0	1
Adj. Flow (vph)	41	410	85	4	356	24	86	176	9	22	158	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	495	0	4	380	0	0	271	0	0	223	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	34.0	34.0		34.0	34.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		26.0	26.0		26.0	26.0	
Total Split (s)	40.0	40.0		40.0	40.0		36.0	36.0		36.0	36.0	
Total Split (%)	52.6%	52.6%		52.6%	52.6%		47.4%	47.4%		47.4%	47.4%	
Maximum Green (s)	34.0	34.0		34.0	34.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	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	
Total Lost Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		Min	Min		Min	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	34.2	34.2		34.2	34.2			15.9			15.9	
Actuated g/C Ratio	0.55	0.55		0.55	0.55			0.26			0.26	
v/c Ratio	0.08	0.51		0.01	0.38			0.72			0.49	
Control Delay	8.6	11.8		8.2	10.2			31.9			21.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	8.6	11.8		8.2	10.2			31.9			21.4	
LOS	A	B		A	B			C			C	
Approach Delay		11.6			10.2			31.9			21.4	
Approach LOS		B			B			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 76			
Actuated Cycle Length: 62.1			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 16.7		Intersection LOS: B	
Intersection Capacity Utilization 70.5%		ICU Level of Service C	
Analysis Period (min) 15			

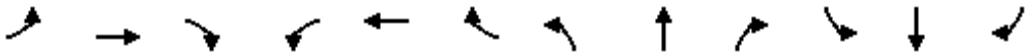
Splits and Phases: 2: Tiffin St & Innisfil St





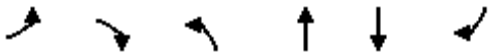
Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	41	495	4	380	271	223
v/c Ratio	0.08	0.51	0.01	0.38	0.72	0.49
Control Delay	8.6	11.8	8.2	10.2	31.9	21.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.6	11.8	8.2	10.2	31.9	21.4
Queue Length 50th (m)	2.0	30.3	0.2	21.6	27.7	19.5
Queue Length 95th (m)	7.3	67.4	1.6	48.2	49.1	36.1
Internal Link Dist (m)		250.0		304.8	87.6	52.6
Turn Bay Length (m)	20.0		20.0			
Base Capacity (vph)	541	967	441	1004	715	845
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.51	0.01	0.38	0.38	0.26

Intersection Summary



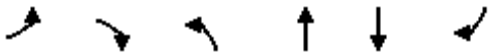
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	373	77	4	324	22	78	160	8	20	144	39
Future Volume (vph)	37	373	77	4	324	22	78	160	8	20	144	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.97		1.00	0.99			1.00			0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.98			1.00	
Satd. Flow (prot)	1822	1744		1825	1820			1810			1797	
Flt Permitted	0.51	1.00		0.42	1.00			0.80			0.95	
Satd. Flow (perm)	985	1744		803	1820			1471			1720	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	41	410	85	4	356	24	86	176	9	22	158	43
RTOR Reduction (vph)	0	8	0	0	3	0	0	2	0	0	14	0
Lane Group Flow (vph)	41	487	0	4	377	0	0	269	0	0	209	0
Confl. Peds. (#/hr)	2					2	2		1	1		2
Heavy Vehicles (%)	0%	8%	4%	0%	4%	10%	4%	4%	0%	6%	2%	6%
Bus Blockages (#/hr)	0	0	1	0	0	1	0	0	1	0	0	1
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	34.2	34.2		34.2	34.2			15.9			15.9	
Effective Green, g (s)	34.2	34.2		34.2	34.2			15.9			15.9	
Actuated g/C Ratio	0.55	0.55		0.55	0.55			0.26			0.26	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	542	960		442	1002			376			440	
v/s Ratio Prot		c0.28			0.21							
v/s Ratio Perm	0.04			0.00				c0.18			0.12	
v/c Ratio	0.08	0.51		0.01	0.38			0.71			0.47	
Uniform Delay, d1	6.5	8.7		6.3	7.9			21.0			19.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.3	1.9		0.0	1.1			6.3			0.8	
Delay (s)	6.8	10.6		6.3	9.0			27.4			20.4	
Level of Service	A	B		A	A			C			C	
Approach Delay (s)		10.3			9.0			27.4			20.4	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	62.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	8	26	28	238	219	6
Future Volume (vph)	8	26	28	238	219	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.896				0.996	
Flt Protected	0.989			0.995		
Satd. Flow (prot)	1702	0	0	1802	1826	0
Flt Permitted	0.989			0.995		
Satd. Flow (perm)	1702	0	0	1802	1826	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	279.5			300.5	111.6	
Travel Time (s)	21.0			22.5	8.4	
Confl. Peds. (#/hr)	1		6			6
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles (%)	0%	0%	7%	6%	4%	33%
Adj. Flow (vph)	10	33	36	305	281	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	43	0	0	341	289	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

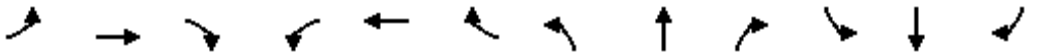
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	39.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	26	28	238	219	6
Future Volume (Veh/h)	8	26	28	238	219	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	10	33	36	305	281	8
Pedestrians	6				1	
Lane Width (m)	3.7				3.7	
Walking Speed (m/s)	1.1				1.1	
Percent Blockage	1				0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				301	112	
pX, platoon unblocked	0.96	0.96	0.96			
vC, conflicting volume	669	291	295			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	633	239	243			
tC, single (s)	6.4	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	98	96	97			
cM capacity (veh/h)	413	767	1234			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	43	341	289
Volume Left	10	36	0
Volume Right	33	0	8
cSH	640	1234	1700
Volume to Capacity	0.07	0.03	0.17
Queue Length 95th (m)	1.6	0.7	0.0
Control Delay (s)	11.0	1.1	0.0
Lane LOS	B	A	
Approach Delay (s)	11.0	1.1	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	39.6%	ICU Level of Service	A
Analysis Period (min)	15		

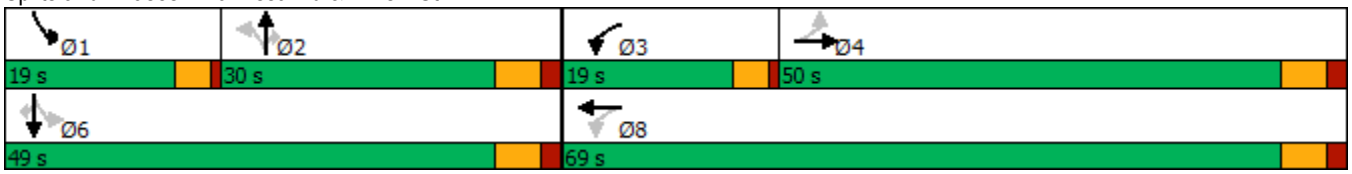


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	390	31	14	315	63	21	93	25	48	116	29
Future Volume (vph)	27	390	31	14	315	63	21	93	25	48	116	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		15.0	0.0		20.0
Storage Lanes	0		0	0		0	0		1	0		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00				0.99		1.00	
Frt		0.990			0.976				0.850			0.850
Flt Protected		0.997			0.998			0.991			0.986	
Satd. Flow (prot)	0	3459	0	0	3388	0	0	1813	1570	0	1832	1633
Flt Permitted		0.908			0.931			0.918			0.867	
Satd. Flow (perm)	0	3150	0	0	3160	0	0	1680	1548	0	1610	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			29				102			65
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		337.1			195.7			132.7			300.5	
Travel Time (s)		25.3			14.7			10.0			22.5	
Confl. Peds. (#/hr)	1					1			1	1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	8%	4%	3%	7%	5%	2%	5%	5%	4%	2%	4%	0%
Adj. Flow (vph)	30	438	35	16	354	71	24	104	28	54	130	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	503	0	0	441	0	0	128	28	0	184	33
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	44.0	44.0		7.0	44.0		24.0	24.0	24.0	5.0	24.0	24.0
Minimum Split (s)	50.0	50.0		11.0	50.0		30.0	30.0	30.0	9.0	30.0	30.0
Total Split (s)	50.0	50.0		19.0	69.0		30.0	30.0	30.0	19.0	49.0	49.0
Total Split (%)	42.4%	42.4%		16.1%	58.5%		25.4%	25.4%	25.4%	16.1%	41.5%	41.5%
Maximum Green (s)	44.0	44.0		15.0	63.0		24.0	24.0	24.0	15.0	43.0	43.0
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)		6.0			6.0			6.0	6.0		6.0	6.0
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	32.0	32.0			32.0		7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	12.0	12.0			12.0		11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0		0	0
Act Effct Green (s)		63.0			63.0			24.0	24.0		24.0	24.0
Actuated g/C Ratio		0.64			0.64			0.24	0.24		0.24	0.24
v/c Ratio		0.25			0.22			0.31	0.06		0.47	0.07
Control Delay		8.1			7.4			33.4	0.3		36.8	2.3
Queue Delay		0.0			0.0			0.0	0.0		0.0	0.0
Total Delay		8.1			7.4			33.4	0.3		36.8	2.3
LOS		A			A			C	A		D	A
Approach Delay		8.1			7.4			27.4			31.6	
Approach LOS		A			A			C			C	

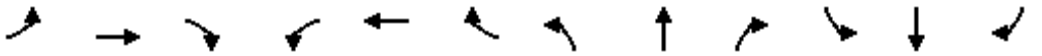
Intersection Summary			
Area Type:	Other		
Cycle Length: 118			
Actuated Cycle Length: 99			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.47			
Intersection Signal Delay: 14.0		Intersection LOS: B	
Intersection Capacity Utilization 91.7%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 6: Essa Rd & Innisfil St



Lane Group	EBT	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	503	441	128	28	184	33
v/c Ratio	0.25	0.22	0.31	0.06	0.47	0.07
Control Delay	8.1	7.4	33.4	0.3	36.8	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.1	7.4	33.4	0.3	36.8	2.3
Queue Length 50th (m)	19.6	15.8	20.2	0.0	30.2	0.0
Queue Length 95th (m)	26.6	22.2	35.7	0.0	50.2	2.2
Internal Link Dist (m)	313.1	171.7	108.7		276.5	
Turn Bay Length (m)				15.0		20.0
Base Capacity (vph)	2007	2021	407	452	699	746
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.22	0.31	0.06	0.26	0.04

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	390	31	14	315	63	21	93	25	48	116	29
Future Volume (vph)	27	390	31	14	315	63	21	93	25	48	116	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0	6.0		6.0	6.0
Lane Util. Factor		0.95			0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00			1.00			1.00	0.99		1.00	1.00
Flpb, ped/bikes		1.00			1.00			1.00	1.00		1.00	1.00
Frt		0.99			0.98			1.00	0.85		1.00	0.85
Flt Protected		1.00			1.00			0.99	1.00		0.99	1.00
Satd. Flow (prot)		3457			3388			1813	1549		1830	1633
Flt Permitted		0.91			0.93			0.92	1.00		0.87	1.00
Satd. Flow (perm)		3149			3159			1680	1549		1611	1633
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	30	438	35	16	354	71	24	104	28	54	130	33
RTOR Reduction (vph)	0	3	0	0	11	0	0	0	21	0	0	25
Lane Group Flow (vph)	0	500	0	0	430	0	0	128	7	0	184	8
Confl. Peds. (#/hr)	1					1			1	1		
Heavy Vehicles (%)	8%	4%	3%	7%	5%	2%	5%	5%	4%	2%	4%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)		63.0			63.0			24.0	24.0		24.0	24.0
Effective Green, g (s)		63.0			63.0			24.0	24.0		24.0	24.0
Actuated g/C Ratio		0.64			0.64			0.24	0.24		0.24	0.24
Clearance Time (s)		6.0			6.0			6.0	6.0		6.0	6.0
Vehicle Extension (s)		3.0			3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		2003			2010			407	375		390	395
v/s Ratio Prot												
v/s Ratio Perm		c0.16			0.14			0.08	0.00		c0.11	0.00
v/c Ratio		0.25			0.21			0.31	0.02		0.47	0.02
Uniform Delay, d1		7.8			7.6			30.8	28.5		32.1	28.5
Progression Factor		1.00			1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2		0.3			0.1			0.4	0.0		0.9	0.0
Delay (s)		8.1			7.6			31.2	28.6		33.0	28.6
Level of Service		A			A			C	C		C	C
Approach Delay (s)		8.1			7.6			30.7			32.3	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	99.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	91.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

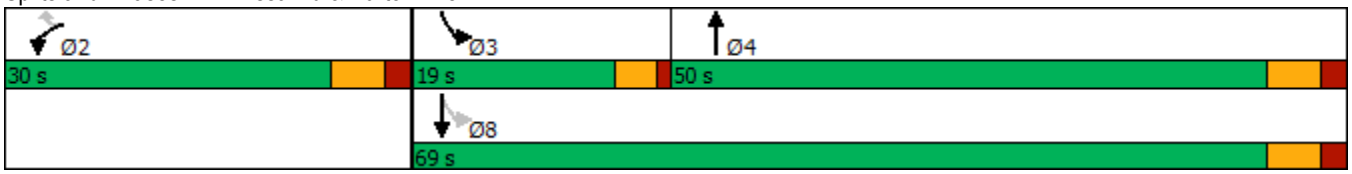


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	225	97	279	207	98	191
Future Volume (vph)	225	97	279	207	98	191
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	35.0		0.0	0.0	
Storage Lanes	1	1		0	0	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor		0.99	0.99			1.00
Frt		0.850	0.936			
Flt Protected	0.950					0.983
Satd. Flow (prot)	1738	1498	3256	0	0	3352
Flt Permitted	0.950					0.680
Satd. Flow (perm)	1738	1478	3256	0	0	2317
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		105	225			
Link Speed (k/h)	48		48			48
Link Distance (m)	133.2		195.7			221.2
Travel Time (s)	10.0		14.7			16.6
Confl. Peds. (#/hr)		1		4	4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	9%	3%	5%	13%	4%
Adj. Flow (vph)	245	105	303	225	107	208
Shared Lane Traffic (%)						
Lane Group Flow (vph)	245	105	528	0	0	315
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	6.1	6.1	30.5		6.1	30.5
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	6.1	1.8		6.1	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	2		4		3	8
Permitted Phases		2			8	
Detector Phase	2	2	4		3	8
Switch Phase						
Minimum Initial (s)	15.0	15.0	44.0		7.0	44.0
Minimum Split (s)	23.0	23.0	50.0		11.0	50.0
Total Split (s)	30.0	30.0	50.0		19.0	69.0
Total Split (%)	30.3%	30.3%	50.5%		19.2%	69.7%
Maximum Green (s)	24.0	24.0	44.0		15.0	63.0
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.0	2.0	2.0		1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0			0.0
Total Lost Time (s)	6.0	6.0	6.0			6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)	7.0	7.0	33.0			33.0
Flash Dont Walk (s)	10.0	10.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	18.6	18.6	63.1			63.1
Actuated g/C Ratio	0.20	0.20	0.67			0.67
v/c Ratio	0.71	0.28	0.23			0.20
Control Delay	47.0	8.3	3.8			6.6
Queue Delay	0.0	0.0	0.0			0.0
Total Delay	47.0	8.3	3.8			6.6
LOS	D	A	A			A
Approach Delay	35.4		3.8			6.6
Approach LOS	D		A			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 99			
Actuated Cycle Length: 93.7			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 13.8		Intersection LOS: B	
Intersection Capacity Utilization 100.9%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 7: Essa Rd & Burton Ave





Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	245	105	528	315
v/c Ratio	0.71	0.28	0.23	0.20
Control Delay	47.0	8.3	3.8	6.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	47.0	8.3	3.8	6.6
Queue Length 50th (m)	41.6	0.0	9.0	9.8
Queue Length 95th (m)	66.2	12.5	17.6	18.2
Internal Link Dist (m)	109.2		171.7	197.2
Turn Bay Length (m)		35.0		
Base Capacity (vph)	445	457	2264	1559
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.55	0.23	0.23	0.20

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	225	97	279	207	98	191
Future Volume (vph)	225	97	279	207	98	191
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frpb, ped/bikes	1.00	0.99	0.99			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	0.85	0.94			1.00
Flt Protected	0.95	1.00	1.00			0.98
Satd. Flow (prot)	1738	1478	3256			3350
Flt Permitted	0.95	1.00	1.00			0.68
Satd. Flow (perm)	1738	1478	3256			2317
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	245	105	303	225	107	208
RTOR Reduction (vph)	0	84	73	0	0	0
Lane Group Flow (vph)	245	21	455	0	0	315
Confl. Peds. (#/hr)		1		4	4	
Heavy Vehicles (%)	5%	9%	3%	5%	13%	4%
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	2		4		3	8
Permitted Phases		2			8	
Actuated Green, G (s)	18.6	18.6	63.1			63.1
Effective Green, g (s)	18.6	18.6	63.1			63.1
Actuated g/C Ratio	0.20	0.20	0.67			0.67
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	345	293	2192			1560
v/s Ratio Prot	c0.14		c0.14			
v/s Ratio Perm		0.01				0.14
v/c Ratio	0.71	0.07	0.21			0.20
Uniform Delay, d1	35.0	30.5	5.8			5.8
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	6.7	0.1	0.2			0.1
Delay (s)	41.8	30.6	6.0			5.8
Level of Service	D	C	A			A
Approach Delay (s)	38.4		6.0			5.8
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	93.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	100.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

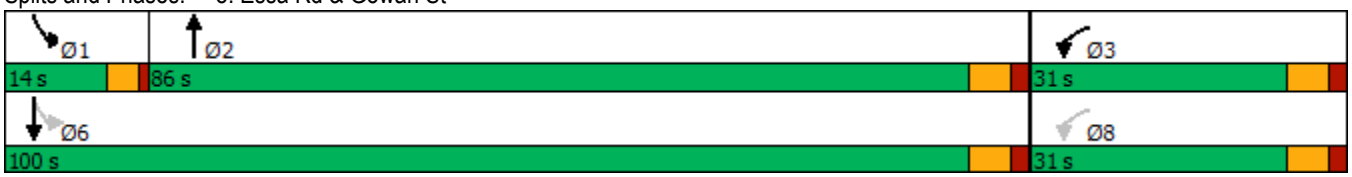


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø8
Lane Configurations							
Traffic Volume (vph)	2	181	372	3	108	284	
Future Volume (vph)	2	181	372	3	108	284	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95	
Ped Bike Factor	0.99		1.00				
Frt	0.866		0.999				
Flt Protected						0.986	
Satd. Flow (prot)	1600	0	3507	0	0	3380	
Flt Permitted						0.724	
Satd. Flow (perm)	1600	0	3507	0	0	2482	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)	199		1				
Link Speed (k/h)	48		48			48	
Link Distance (m)	165.5		221.2			124.5	
Travel Time (s)	12.4		16.6			9.3	
Confl. Bikes (#/hr)		2		5			
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	
Heavy Vehicles (%)	50%	2%	4%	0%	2%	7%	
Bus Blockages (#/hr)	0	0	0	0	0	4	
Adj. Flow (vph)	2	199	409	3	119	312	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	201	0	412	0	0	431	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Right	Left	Left	
Median Width(m)	3.7		0.0			0.0	
Link Offset(m)	0.0		0.0			0.0	
Crosswalk Width(m)	1.6		1.6			1.6	
Two way Left Turn Lane							
Headway Factor	0.99	0.99	0.99	0.99	0.99	1.00	
Turning Speed (k/h)	24	14		14	24		
Number of Detectors	1		2		1	2	
Detector Template	Left		Thru		Left	Thru	
Leading Detector (m)	6.1		30.5		6.1	30.5	
Trailing Detector (m)	0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0		0.0		0.0	0.0	
Detector 1 Size(m)	6.1		1.8		6.1	1.8	
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)	0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0		0.0		0.0	0.0	
Detector 2 Position(m)			28.7			28.7	
Detector 2 Size(m)			1.8			1.8	
Detector 2 Type			Cl+Ex			Cl+Ex	
Detector 2 Channel							
Detector 2 Extend (s)			0.0			0.0	
Turn Type	pm+pt		NA		pm+pt	NA	
Protected Phases	3		2		1	6	8

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø8
Permitted Phases	8				6		
Detector Phase	3		2		1	6	
Switch Phase							
Minimum Initial (s)	10.0		80.0		7.0	80.0	10.0
Minimum Split (s)	27.0		86.0		11.0	86.0	27.0
Total Split (s)	31.0		86.0		14.0	100.0	31.0
Total Split (%)	23.7%		65.6%		10.7%	76.3%	24%
Maximum Green (s)	25.0		80.0		10.0	94.0	25.0
Yellow Time (s)	4.0		4.0		3.0	4.0	4.0
All-Red Time (s)	2.0		2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0			0.0	
Total Lost Time (s)	6.0		6.0			6.0	
Lead/Lag			Lag		Lead		
Lead-Lag Optimize?			Yes		Yes		
Vehicle Extension (s)	3.0		3.0		3.0	3.0	3.0
Recall Mode	None		Max		None	Max	None
Walk Time (s)	10.0		65.0			65.0	10.0
Flash Dont Walk (s)	11.0		15.0			15.0	11.0
Pedestrian Calls (#/hr)	0		0			0	0
Act Effct Green (s)	10.7		94.0			94.0	
Actuated g/C Ratio	0.09		0.81			0.81	
v/c Ratio	0.62		0.15			0.22	
Control Delay	15.8		2.7			3.0	
Queue Delay	0.0		0.0			0.0	
Total Delay	15.8		2.7			3.0	
LOS	B		A			A	
Approach Delay	15.8		2.7			3.0	
Approach LOS	B		A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 131			
Actuated Cycle Length: 116.7			
Natural Cycle: 125			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay: 5.3		Intersection LOS: A	
Intersection Capacity Utilization 112.1%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 8: Essa Rd & Gowan St





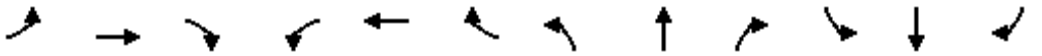
Lane Group	WBL	NBT	SBT
Lane Group Flow (vph)	201	412	431
v/c Ratio	0.62	0.15	0.22
Control Delay	15.8	2.7	3.0
Queue Delay	0.0	0.0	0.0
Total Delay	15.8	2.7	3.0
Queue Length 50th (m)	0.4	8.3	9.3
Queue Length 95th (m)	22.1	13.5	15.4
Internal Link Dist (m)	141.5	197.2	100.5
Turn Bay Length (m)			
Base Capacity (vph)	498	2826	2000
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.40	0.15	0.22

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	2	181	372	3	108	284
Future Volume (vph)	2	181	372	3	108	284
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0			6.0
Lane Util. Factor	1.00		0.95			0.95
Frpb, ped/bikes	0.98		1.00			1.00
Flpb, ped/bikes	1.00		1.00			1.00
Frt	0.87		1.00			1.00
Flt Protected	1.00		1.00			0.99
Satd. Flow (prot)	1596		3506			3382
Flt Permitted	1.00		1.00			0.72
Satd. Flow (perm)	1596		3506			2480
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	2	199	409	3	119	312
RTOR Reduction (vph)	181	0	0	0	0	0
Lane Group Flow (vph)	20	0	412	0	0	431
Confl. Bikes (#/hr)		2		5		
Heavy Vehicles (%)	50%	2%	4%	0%	2%	7%
Bus Blockages (#/hr)	0	0	0	0	0	4
Turn Type	pm+pt		NA		pm+pt	NA
Protected Phases	3		2		1	6
Permitted Phases	8				6	
Actuated Green, G (s)	10.6		94.0			94.0
Effective Green, g (s)	10.6		94.0			94.0
Actuated g/C Ratio	0.09		0.81			0.81
Clearance Time (s)	6.0		6.0			6.0
Vehicle Extension (s)	3.0		3.0			3.0
Lane Grp Cap (vph)	145		2826			1999
v/s Ratio Prot	c0.01		0.12			
v/s Ratio Perm						c0.17
v/c Ratio	0.14		0.15			0.22
Uniform Delay, d1	48.8		2.5			2.7
Progression Factor	1.00		1.00			1.00
Incremental Delay, d2	0.4		0.1			0.1
Delay (s)	49.2		2.6			2.7
Level of Service	D		A			A
Approach Delay (s)	49.2		2.6			2.7
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	116.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	112.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

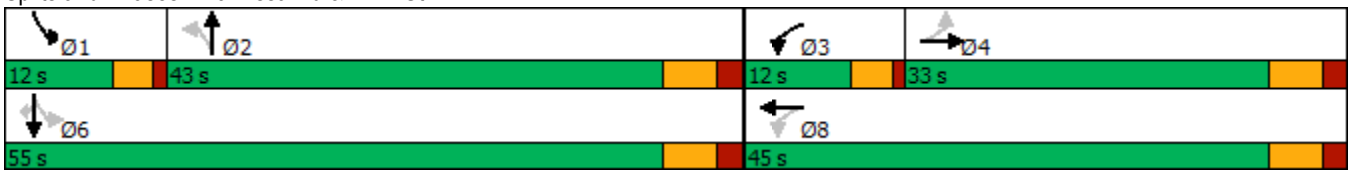


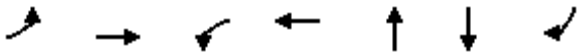
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	208	58	100	237	132	56	373	92	35	256	23
Future Volume (vph)	58	208	58	100	237	132	56	373	92	35	256	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	20.0		0.0	0.0		0.0	25.0		30.0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00			0.99			1.00	0.98
Frt		0.967			0.946			0.973				0.850
Flt Protected	0.950			0.950				0.995			0.994	
Satd. Flow (prot)	1825	1773	0	1706	1744	0	0	3398	0	0	3447	1633
Flt Permitted	0.528			0.434				0.871			0.840	
Satd. Flow (perm)	1014	1773	0	778	1744	0	0	2974	0	0	2911	1596
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			33			29				76
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		328.8			105.3			124.5			69.7	
Travel Time (s)		24.7			7.9			9.3			5.2	
Confl. Peds. (#/hr)	1		2	2		1	2		6	6		2
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	4%	6%	7%	3%	5%	4%	3%	5%	0%	6%	0%
Adj. Flow (vph)	62	224	62	108	255	142	60	401	99	38	275	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	286	0	108	397	0	0	560	0	0	313	25
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		3	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		34.0	34.0		7.0	34.0	34.0
Minimum Split (s)	31.0	31.0		11.0	31.0		40.0	40.0		11.0	40.0	40.0
Total Split (s)	33.0	33.0		12.0	45.0		43.0	43.0		12.0	55.0	55.0
Total Split (%)	33.0%	33.0%		12.0%	45.0%		43.0%	43.0%		12.0%	55.0%	55.0%
Maximum Green (s)	27.0	27.0		8.0	39.0		37.0	37.0		8.0	49.0	49.0
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	6.0	6.0		4.0	6.0			6.0			6.0	6.0
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max		None	Max		None	None		None	None	None
Walk Time (s)	10.0	10.0			10.0		22.0	22.0			22.0	22.0
Flash Dont Walk (s)	15.0	15.0			15.0		12.0	12.0			12.0	12.0
Pedestrian Calls (#/hr)	0	0			0		0	0			0	0
Act Effct Green (s)	29.5	29.5		41.0	39.0			34.0			34.0	34.0
Actuated g/C Ratio	0.35	0.35		0.48	0.46			0.40			0.40	0.40
v/c Ratio	0.18	0.46		0.24	0.49			0.46			0.27	0.04
Control Delay	22.8	24.5		13.6	17.0			19.3			17.9	0.1
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	22.8	24.5		13.6	17.0			19.3			17.9	0.1
LOS	C	C		B	B			B			B	A
Approach Delay		24.2			16.3			19.3			16.6	
Approach LOS		C			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 85			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.49			
Intersection Signal Delay: 18.9		Intersection LOS: B	
Intersection Capacity Utilization 102.4%		ICU Level of Service G	
Analysis Period (min) 15			

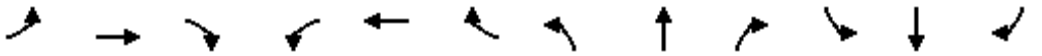
Splits and Phases: 9: Essa Rd & Tiffin St





Lane Group	EBL	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	62	286	108	397	560	313	25
v/c Ratio	0.18	0.46	0.24	0.49	0.46	0.27	0.04
Control Delay	22.8	24.5	13.6	17.0	19.3	17.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.8	24.5	13.6	17.0	19.3	17.9	0.1
Queue Length 50th (m)	7.3	35.5	9.3	39.3	32.4	17.5	0.0
Queue Length 95th (m)	16.5	58.3	17.9	63.1	46.3	26.7	0.0
Internal Link Dist (m)		304.8		81.3	100.5	45.7	
Turn Bay Length (m)	20.0		20.0				30.0
Base Capacity (vph)	352	624	462	818	1310	1678	952
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.46	0.23	0.49	0.43	0.19	0.03

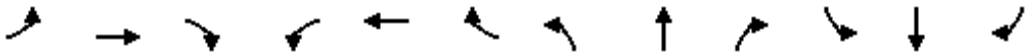
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	208	58	100	237	132	56	373	92	35	256	23
Future Volume (vph)	58	208	58	100	237	132	56	373	92	35	256	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		4.0	6.0			6.0			6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Frt	1.00	0.97		1.00	0.95			0.97			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	1.00
Satd. Flow (prot)	1824	1774		1705	1745			3399			3445	1596
Flt Permitted	0.53	1.00		0.43	1.00			0.87			0.84	1.00
Satd. Flow (perm)	1014	1774		779	1745			2978			2912	1596
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	62	224	62	108	255	142	60	401	99	38	275	25
RTOR Reduction (vph)	0	9	0	0	18	0	0	18	0	0	0	15
Lane Group Flow (vph)	62	277	0	108	379	0	0	542	0	0	313	10
Confl. Peds. (#/hr)	1		2	2		1	2		6	6		2
Heavy Vehicles (%)	0%	4%	6%	7%	3%	5%	4%	3%	5%	0%	6%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	29.5	29.5		39.8	39.8			34.0			34.0	34.0
Effective Green, g (s)	29.5	29.5		39.8	39.8			34.0			34.0	34.0
Actuated g/C Ratio	0.34	0.34		0.46	0.46			0.40			0.40	0.40
Clearance Time (s)	6.0	6.0		4.0	6.0			6.0			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	348	609		429	809			1180			1153	632
v/s Ratio Prot		0.16		0.02	c0.22							
v/s Ratio Perm	0.06			0.10				c0.18			0.11	0.01
v/c Ratio	0.18	0.45		0.25	0.47			0.46			0.27	0.02
Uniform Delay, d1	19.7	21.9		13.6	15.8			19.1			17.5	15.7
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	1.1	2.4		0.3	1.9			0.3			0.1	0.0
Delay (s)	20.8	24.3		14.0	17.7			19.4			17.6	15.7
Level of Service	C	C		B	B			B			B	B
Approach Delay (s)		23.7			16.9			19.4			17.5	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	85.8	Sum of lost time (s)	20.0
Intersection Capacity Utilization	102.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

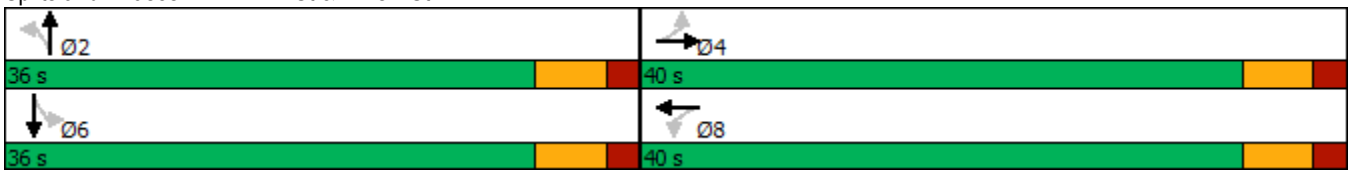


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	352	22	42	278	26	21	286	44	56	398	104
Future Volume (vph)	96	352	22	42	278	26	21	286	44	56	398	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	20.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00			1.00			0.99	
Frt		0.991			0.987			0.983			0.975	
Flt Protected	0.950			0.950				0.997			0.995	
Satd. Flow (prot)	1807	1878	0	1825	1858	0	0	1830	0	0	1812	0
Flt Permitted	0.535			0.465				0.957			0.929	
Satd. Flow (perm)	1014	1878	0	890	1858	0	0	1756	0	0	1690	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			8			11			18	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		274.0			328.8			111.6			76.6	
Travel Time (s)		20.6			24.7			8.4			5.7	
Confl. Peds. (#/hr)	4		4	4		4	4		8	8		4
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	1%	5%	0%	2%	0%	0%	3%	0%	2%	3%	0%
Adj. Flow (vph)	98	359	22	43	284	27	21	292	45	57	406	106
Shared Lane Traffic (%)												
Lane Group Flow (vph)	98	381	0	43	311	0	0	358	0	0	569	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	34.0	34.0		34.0	34.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		26.0	26.0		26.0	26.0	
Total Split (s)	40.0	40.0		40.0	40.0		36.0	36.0		36.0	36.0	
Total Split (%)	52.6%	52.6%		52.6%	52.6%		47.4%	47.4%		47.4%	47.4%	
Maximum Green (s)	34.0	34.0		34.0	34.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	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	
Total Lost Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		Min	Min		Min	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	34.1	34.1		34.1	34.1			27.0			27.0	
Actuated g/C Ratio	0.47	0.47		0.47	0.47			0.37			0.37	
v/c Ratio	0.21	0.43		0.10	0.36			0.55			0.90	
Control Delay	14.2	15.6		13.0	14.4			21.0			40.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	14.2	15.6		13.0	14.4			21.0			40.0	
LOS	B	B		B	B			C			D	
Approach Delay		15.3			14.3			21.0			40.0	
Approach LOS		B			B			C			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 76			
Actuated Cycle Length: 73.2			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 24.2		Intersection LOS: C	
Intersection Capacity Utilization 117.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 2: Tiffin St & Innisfil St

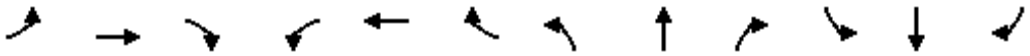




Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	98	381	43	311	358	569
v/c Ratio	0.21	0.43	0.10	0.36	0.55	0.90
Control Delay	14.2	15.6	13.0	14.4	21.0	40.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.2	15.6	13.0	14.4	21.0	40.0
Queue Length 50th (m)	8.2	35.8	3.5	27.6	36.7	69.9
Queue Length 95th (m)	17.7	57.3	9.1	45.5	60.0	#125.5
Internal Link Dist (m)		250.0		304.8	87.6	52.6
Turn Bay Length (m)	20.0		20.0			
Base Capacity (vph)	472	878	415	870	728	706
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.43	0.10	0.36	0.49	0.81

Intersection Summary

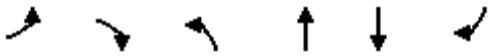
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	352	22	42	278	26	21	286	44	56	398	104
Future Volume (vph)	96	352	22	42	278	26	21	286	44	56	398	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.99		1.00	0.99			0.98			0.97	
Flt Protected	0.95	1.00		0.95	1.00			1.00			1.00	
Satd. Flow (prot)	1800	1878		1819	1858			1830			1810	
Flt Permitted	0.54	1.00		0.47	1.00			0.96			0.93	
Satd. Flow (perm)	1014	1878		891	1858			1756			1690	
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)	98	359	22	43	284	27	21	292	45	57	406	106
RTOR Reduction (vph)	0	3	0	0	4	0	0	7	0	0	11	0
Lane Group Flow (vph)	98	378	0	43	307	0	0	351	0	0	558	0
Confl. Peds. (#/hr)	4		4	4		4	4		8	8		4
Heavy Vehicles (%)	1%	1%	5%	0%	2%	0%	0%	3%	0%	2%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	34.1	34.1		34.1	34.1			27.0			27.0	
Effective Green, g (s)	34.1	34.1		34.1	34.1			27.0			27.0	
Actuated g/C Ratio	0.47	0.47		0.47	0.47			0.37			0.37	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	473	876		415	866			648			624	
v/s Ratio Prot		c0.20			0.17							
v/s Ratio Perm	0.10			0.05				0.20			c0.33	
v/c Ratio	0.21	0.43		0.10	0.35			0.54			0.89	
Uniform Delay, d1	11.5	13.0		10.9	12.5			18.2			21.7	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	1.0	1.6		0.5	1.1			0.9			15.2	
Delay (s)	12.5	14.6		11.4	13.6			19.1			36.9	
Level of Service	B	B		B	B			B			D	
Approach Delay (s)		14.2			13.3			19.1			36.9	
Approach LOS		B			B			B			D	

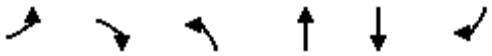
Intersection Summary			
HCM 2000 Control Delay	22.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	73.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	117.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	16	23	347	459	3
Future Volume (vph)	4	16	23	347	459	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.891				0.999	
Flt Protected	0.991			0.997		
Satd. Flow (prot)	1696	0	0	1913	1828	0
Flt Permitted	0.991			0.997		
Satd. Flow (perm)	1696	0	0	1913	1828	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	279.5			300.5	111.6	
Travel Time (s)	21.0			22.5	8.4	
Confl. Peds. (#/hr)		1	1			3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	2%	0%	5%	0%
Adj. Flow (vph)	4	17	24	369	488	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	21	0	0	393	491	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

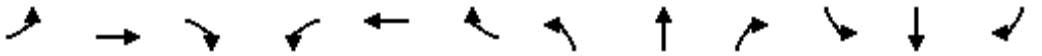
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	16	23	347	459	3
Future Volume (Veh/h)	4	16	23	347	459	3
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	4	17	24	369	488	3
Pedestrians	3			1		
Lane Width (m)	3.7			3.7		
Walking Speed (m/s)	1.1			1.1		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				301	112	
pX, platoon unblocked	0.77	0.75	0.75			
vC, conflicting volume	910	494	494			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	648	165	166			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	97	98			
cM capacity (veh/h)	328	664	1062			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	21	393	491
Volume Left	4	24	0
Volume Right	17	0	3
cSH	556	1062	1700
Volume to Capacity	0.04	0.02	0.29
Queue Length 95th (m)	0.9	0.5	0.0
Control Delay (s)	11.7	0.7	0.0
Lane LOS	B	A	
Approach Delay (s)	11.7	0.7	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		

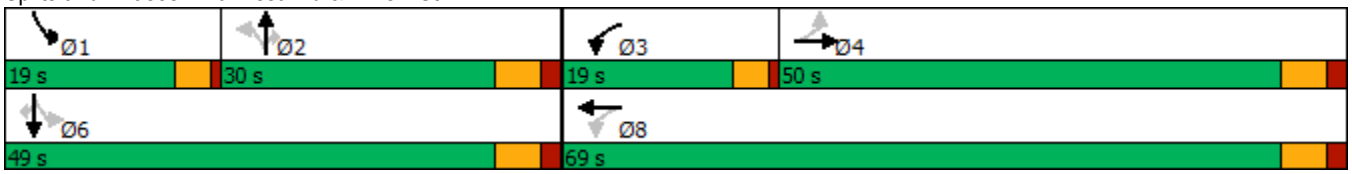


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	511	51	34	498	79	18	161	23	106	181	109
Future Volume (vph)	74	511	51	34	498	79	18	161	23	106	181	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		15.0	0.0		20.0
Storage Lanes	0		0	0		0	0		1	0		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			1.00				0.98
Frt		0.988			0.981				0.850			0.850
Flt Protected		0.994			0.997			0.995			0.982	
Satd. Flow (prot)	0	3488	0	0	3470	0	0	1894	1633	0	1833	1585
Flt Permitted		0.793			0.887			0.951			0.745	
Satd. Flow (perm)	0	2783	0	0	3087	0	0	1810	1633	0	1391	1560
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			21				102			66
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		337.1			195.7			132.7			300.5	
Travel Time (s)		25.3			14.7			10.0			22.5	
Confl. Peds. (#/hr)	1		3	3		1	2					2
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	3%	2%	3%	3%	0%	0%	1%	0%	1%	4%	3%
Adj. Flow (vph)	75	516	52	34	503	80	18	163	23	107	183	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	643	0	0	617	0	0	181	23	0	290	110
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	44.0	44.0		7.0	44.0		24.0	24.0	24.0	5.0	24.0	24.0
Minimum Split (s)	50.0	50.0		11.0	50.0		30.0	30.0	30.0	9.0	30.0	30.0
Total Split (s)	50.0	50.0		19.0	69.0		30.0	30.0	30.0	19.0	49.0	49.0
Total Split (%)	42.4%	42.4%		16.1%	58.5%		25.4%	25.4%	25.4%	16.1%	41.5%	41.5%
Maximum Green (s)	44.0	44.0		15.0	63.0		24.0	24.0	24.0	15.0	43.0	43.0
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)		6.0			6.0			6.0	6.0		6.0	6.0
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	32.0	32.0			32.0		7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	12.0	12.0			12.0		11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0		0	0
Act Effct Green (s)		63.3			63.3			33.8	33.8		33.8	33.8
Actuated g/C Ratio		0.58			0.58			0.31	0.31		0.31	0.31
v/c Ratio		0.40			0.34			0.32	0.04		0.67	0.21
Control Delay		14.3			13.2			29.9	0.1		40.9	12.8
Queue Delay		0.0			0.0			0.0	0.0		0.0	0.0
Total Delay		14.3			13.2			29.9	0.1		40.9	12.8
LOS		B			B			C	A		D	B
Approach Delay		14.3			13.2			26.6			33.2	
Approach LOS		B			B			C			C	

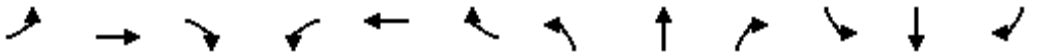
Intersection Summary			
Area Type:	Other		
Cycle Length: 118			
Actuated Cycle Length: 109.2			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 19.3		Intersection LOS: B	
Intersection Capacity Utilization 129.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 6: Essa Rd & Innisfil St



Lane Group	EBT	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	643	617	181	23	290	110
v/c Ratio	0.40	0.34	0.32	0.04	0.67	0.21
Control Delay	14.3	13.2	29.9	0.1	40.9	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.3	13.2	29.9	0.1	40.9	12.8
Queue Length 50th (m)	36.6	33.0	29.3	0.0	53.4	6.6
Queue Length 95th (m)	58.8	53.1	46.9	0.0	82.1	18.8
Internal Link Dist (m)	313.1	171.7	108.7		276.5	
Turn Bay Length (m)				15.0		20.0
Base Capacity (vph)	1617	1798	560	576	550	656
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.34	0.32	0.04	0.53	0.17

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	511	51	34	498	79	18	161	23	106	181	109
Future Volume (vph)	74	511	51	34	498	79	18	161	23	106	181	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0	6.0		6.0	6.0
Lane Util. Factor		0.95			0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00			1.00			1.00	1.00		1.00	0.98
Flpb, ped/bikes		1.00			1.00			1.00	1.00		1.00	1.00
Frt		0.99			0.98			1.00	0.85		1.00	0.85
Flt Protected		0.99			1.00			1.00	1.00		0.98	1.00
Satd. Flow (prot)		3488			3469			1894	1633		1833	1561
Flt Permitted		0.79			0.89			0.95	1.00		0.75	1.00
Satd. Flow (perm)		2781			3084			1810	1633		1392	1561
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	75	516	52	34	503	80	18	163	23	107	183	110
RTOR Reduction (vph)	0	4	0	0	9	0	0	0	16	0	0	46
Lane Group Flow (vph)	0	639	0	0	608	0	0	181	7	0	290	64
Confl. Peds. (#/hr)	1		3	3		1	2					2
Heavy Vehicles (%)	0%	3%	2%	3%	3%	0%	0%	1%	0%	1%	4%	3%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)		63.3			63.3			33.8	33.8		33.8	33.8
Effective Green, g (s)		63.3			63.3			33.8	33.8		33.8	33.8
Actuated g/C Ratio		0.58			0.58			0.31	0.31		0.31	0.31
Clearance Time (s)		6.0			6.0			6.0	6.0		6.0	6.0
Vehicle Extension (s)		3.0			3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1613			1789			560	505		431	483
v/s Ratio Prot												
v/s Ratio Perm		c0.23			0.20			0.10	0.00		c0.21	0.04
v/c Ratio		0.40			0.34			0.32	0.01		0.67	0.13
Uniform Delay, d1		12.5			12.0			28.9	26.1		32.8	27.1
Progression Factor		1.00			1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2		0.7			0.1			0.3	0.0		4.1	0.1
Delay (s)		13.2			12.1			29.2	26.1		36.9	27.2
Level of Service		B			B			C	C		D	C
Approach Delay (s)		13.2			12.1			28.9			34.3	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	109.1	Sum of lost time (s)	20.0
Intersection Capacity Utilization	129.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

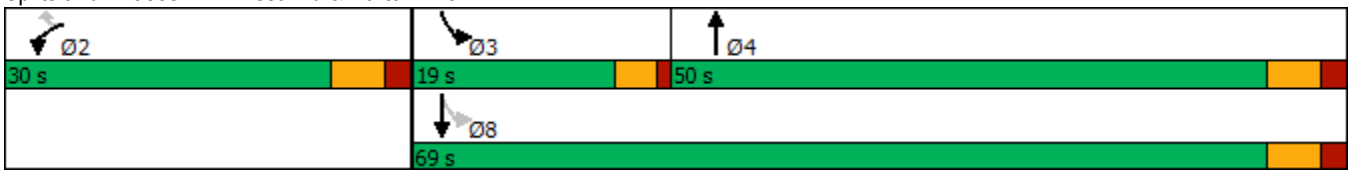


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	308	167	294	294	168	303
Future Volume (vph)	308	167	294	294	168	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	35.0		0.0	0.0	
Storage Lanes	1	1		0	0	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor		0.97	0.99			1.00
Frt		0.850	0.925			
Flt Protected	0.950					0.982
Satd. Flow (prot)	1772	1585	3280	0	0	3478
Flt Permitted	0.950					0.624
Satd. Flow (perm)	1772	1542	3280	0	0	2207
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		146	303			
Link Speed (k/h)	48		48			48
Link Distance (m)	133.2		195.7			221.2
Travel Time (s)	10.0		14.7			16.6
Confl. Peds. (#/hr)		9		7	7	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	3%	2%	1%	5%	2%
Adj. Flow (vph)	318	172	303	303	173	312
Shared Lane Traffic (%)						
Lane Group Flow (vph)	318	172	606	0	0	485
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	6.1	6.1	30.5		6.1	30.5
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	6.1	1.8		6.1	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	2		4		3	8
Permitted Phases		2			8	
Detector Phase	2	2	4		3	8
Switch Phase						
Minimum Initial (s)	15.0	15.0	44.0		7.0	44.0
Minimum Split (s)	23.0	23.0	50.0		11.0	50.0
Total Split (s)	30.0	30.0	50.0		19.0	69.0
Total Split (%)	30.3%	30.3%	50.5%		19.2%	69.7%
Maximum Green (s)	24.0	24.0	44.0		15.0	63.0
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.0	2.0	2.0		1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0			0.0
Total Lost Time (s)	6.0	6.0	6.0			6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)	7.0	7.0	33.0			33.0
Flash Dont Walk (s)	10.0	10.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	20.9	20.9	63.1			63.1
Actuated g/C Ratio	0.22	0.22	0.66			0.66
v/c Ratio	0.82	0.38	0.27			0.33
Control Delay	54.1	10.4	3.8			8.4
Queue Delay	0.0	0.0	0.0			0.0
Total Delay	54.1	10.4	3.8			8.4
LOS	D	B	A			A
Approach Delay	38.8		3.8			8.4
Approach LOS	D		A			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 99			
Actuated Cycle Length: 96			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 16.0		Intersection LOS: B	
Intersection Capacity Utilization 105.4%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 7: Essa Rd & Burton Ave





Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	318	172	606	485
v/c Ratio	0.82	0.38	0.27	0.33
Control Delay	54.1	10.4	3.8	8.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	54.1	10.4	3.8	8.4
Queue Length 50th (m)	56.5	3.9	10.7	19.9
Queue Length 95th (m)	#92.8	20.0	17.9	29.5
Internal Link Dist (m)	109.2		171.7	197.2
Turn Bay Length (m)		35.0		
Base Capacity (vph)	443	495	2258	1449
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.72	0.35	0.27	0.33

Intersection Summary

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



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	308	167	294	294	168	303
Future Volume (vph)	308	167	294	294	168	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frpb, ped/bikes	1.00	0.97	0.99			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	0.85	0.93			1.00
Flt Protected	0.95	1.00	1.00			0.98
Satd. Flow (prot)	1772	1543	3281			3475
Flt Permitted	0.95	1.00	1.00			0.62
Satd. Flow (perm)	1772	1543	3281			2208
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	318	172	303	303	173	312
RTOR Reduction (vph)	0	114	104	0	0	0
Lane Group Flow (vph)	318	58	502	0	0	485
Confl. Peds. (#/hr)		9		7	7	
Heavy Vehicles (%)	3%	3%	2%	1%	5%	2%
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	2		4		3	8
Permitted Phases		2			8	
Actuated Green, G (s)	20.9	20.9	63.1			63.1
Effective Green, g (s)	20.9	20.9	63.1			63.1
Actuated g/C Ratio	0.22	0.22	0.66			0.66
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	385	335	2156			1451
v/s Ratio Prot	c0.18		0.15			
v/s Ratio Perm		0.04				c0.22
v/c Ratio	0.83	0.17	0.23			0.33
Uniform Delay, d1	35.8	30.5	6.7			7.2
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	13.5	0.2	0.3			0.1
Delay (s)	49.3	30.8	6.9			7.4
Level of Service	D	C	A			A
Approach Delay (s)	42.8		6.9			7.4
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	105.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

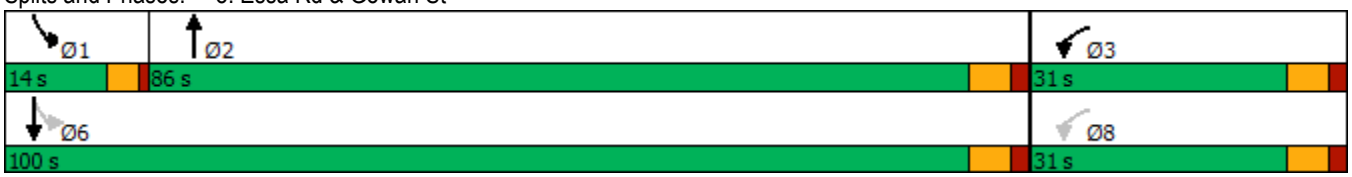


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø8
Lane Configurations							
Traffic Volume (vph)	5	286	458	9	192	477	
Future Volume (vph)	5	286	458	9	192	477	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95	
Ped Bike Factor	0.98		1.00			1.00	
Frt	0.867		0.997				
Flt Protected	0.999					0.986	
Satd. Flow (prot)	1635	0	3567	0	0	3514	
Flt Permitted	0.999					0.686	
Satd. Flow (perm)	1635	0	3567	0	0	2442	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)	295		3				
Link Speed (k/h)	48		48			48	
Link Distance (m)	165.5		221.2			124.5	
Travel Time (s)	12.4		16.6			9.3	
Confl. Peds. (#/hr)		2		9	9		
Confl. Bikes (#/hr)		2		5			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	
Heavy Vehicles (%)	0%	0%	2%	0%	1%	3%	
Adj. Flow (vph)	5	295	472	9	198	492	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	300	0	481	0	0	690	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Right	Left	Left	
Median Width(m)	3.7		0.0			0.0	
Link Offset(m)	0.0		0.0			0.0	
Crosswalk Width(m)	1.6		1.6			1.6	
Two way Left Turn Lane							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	
Turning Speed (k/h)	24	14		14	24		
Number of Detectors	1		2		1	2	
Detector Template	Left		Thru		Left	Thru	
Leading Detector (m)	6.1		30.5		6.1	30.5	
Trailing Detector (m)	0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0		0.0		0.0	0.0	
Detector 1 Size(m)	6.1		1.8		6.1	1.8	
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)	0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0		0.0		0.0	0.0	
Detector 2 Position(m)			28.7			28.7	
Detector 2 Size(m)			1.8			1.8	
Detector 2 Type			Cl+Ex			Cl+Ex	
Detector 2 Channel							
Detector 2 Extend (s)			0.0			0.0	
Turn Type	pm+pt		NA		pm+pt	NA	
Protected Phases	3		2		1	6	8

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø8
Permitted Phases	8				6		
Detector Phase	3		2		1	6	
Switch Phase							
Minimum Initial (s)	10.0		80.0		7.0	80.0	10.0
Minimum Split (s)	27.0		86.0		11.0	86.0	27.0
Total Split (s)	31.0		86.0		14.0	100.0	31.0
Total Split (%)	23.7%		65.6%		10.7%	76.3%	24%
Maximum Green (s)	25.0		80.0		10.0	94.0	25.0
Yellow Time (s)	4.0		4.0		3.0	4.0	4.0
All-Red Time (s)	2.0		2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0			0.0	
Total Lost Time (s)	6.0		6.0			6.0	
Lead/Lag			Lag		Lead		
Lead-Lag Optimize?			Yes		Yes		
Vehicle Extension (s)	3.0		3.0		3.0	3.0	3.0
Recall Mode	None		Max		None	Max	None
Walk Time (s)	10.0		65.0			65.0	10.0
Flash Dont Walk (s)	11.0		15.0			15.0	11.0
Pedestrian Calls (#/hr)	0		0			0	0
Act Effct Green (s)	11.2		94.0			94.0	
Actuated g/C Ratio	0.10		0.80			0.80	
v/c Ratio	0.71		0.17			0.35	
Control Delay	16.1		2.9			3.9	
Queue Delay	0.0		0.0			0.5	
Total Delay	16.1		2.9			4.4	
LOS	B		A			A	
Approach Delay	16.1		2.9			4.4	
Approach LOS	B		A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 131			
Actuated Cycle Length: 117.2			
Natural Cycle: 125			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 6.3		Intersection LOS: A	
Intersection Capacity Utilization 166.5%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 8: Essa Rd & Gowan St



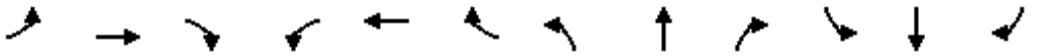
Lane Group	WBL	NBT	SBT
Lane Group Flow (vph)	300	481	690
v/c Ratio	0.71	0.17	0.35
Control Delay	16.1	2.9	3.9
Queue Delay	0.0	0.0	0.5
Total Delay	16.1	2.9	4.4
Queue Length 50th (m)	1.1	9.8	17.1
Queue Length 95th (m)	27.4	17.8	30.8
Internal Link Dist (m)	141.5	197.2	100.5
Turn Bay Length (m)			
Base Capacity (vph)	580	2863	1959
Starvation Cap Reductn	0	0	799
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.52	0.17	0.59

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	286	458	9	192	477
Future Volume (vph)	5	286	458	9	192	477
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0			6.0
Lane Util. Factor	1.00		0.95			0.95
Frpb, ped/bikes	0.98		1.00			1.00
Flpb, ped/bikes	1.00		1.00			1.00
Frt	0.87		1.00			1.00
Flt Protected	1.00		1.00			0.99
Satd. Flow (prot)	1632		3568			3510
Flt Permitted	1.00		1.00			0.69
Satd. Flow (perm)	1632		3568			2441
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	5	295	472	9	198	492
RTOR Reduction (vph)	267	0	1	0	0	0
Lane Group Flow (vph)	33	0	480	0	0	690
Confl. Peds. (#/hr)		2		9	9	
Confl. Bikes (#/hr)		2		5		
Heavy Vehicles (%)	0%	0%	2%	0%	1%	3%
Turn Type	pm+pt		NA		pm+pt	NA
Protected Phases	3		2		1	6
Permitted Phases	8				6	
Actuated Green, G (s)	11.2		94.0			94.0
Effective Green, g (s)	11.2		94.0			94.0
Actuated g/C Ratio	0.10		0.80			0.80
Clearance Time (s)	6.0		6.0			6.0
Vehicle Extension (s)	3.0		3.0			3.0
Lane Grp Cap (vph)	155		2861			1957
v/s Ratio Prot	c0.02		0.13			
v/s Ratio Perm						c0.28
v/c Ratio	0.21		0.17			0.35
Uniform Delay, d1	48.9		2.7			3.2
Progression Factor	1.00		1.00			1.00
Incremental Delay, d2	0.7		0.1			0.1
Delay (s)	49.6		2.8			3.3
Level of Service	D		A			A
Approach Delay (s)	49.6		2.8			3.3
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	117.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	166.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



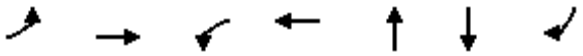
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	348	84	120	204	75	84	478	163	140	469	48
Future Volume (vph)	41	348	84	120	204	75	84	478	163	140	469	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	20.0		0.0	0.0		0.0	25.0		30.0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00			0.99			1.00	0.97
Frt		0.971			0.960			0.966				0.850
Flt Protected	0.950			0.950				0.994			0.989	
Satd. Flow (prot)	1772	1818	0	1706	1766	0	0	3458	0	0	3555	1601
Flt Permitted	0.584			0.198				0.756			0.600	
Satd. Flow (perm)	1086	1818	0	355	1766	0	0	2630	0	0	2155	1560
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			21			44				76
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		328.8			105.3			124.5			69.7	
Travel Time (s)		24.7			7.9			9.3			5.2	
Confl. Peds. (#/hr)	4		1	1		4	4		7	7		4
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
Heavy Vehicles (%)	3%	1%	8%	7%	1%	12%	0%	1%	0%	0%	2%	2%
Adj. Flow (vph)	42	359	87	124	210	77	87	493	168	144	484	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	42	446	0	124	287	0	0	748	0	0	628	49
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		3	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		34.0	34.0		7.0	34.0	34.0
Minimum Split (s)	31.0	31.0		11.0	31.0		40.0	40.0		11.0	40.0	40.0
Total Split (s)	31.0	31.0		12.0	43.0		45.0	45.0		12.0	57.0	57.0
Total Split (%)	31.0%	31.0%		12.0%	43.0%		45.0%	45.0%		12.0%	57.0%	57.0%
Maximum Green (s)	25.0	25.0		8.0	37.0		39.0	39.0		8.0	51.0	51.0
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	6.0	6.0		4.0	6.0			6.0			6.0	6.0
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max		None	Max		None	None		None	None	None
Walk Time (s)	10.0	10.0			10.0		22.0	22.0			22.0	22.0
Flash Dont Walk (s)	15.0	15.0			15.0		12.0	12.0			12.0	12.0
Pedestrian Calls (#/hr)	0	0			0		0	0			0	0
Act Effct Green (s)	25.3	25.3		39.1	37.1			36.4			36.4	36.4
Actuated g/C Ratio	0.30	0.30		0.46	0.43			0.43			0.43	0.43
v/c Ratio	0.13	0.82		0.44	0.37			0.65			0.68	0.07
Control Delay	25.0	42.2		19.5	17.4			21.3			24.3	1.7
Queue Delay	0.0	0.0		0.0	0.0			0.1			0.0	0.0
Total Delay	25.0	42.2		19.5	17.4			21.4			24.3	1.7
LOS	C	D		B	B			C			C	A
Approach Delay		40.7			18.1			21.4			22.7	
Approach LOS		D			B			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 85.5			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 25.2		Intersection LOS: C	
Intersection Capacity Utilization 105.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 9: Essa Rd & Tiffin St

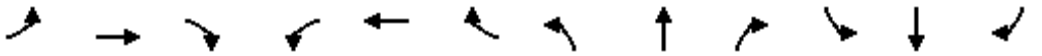




Lane Group	EBL	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	42	446	124	287	748	628	49
v/c Ratio	0.13	0.82	0.44	0.37	0.65	0.68	0.07
Control Delay	25.0	42.2	19.5	17.4	21.3	24.3	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	25.0	42.2	19.5	17.4	21.4	24.3	1.7
Queue Length 50th (m)	4.8	63.0	10.7	26.5	46.5	42.3	0.0
Queue Length 95th (m)	14.1	#130.9	25.1	54.5	64.3	60.3	3.0
Internal Link Dist (m)		304.8		81.3	100.5	45.7	
Turn Bay Length (m)	20.0		20.0				30.0
Base Capacity (vph)	321	545	289	777	1256	1288	962
Starvation Cap Reductn	0	0	0	0	52	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.82	0.43	0.37	0.62	0.49	0.05

Intersection Summary

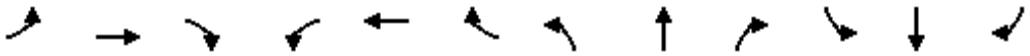
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	348	84	120	204	75	84	478	163	140	469	48
Future Volume (vph)	41	348	84	120	204	75	84	478	163	140	469	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		4.0	6.0			6.0			6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.99			1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Frt	1.00	0.97		1.00	0.96			0.97			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	1.00
Satd. Flow (prot)	1767	1817		1706	1766			3461			3552	1561
Flt Permitted	0.58	1.00		0.20	1.00			0.76			0.60	1.00
Satd. Flow (perm)	1086	1817		355	1766			2633			2155	1561
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)	42	359	87	124	210	77	87	493	168	144	484	49
RTOR Reduction (vph)	0	8	0	0	12	0	0	25	0	0	0	28
Lane Group Flow (vph)	42	438	0	124	275	0	0	723	0	0	628	21
Confl. Peds. (#/hr)	4		1	1		4	4		7	7		4
Heavy Vehicles (%)	3%	1%	8%	7%	1%	12%	0%	1%	0%	0%	2%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	25.3	25.3		37.1	37.1			36.4			36.4	36.4
Effective Green, g (s)	25.3	25.3		37.1	37.1			36.4			36.4	36.4
Actuated g/C Ratio	0.30	0.30		0.43	0.43			0.43			0.43	0.43
Clearance Time (s)	6.0	6.0		4.0	6.0			6.0			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	321	537		277	766			1120			917	664
v/s Ratio Prot		c0.24		c0.04	0.16							
v/s Ratio Perm	0.04			0.15				0.27			c0.29	0.01
v/c Ratio	0.13	0.81		0.45	0.36			0.65			0.68	0.03
Uniform Delay, d1	22.0	27.9		16.9	16.2			19.4			19.9	14.3
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	0.8	12.8		1.2	1.3			1.3			2.1	0.0
Delay (s)	22.9	40.7		18.1	17.5			20.7			22.0	14.3
Level of Service	C	D		B	B			C			C	B
Approach Delay (s)		39.2			17.7			20.7			21.5	
Approach LOS		D			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	85.5	Sum of lost time (s)	20.0
Intersection Capacity Utilization	105.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

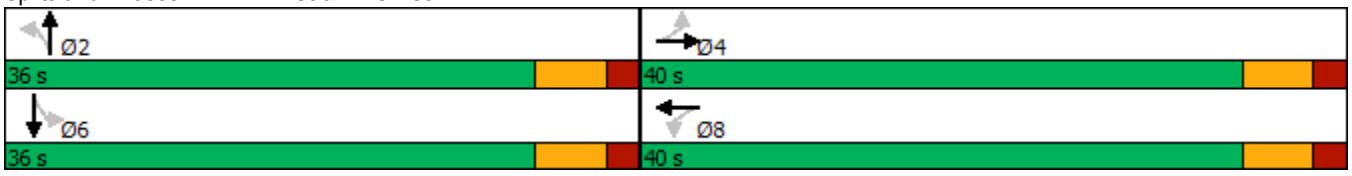


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	408	79	9	355	22	84	189	25	22	156	42
Future Volume (vph)	38	408	79	9	355	22	84	189	25	22	156	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	20.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00			1.00			1.00	
Frt		0.976			0.991			0.989			0.974	
Flt Protected	0.950			0.950				0.986			0.995	
Satd. Flow (prot)	1825	1747	0	1825	1822	0	0	1804	0	0	1796	0
Flt Permitted	0.477			0.377				0.806			0.948	
Satd. Flow (perm)	915	1747	0	724	1822	0	0	1474	0	0	1711	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			5			7			19	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		274.0			328.8			111.6			76.6	
Travel Time (s)		20.6			24.7			8.4			5.7	
Confl. Peds. (#/hr)	2					2	2		1	1		2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	8%	4%	0%	4%	10%	4%	4%	0%	6%	2%	6%
Bus Blockages (#/hr)	0	0	1	0	0	1	0	0	1	0	0	1
Adj. Flow (vph)	41	443	86	10	386	24	91	205	27	24	170	46
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	529	0	10	410	0	0	323	0	0	240	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane								Yes				
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	34.0	34.0		34.0	34.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		26.0	26.0		26.0	26.0	
Total Split (s)	40.0	40.0		40.0	40.0		36.0	36.0		36.0	36.0	
Total Split (%)	52.6%	52.6%		52.6%	52.6%		47.4%	47.4%		47.4%	47.4%	
Maximum Green (s)	34.0	34.0		34.0	34.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	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	
Total Lost Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		Min	Min		Min	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	34.3	34.3		34.3	34.3			18.3			18.3	
Actuated g/C Ratio	0.53	0.53		0.53	0.53			0.28			0.28	
v/c Ratio	0.08	0.57		0.03	0.42			0.77			0.48	
Control Delay	10.2	14.3		10.0	12.2			33.0			20.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	10.2	14.3		10.0	12.2			33.0			20.5	
LOS	B	B		A	B			C			C	
Approach Delay		14.0			12.1			33.0			20.5	
Approach LOS		B			B			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 76			
Actuated Cycle Length: 64.7			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 18.5		Intersection LOS: B	
Intersection Capacity Utilization 75.0%		ICU Level of Service D	
Analysis Period (min) 15			

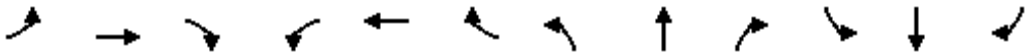
Splits and Phases: 2: Tiffin St & Innisfil St





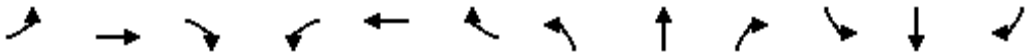
Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	41	529	10	410	323	240
v/c Ratio	0.08	0.57	0.03	0.42	0.77	0.48
Control Delay	10.2	14.3	10.0	12.2	33.0	20.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.2	14.3	10.0	12.2	33.0	20.5
Queue Length 50th (m)	2.2	37.0	0.5	26.5	34.1	21.5
Queue Length 95th (m)	8.4	84.6	3.1	60.4	58.5	38.4
Internal Link Dist (m)		250.0		304.8	87.6	52.6
Turn Bay Length (m)	20.0		20.0			
Base Capacity (vph)	484	933	383	967	692	810
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.57	0.03	0.42	0.47	0.30

Intersection Summary



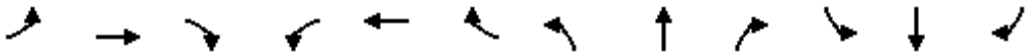
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	408	79	9	355	22	84	189	25	22	156	42
Future Volume (vph)	38	408	79	9	355	22	84	189	25	22	156	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.98		1.00	0.99			0.99			0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1822	1746		1825	1822			1803			1797	
Flt Permitted	0.48	1.00		0.38	1.00			0.81			0.95	
Satd. Flow (perm)	915	1746		725	1822			1473			1711	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	41	443	86	10	386	24	91	205	27	24	170	46
RTOR Reduction (vph)	0	8	0	0	2	0	0	5	0	0	14	0
Lane Group Flow (vph)	41	521	0	10	408	0	0	318	0	0	226	0
Confl. Peds. (#/hr)	2					2	2		1	1		2
Heavy Vehicles (%)	0%	8%	4%	0%	4%	10%	4%	4%	0%	6%	2%	6%
Bus Blockages (#/hr)	0	0	1	0	0	1	0	0	1	0	0	1
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	34.3	34.3		34.3	34.3			18.3			18.3	
Effective Green, g (s)	34.3	34.3		34.3	34.3			18.3			18.3	
Actuated g/C Ratio	0.53	0.53		0.53	0.53			0.28			0.28	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	485	927		384	967			417			484	
v/s Ratio Prot		c0.30			0.22							
v/s Ratio Perm	0.04			0.01				c0.22			0.13	
v/c Ratio	0.08	0.56		0.03	0.42			0.76			0.47	
Uniform Delay, d1	7.4	10.1		7.2	9.2			21.2			19.1	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.3	2.5		0.1	1.3			8.0			0.7	
Delay (s)	7.8	12.6		7.3	10.5			29.2			19.8	
Level of Service	A	B		A	B			C			B	
Approach Delay (s)		12.2			10.4			29.2			19.8	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	64.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	0	39	0	0	0	48	254	0	0	227	15
Future Volume (vph)	39	0	39	0	0	0	48	254	0	0	227	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	50.0		0.0	15.0		15.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.932									0.991	
Flt Protected		0.976					0.950					
Satd. Flow (prot)	0	1748	0	0	1883	0	1706	1812	0	1883	1800	0
Flt Permitted		0.976					0.950					
Satd. Flow (perm)	0	1748	0	0	1883	0	1706	1812	0	1883	1800	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		130.3			55.2			300.5			111.6	
Travel Time (s)		9.8			4.1			22.5			8.4	
Confl. Peds. (#/hr)	1						6					6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	0%	2%	2%	2%	7%	6%	2%	2%	4%	33%
Adj. Flow (vph)	42	0	42	0	0	0	52	276	0	0	247	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	84	0	0	0	0	52	276	0	0	263	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	

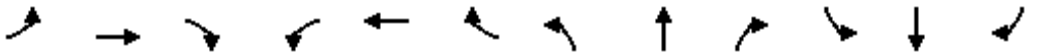
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	0	39	0	0	0	48	254	0	0	227	15
Future Volume (Veh/h)	39	0	39	0	0	0	48	254	0	0	227	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	42	0	42	0	0	0	52	276	0	0	247	16
Pedestrians		6									1	
Lane Width (m)		3.7									3.7	
Walking Speed (m/s)		1.1									1.1	
Percent Blockage		1									0	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)								301			112	
pX, platoon unblocked	0.95	0.95	0.95	0.95	0.95		0.95					
vC, conflicting volume	642	641	261	669	649	277	269			276		
vC1, stage 1 conf vol	261	261		380	380							
vC2, stage 2 conf vol	381	380		289	269							
vCu, unblocked vol	599	598	199	627	606	277	207			276		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	92	100	95	100	100	100	96			100		
cM capacity (veh/h)	559	532	802	522	519	761	1263			1287		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	84	0	52	276	0	263
Volume Left	42	0	52	0	0	0
Volume Right	42	0	0	0	0	16
cSH	659	1700	1263	1700	1700	1700
Volume to Capacity	0.13	0.00	0.04	0.16	0.00	0.15
Queue Length 95th (m)	3.3	0.0	1.0	0.0	0.0	0.0
Control Delay (s)	11.3	0.0	8.0	0.0	0.0	0.0
Lane LOS	B	A	A			
Approach Delay (s)	11.3	0.0	1.3		0.0	
Approach LOS	B	A				

Intersection Summary				
Average Delay	2.0			
Intersection Capacity Utilization	31.3%	ICU Level of Service	A	
Analysis Period (min)	15			

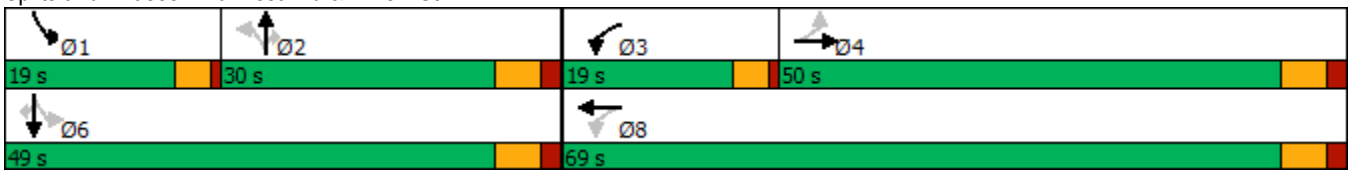


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	500	32	14	412	64	23	95	27	52	118	48
Future Volume (vph)	49	500	32	14	412	64	23	95	27	52	118	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		15.0	0.0		20.0
Storage Lanes	0		0	0		0	0		1	0		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00				0.99		1.00	
Frt		0.992			0.980				0.850			0.850
Flt Protected		0.996			0.999			0.990			0.985	
Satd. Flow (prot)	0	3458	0	0	3405	0	0	1811	1570	0	1830	1633
Flt Permitted		0.860			0.932			0.914			0.860	
Satd. Flow (perm)	0	2986	0	0	3176	0	0	1672	1548	0	1597	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			22				102			65
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		337.1			195.7			132.7			300.5	
Travel Time (s)		25.3			14.7			10.0			22.5	
Confl. Peds. (#/hr)	1					1			1	1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	4%	3%	7%	5%	2%	5%	5%	4%	2%	4%	0%
Adj. Flow (vph)	53	543	35	15	448	70	25	103	29	57	128	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	631	0	0	533	0	0	128	29	0	185	52
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane											Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	44.0	44.0		7.0	44.0		24.0	24.0	24.0	5.0	24.0	24.0
Minimum Split (s)	50.0	50.0		11.0	50.0		30.0	30.0	30.0	9.0	30.0	30.0
Total Split (s)	50.0	50.0		19.0	69.0		30.0	30.0	30.0	19.0	49.0	49.0
Total Split (%)	42.4%	42.4%		16.1%	58.5%		25.4%	25.4%	25.4%	16.1%	41.5%	41.5%
Maximum Green (s)	44.0	44.0		15.0	63.0		24.0	24.0	24.0	15.0	43.0	43.0
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)		6.0			6.0			6.0	6.0		6.0	6.0
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	32.0	32.0			32.0		7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	12.0	12.0			12.0		11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0		0	0
Act Effct Green (s)		63.0			63.0			24.0	24.0		24.0	24.0
Actuated g/C Ratio		0.64			0.64			0.24	0.24		0.24	0.24
v/c Ratio		0.33			0.26			0.32	0.06		0.48	0.12
Control Delay		8.8			7.9			33.4	0.3		37.0	6.4
Queue Delay		0.0			0.0			0.0	0.0		0.0	0.0
Total Delay		8.8			7.9			33.4	0.3		37.0	6.4
LOS		A			A			C	A		D	A
Approach Delay		8.8			7.9			27.3			30.3	
Approach LOS		A			A			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 118			
Actuated Cycle Length: 99			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.48			
Intersection Signal Delay: 13.6		Intersection LOS: B	
Intersection Capacity Utilization 91.7%		ICU Level of Service F	
Analysis Period (min) 15			

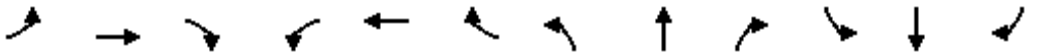
Splits and Phases: 6: Essa Rd & Innisfil St





Lane Group	EBT	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	631	533	128	29	185	52
v/c Ratio	0.33	0.26	0.32	0.06	0.48	0.12
Control Delay	8.8	7.9	33.4	0.3	37.0	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	7.9	33.4	0.3	37.0	6.4
Queue Length 50th (m)	26.3	20.3	20.2	0.0	30.5	0.0
Queue Length 95th (m)	35.6	28.1	36.2	0.0	51.2	7.1
Internal Link Dist (m)	313.1	171.7	108.7		276.5	
Turn Bay Length (m)				15.0		20.0
Base Capacity (vph)	1902	2029	405	452	693	746
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.26	0.32	0.06	0.27	0.07

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	500	32	14	412	64	23	95	27	52	118	48
Future Volume (vph)	49	500	32	14	412	64	23	95	27	52	118	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0	6.0		6.0	6.0
Lane Util. Factor		0.95			0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00			1.00			1.00	0.99		1.00	1.00
Flpb, ped/bikes		1.00			1.00			1.00	1.00		1.00	1.00
Frt		0.99			0.98			1.00	0.85		1.00	0.85
Flt Protected		1.00			1.00			0.99	1.00		0.98	1.00
Satd. Flow (prot)		3456			3405			1812	1549		1829	1633
Flt Permitted		0.86			0.93			0.91	1.00		0.86	1.00
Satd. Flow (perm)		2986			3177			1672	1549		1597	1633
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	53	543	35	15	448	70	25	103	29	57	128	52
RTOR Reduction (vph)	0	2	0	0	8	0	0	0	22	0	0	39
Lane Group Flow (vph)	0	629	0	0	525	0	0	128	7	0	185	13
Confl. Peds. (#/hr)	1					1			1	1		
Heavy Vehicles (%)	8%	4%	3%	7%	5%	2%	5%	5%	4%	2%	4%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)		63.0			63.0			24.0	24.0		24.0	24.0
Effective Green, g (s)		63.0			63.0			24.0	24.0		24.0	24.0
Actuated g/C Ratio		0.64			0.64			0.24	0.24		0.24	0.24
Clearance Time (s)		6.0			6.0			6.0	6.0		6.0	6.0
Vehicle Extension (s)		3.0			3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1900			2021			405	375		387	395
v/s Ratio Prot												
v/s Ratio Perm		c0.21			0.17			0.08	0.00		c0.12	0.01
v/c Ratio		0.33			0.26			0.32	0.02		0.48	0.03
Uniform Delay, d1		8.3			7.8			30.8	28.5		32.1	28.6
Progression Factor		1.00			1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2		0.5			0.1			0.5	0.0		0.9	0.0
Delay (s)		8.8			7.9			31.2	28.6		33.1	28.7
Level of Service		A			A			C	C		C	C
Approach Delay (s)		8.8			7.9			30.7			32.1	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	99.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	91.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

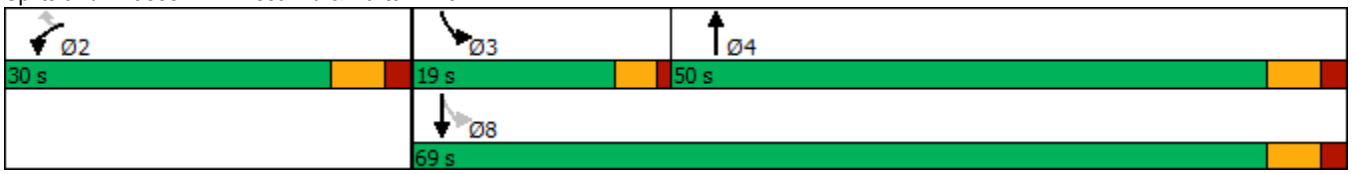


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	243	107	380	215	108	278
Future Volume (vph)	243	107	380	215	108	278
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	35.0		0.0	0.0	
Storage Lanes	1	1		0	0	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor		0.99	0.99			1.00
Frt		0.850	0.946			
Flt Protected	0.950					0.986
Satd. Flow (prot)	1738	1498	3300	0	0	3379
Flt Permitted	0.950					0.665
Satd. Flow (perm)	1738	1478	3300	0	0	2278
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		116	143			
Link Speed (k/h)	48		48			48
Link Distance (m)	133.2		195.7			221.2
Travel Time (s)	10.0		14.7			16.6
Confl. Peds. (#/hr)		1		4	4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	9%	3%	5%	13%	4%
Adj. Flow (vph)	264	116	413	234	117	302
Shared Lane Traffic (%)						
Lane Group Flow (vph)	264	116	647	0	0	419
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	6.1	6.1	30.5		6.1	30.5
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	6.1	1.8		6.1	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	2		4		3	8
Permitted Phases		2			8	
Detector Phase	2	2	4		3	8
Switch Phase						
Minimum Initial (s)	15.0	15.0	44.0		7.0	44.0
Minimum Split (s)	23.0	23.0	50.0		11.0	50.0
Total Split (s)	30.0	30.0	50.0		19.0	69.0
Total Split (%)	30.3%	30.3%	50.5%		19.2%	69.7%
Maximum Green (s)	24.0	24.0	44.0		15.0	63.0
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.0	2.0	2.0		1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0			0.0
Total Lost Time (s)	6.0	6.0	6.0			6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)	7.0	7.0	33.0			33.0
Flash Dont Walk (s)	10.0	10.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	19.3	19.3	63.1			63.1
Actuated g/C Ratio	0.20	0.20	0.67			0.67
v/c Ratio	0.74	0.29	0.29			0.28
Control Delay	48.6	8.0	5.6			7.4
Queue Delay	0.0	0.0	0.0			0.0
Total Delay	48.6	8.0	5.6			7.4
LOS	D	A	A			A
Approach Delay	36.2		5.6			7.4
Approach LOS	D		A			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 99			
Actuated Cycle Length: 94.4			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 14.1		Intersection LOS: B	
Intersection Capacity Utilization 101.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 7: Essa Rd & Burton Ave





Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	264	116	647	419
v/c Ratio	0.74	0.29	0.29	0.28
Control Delay	48.6	8.0	5.6	7.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	48.6	8.0	5.6	7.4
Queue Length 50th (m)	45.3	0.0	16.7	14.4
Queue Length 95th (m)	71.5	13.1	28.2	24.7
Internal Link Dist (m)	109.2		171.7	197.2
Turn Bay Length (m)		35.0		
Base Capacity (vph)	442	462	2251	1521
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.60	0.25	0.29	0.28

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	243	107	380	215	108	278
Future Volume (vph)	243	107	380	215	108	278
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frpb, ped/bikes	1.00	0.99	0.99			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	0.85	0.95			1.00
Flt Protected	0.95	1.00	1.00			0.99
Satd. Flow (prot)	1738	1478	3299			3378
Flt Permitted	0.95	1.00	1.00			0.66
Satd. Flow (perm)	1738	1478	3299			2277
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	264	116	413	234	117	302
RTOR Reduction (vph)	0	92	47	0	0	0
Lane Group Flow (vph)	264	24	600	0	0	419
Confl. Peds. (#/hr)		1		4	4	
Heavy Vehicles (%)	5%	9%	3%	5%	13%	4%
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	2		4		3	8
Permitted Phases		2			8	
Actuated Green, G (s)	19.3	19.3	63.1			63.1
Effective Green, g (s)	19.3	19.3	63.1			63.1
Actuated g/C Ratio	0.20	0.20	0.67			0.67
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	355	302	2205			1522
v/s Ratio Prot	c0.15		0.18			
v/s Ratio Perm		0.02				c0.18
v/c Ratio	0.74	0.08	0.27			0.28
Uniform Delay, d1	35.2	30.4	6.3			6.4
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	8.2	0.1	0.3			0.1
Delay (s)	43.4	30.5	6.6			6.5
Level of Service	D	C	A			A
Approach Delay (s)	39.5		6.6			6.5
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	94.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	101.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



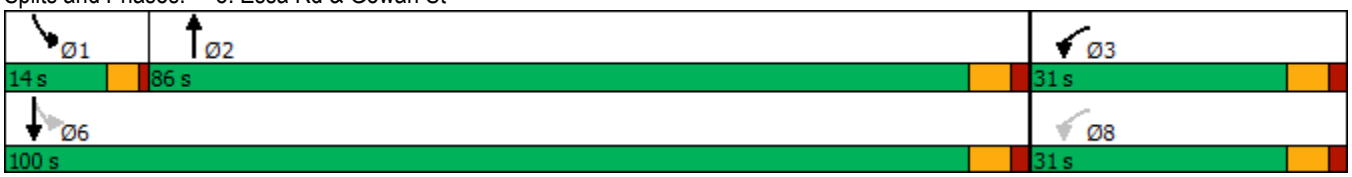
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø8
Lane Configurations							
Traffic Volume (vph)	2	196	482	3	110	384	
Future Volume (vph)	2	196	482	3	110	384	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95	
Ped Bike Factor	0.99		1.00				
Frt	0.866		0.999				
Flt Protected						0.989	
Satd. Flow (prot)	1601	0	3507	0	0	3382	
Flt Permitted						0.715	
Satd. Flow (perm)	1601	0	3507	0	0	2445	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)	213		1				
Link Speed (k/h)	48		48			48	
Link Distance (m)	165.5		221.2			124.5	
Travel Time (s)	12.4		16.6			9.3	
Confl. Bikes (#/hr)		2		5			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	50%	2%	4%	0%	2%	7%	
Bus Blockages (#/hr)	0	0	0	0	0	4	
Adj. Flow (vph)	2	213	524	3	120	417	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	215	0	527	0	0	537	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Right	Left	Left	
Median Width(m)	3.7		0.0			0.0	
Link Offset(m)	0.0		0.0			0.0	
Crosswalk Width(m)	1.6		1.6			1.6	
Two way Left Turn Lane							
Headway Factor	0.99	0.99	0.99	0.99	0.99	1.00	
Turning Speed (k/h)	24	14		14	24		
Number of Detectors	1		2		1	2	
Detector Template	Left		Thru		Left	Thru	
Leading Detector (m)	6.1		30.5		6.1	30.5	
Trailing Detector (m)	0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0		0.0		0.0	0.0	
Detector 1 Size(m)	6.1		1.8		6.1	1.8	
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)	0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0		0.0		0.0	0.0	
Detector 2 Position(m)			28.7			28.7	
Detector 2 Size(m)			1.8			1.8	
Detector 2 Type			Cl+Ex			Cl+Ex	
Detector 2 Channel							
Detector 2 Extend (s)			0.0			0.0	
Turn Type	pm+pt		NA		pm+pt	NA	
Protected Phases	3		2		1	6	8



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø8
Permitted Phases	8				6		
Detector Phase	3		2		1	6	
Switch Phase							
Minimum Initial (s)	10.0		80.0		7.0	80.0	10.0
Minimum Split (s)	27.0		86.0		11.0	86.0	27.0
Total Split (s)	31.0		86.0		14.0	100.0	31.0
Total Split (%)	23.7%		65.6%		10.7%	76.3%	24%
Maximum Green (s)	25.0		80.0		10.0	94.0	25.0
Yellow Time (s)	4.0		4.0		3.0	4.0	4.0
All-Red Time (s)	2.0		2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0			0.0	
Total Lost Time (s)	6.0		6.0			6.0	
Lead/Lag			Lag		Lead		
Lead-Lag Optimize?			Yes		Yes		
Vehicle Extension (s)	3.0		3.0		3.0	3.0	3.0
Recall Mode	None		Max		None	Max	None
Walk Time (s)	10.0		65.0			65.0	10.0
Flash Dont Walk (s)	11.0		15.0			15.0	11.0
Pedestrian Calls (#/hr)	0		0			0	0
Act Effct Green (s)	10.7		94.0			94.0	
Actuated g/C Ratio	0.09		0.80			0.80	
v/c Ratio	0.63		0.19			0.27	
Control Delay	15.8		2.8			3.3	
Queue Delay	0.0		0.0			0.4	
Total Delay	15.8		2.8			3.7	
LOS	B		A			A	
Approach Delay	15.8		2.8			3.7	
Approach LOS	B		A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 131			
Actuated Cycle Length: 116.8			
Natural Cycle: 125			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 5.4		Intersection LOS: A	
Intersection Capacity Utilization 114.5%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 8: Essa Rd & Gowan St





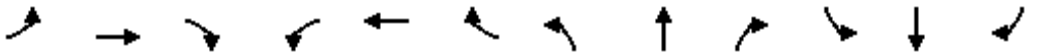
Lane Group	WBL	NBT	SBT
Lane Group Flow (vph)	215	527	537
v/c Ratio	0.63	0.19	0.27
Control Delay	15.8	2.8	3.3
Queue Delay	0.0	0.0	0.4
Total Delay	15.8	2.8	3.7
Queue Length 50th (m)	0.4	11.0	12.2
Queue Length 95th (m)	22.7	17.8	20.4
Internal Link Dist (m)	141.5	197.2	100.5
Turn Bay Length (m)			
Base Capacity (vph)	510	2824	1968
Starvation Cap Reductn	0	0	881
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.42	0.19	0.49

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	2	196	482	3	110	384
Future Volume (vph)	2	196	482	3	110	384
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0			6.0
Lane Util. Factor	1.00		0.95			0.95
Frpb, ped/bikes	0.98		1.00			1.00
Flpb, ped/bikes	1.00		1.00			1.00
Frt	0.87		1.00			1.00
Flt Protected	1.00		1.00			0.99
Satd. Flow (prot)	1597		3507			3382
Flt Permitted	1.00		1.00			0.71
Satd. Flow (perm)	1597		3507			2444
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	213	524	3	120	417
RTOR Reduction (vph)	193	0	0	0	0	0
Lane Group Flow (vph)	22	0	527	0	0	537
Confl. Bikes (#/hr)		2		5		
Heavy Vehicles (%)	50%	2%	4%	0%	2%	7%
Bus Blockages (#/hr)	0	0	0	0	0	4
Turn Type	pm+pt		NA		pm+pt	NA
Protected Phases	3		2		1	6
Permitted Phases	8				6	
Actuated Green, G (s)	10.7		94.0			94.0
Effective Green, g (s)	10.7		94.0			94.0
Actuated g/C Ratio	0.09		0.81			0.81
Clearance Time (s)	6.0		6.0			6.0
Vehicle Extension (s)	3.0		3.0			3.0
Lane Grp Cap (vph)	146		2824			1968
v/s Ratio Prot	c0.01		0.15			
v/s Ratio Perm						c0.22
v/c Ratio	0.15		0.19			0.27
Uniform Delay, d1	48.8		2.6			2.8
Progression Factor	1.00		1.00			1.00
Incremental Delay, d2	0.5		0.1			0.1
Delay (s)	49.3		2.7			2.9
Level of Service	D		A			A
Approach Delay (s)	49.3		2.7			2.9
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	10.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	116.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	114.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

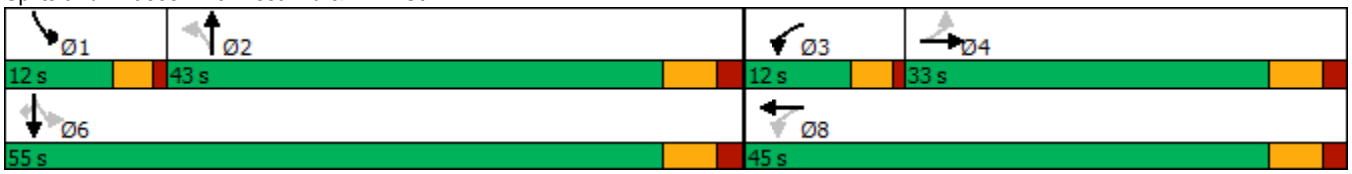


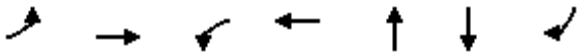
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	234	69	108	262	143	63	481	100	38	348	27
Future Volume (vph)	69	234	69	108	262	143	63	481	100	38	348	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	20.0		0.0	0.0		0.0	25.0		30.0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00			1.00			1.00	0.98
Frt		0.966			0.947			0.977				0.850
Flt Protected	0.950			0.950				0.995			0.995	
Satd. Flow (prot)	1825	1771	0	1706	1746	0	0	3416	0	0	3446	1633
Flt Permitted	0.509			0.370				0.856			0.833	
Satd. Flow (perm)	977	1771	0	664	1746	0	0	2938	0	0	2884	1596
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			32			24				76
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		328.8			105.3			124.5			69.7	
Travel Time (s)		24.7			7.9			9.3			5.2	
Confl. Peds. (#/hr)	1		2	2		1	2		6	6		2
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	4%	6%	7%	3%	5%	4%	3%	5%	0%	6%	0%
Adj. Flow (vph)	74	252	74	116	282	154	68	517	108	41	374	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	326	0	116	436	0	0	693	0	0	415	29
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		3	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		34.0	34.0		7.0	34.0	34.0
Minimum Split (s)	31.0	31.0		11.0	31.0		40.0	40.0		11.0	40.0	40.0
Total Split (s)	33.0	33.0		12.0	45.0		43.0	43.0		12.0	55.0	55.0
Total Split (%)	33.0%	33.0%		12.0%	45.0%		43.0%	43.0%		12.0%	55.0%	55.0%
Maximum Green (s)	27.0	27.0		8.0	39.0		37.0	37.0		8.0	49.0	49.0
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	6.0	6.0		4.0	6.0			6.0			6.0	6.0
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max		None	Max		None	None		None	None	None
Walk Time (s)	10.0	10.0			10.0		22.0	22.0			22.0	22.0
Flash Dont Walk (s)	15.0	15.0			15.0		12.0	12.0			12.0	12.0
Pedestrian Calls (#/hr)	0	0			0		0	0			0	0
Act Effct Green (s)	27.3	27.3		41.0	39.0			34.0			34.0	34.0
Actuated g/C Ratio	0.32	0.32		0.48	0.46			0.40			0.40	0.40
v/c Ratio	0.24	0.56		0.28	0.53			0.58			0.36	0.04
Control Delay	24.0	27.5		14.2	18.1			21.6			19.0	0.1
Queue Delay	0.0	0.0		0.0	0.0			0.1			0.0	0.0
Total Delay	24.0	27.5		14.2	18.1			21.7			19.0	0.1
LOS	C	C		B	B			C			B	A
Approach Delay		26.9			17.3			21.7			17.8	
Approach LOS		C			B			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 85			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 20.7		Intersection LOS: C	
Intersection Capacity Utilization 107.5%		ICU Level of Service G	
Analysis Period (min) 15			

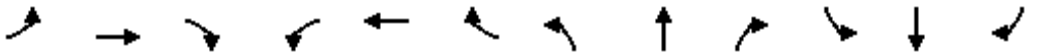
Splits and Phases: 9: Essa Rd & Tiffin St





Lane Group	EBL	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	74	326	116	436	693	415	29
v/c Ratio	0.24	0.56	0.28	0.53	0.58	0.36	0.04
Control Delay	24.0	27.5	14.2	18.1	21.6	19.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	24.0	27.5	14.2	18.1	21.7	19.0	0.1
Queue Length 50th (m)	8.8	41.8	10.0	44.9	43.5	24.2	0.0
Queue Length 95th (m)	19.3	67.4	19.0	71.3	60.7	35.5	0.2
Internal Link Dist (m)		304.8		81.3	100.5	45.7	
Turn Bay Length (m)	20.0		20.0				30.0
Base Capacity (vph)	313	577	418	818	1292	1662	952
Starvation Cap Reductn	0	0	0	0	53	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.56	0.28	0.53	0.56	0.25	0.03

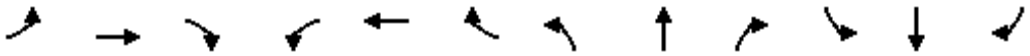
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	234	69	108	262	143	63	481	100	38	348	27
Future Volume (vph)	69	234	69	108	262	143	63	481	100	38	348	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		4.0	6.0			6.0			6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Frt	1.00	0.97		1.00	0.95			0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			1.00			1.00	1.00
Satd. Flow (prot)	1824	1771		1705	1746			3415			3445	1596
Flt Permitted	0.51	1.00		0.37	1.00			0.86			0.83	1.00
Satd. Flow (perm)	978	1771		664	1746			2936			2884	1596
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	74	252	74	116	282	154	68	517	108	41	374	29
RTOR Reduction (vph)	0	10	0	0	17	0	0	14	0	0	0	17
Lane Group Flow (vph)	74	316	0	116	419	0	0	679	0	0	415	12
Confl. Peds. (#/hr)	1		2	2		1	2		6	6		2
Heavy Vehicles (%)	0%	4%	6%	7%	3%	5%	4%	3%	5%	0%	6%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	27.3	27.3		39.0	39.0			34.0			34.0	34.0
Effective Green, g (s)	27.3	27.3		39.0	39.0			34.0			34.0	34.0
Actuated g/C Ratio	0.32	0.32		0.46	0.46			0.40			0.40	0.40
Clearance Time (s)	6.0	6.0		4.0	6.0			6.0			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	314	568		398	801			1174			1153	638
v/s Ratio Prot		0.18		0.03	c0.24							
v/s Ratio Perm	0.08			0.11				c0.23			0.14	0.01
v/c Ratio	0.24	0.56		0.29	0.52			0.58			0.36	0.02
Uniform Delay, d1	21.2	23.9		14.1	16.4			19.9			17.9	15.4
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	1.8	3.9		0.4	2.4			0.7			0.2	0.0
Delay (s)	22.9	27.8		14.5	18.8			20.6			18.1	15.4
Level of Service	C	C		B	B			C			B	B
Approach Delay (s)		26.9			17.9			20.6			17.9	
Approach LOS		C			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	20.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	107.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

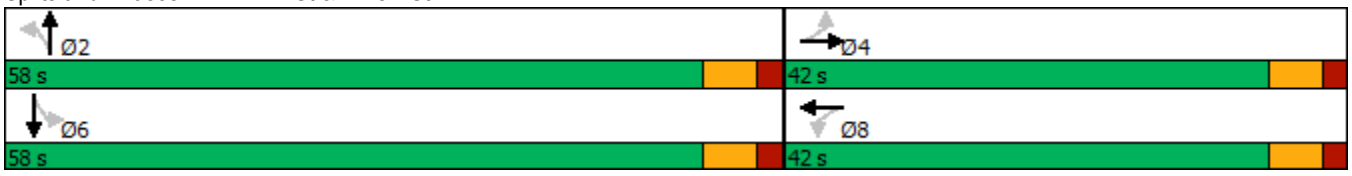


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	391	22	58	306	27	23	307	58	61	430	112
Future Volume (vph)	98	391	22	58	306	27	23	307	58	61	430	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	20.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00			0.99			0.99	
Frt		0.992			0.988			0.980			0.975	
Flt Protected	0.950			0.950				0.997			0.995	
Satd. Flow (prot)	1807	1881	0	1825	1860	0	0	1823	0	0	1811	0
Flt Permitted	0.479			0.397				0.952			0.923	
Satd. Flow (perm)	907	1881	0	761	1860	0	0	1740	0	0	1678	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			5			13			17	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		274.0			328.8			111.6			76.6	
Travel Time (s)		20.6			24.7			8.4			5.7	
Confl. Peds. (#/hr)	4		4	4		4	4		8	8		4
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	1%	5%	0%	2%	0%	0%	3%	0%	2%	3%	0%
Bus Blockages (#/hr)	0	0	1	0	0	1	0	0	1	0	0	1
Adj. Flow (vph)	100	399	22	59	312	28	23	313	59	62	439	114
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	421	0	59	340	0	0	395	0	0	615	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane								Yes				
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	34.0	34.0		34.0	34.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		26.0	26.0		26.0	26.0	
Total Split (s)	42.0	42.0		42.0	42.0		58.0	58.0		58.0	58.0	
Total Split (%)	42.0%	42.0%		42.0%	42.0%		58.0%	58.0%		58.0%	58.0%	
Maximum Green (s)	36.0	36.0		36.0	36.0		52.0	52.0		52.0	52.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	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	
Total Lost Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		Min	Min		Min	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	36.6	36.6		36.6	36.6			35.4			35.4	
Actuated g/C Ratio	0.43	0.43		0.43	0.43			0.42			0.42	
v/c Ratio	0.25	0.51		0.18	0.42			0.53			0.86	
Control Delay	21.0	22.5		20.4	20.7			19.6			33.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	21.0	22.5		20.4	20.7			19.6			33.8	
LOS	C	C		C	C			B			C	
Approach Delay		22.2			20.6			19.6			33.8	
Approach LOS		C			C			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 84.2			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 25.0		Intersection LOS: C	
Intersection Capacity Utilization 121.2%		ICU Level of Service H	
Analysis Period (min) 15			

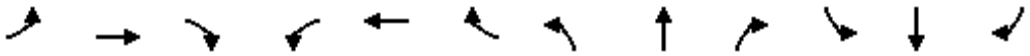
Splits and Phases: 2: Tiffin St & Innisfil St





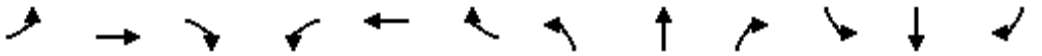
Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	100	421	59	340	395	615
v/c Ratio	0.25	0.51	0.18	0.42	0.53	0.86
Control Delay	21.0	22.5	20.4	20.7	19.6	33.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.0	22.5	20.4	20.7	19.6	33.8
Queue Length 50th (m)	9.8	46.6	5.5	35.4	43.7	83.4
Queue Length 95th (m)	27.3	97.5	17.8	76.2	66.1	124.2
Internal Link Dist (m)		250.0		304.8	87.6	52.6
Turn Bay Length (m)	20.0		20.0			
Base Capacity (vph)	393	818	330	810	1096	1058
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.51	0.18	0.42	0.36	0.58

Intersection Summary



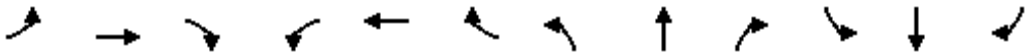
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	391	22	58	306	27	23	307	58	61	430	112
Future Volume (vph)	98	391	22	58	306	27	23	307	58	61	430	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.99			0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.99		1.00	0.99			0.98			0.97	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1800	1882		1822	1859			1823			1810	
Flt Permitted	0.48	1.00		0.40	1.00			0.95			0.92	
Satd. Flow (perm)	908	1882		760	1859			1741			1680	
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)	100	399	22	59	312	28	23	313	59	62	439	114
RTOR Reduction (vph)	0	2	0	0	3	0	0	8	0	0	10	0
Lane Group Flow (vph)	100	419	0	59	337	0	0	387	0	0	605	0
Confl. Peds. (#/hr)	4		4	4		4	4		8	8		4
Heavy Vehicles (%)	1%	1%	5%	0%	2%	0%	0%	3%	0%	2%	3%	0%
Bus Blockages (#/hr)	0	0	1	0	0	1	0	0	1	0	0	1
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	36.5	36.5		36.5	36.5			35.4			35.4	
Effective Green, g (s)	36.5	36.5		36.5	36.5			35.4			35.4	
Actuated g/C Ratio	0.44	0.44		0.44	0.44			0.42			0.42	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	395	818		330	808			734			708	
v/s Ratio Prot		c0.22			0.18							
v/s Ratio Perm	0.11			0.08				0.22			c0.36	
v/c Ratio	0.25	0.51		0.18	0.42			0.53			0.85	
Uniform Delay, d1	15.0	17.2		14.5	16.4			18.0			21.9	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	1.5	2.3		1.2	1.6			0.7			9.9	
Delay (s)	16.6	19.5		15.7	17.9			18.7			31.8	
Level of Service	B	B		B	B			B			C	
Approach Delay (s)		19.0			17.6			18.7			31.8	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	22.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	83.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	121.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	0	40	0	0	0	104	357	0	0	476	35
Future Volume (vph)	27	0	40	0	0	0	104	357	0	0	476	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.919									0.990	
Flt Protected		0.980					0.950					
Satd. Flow (prot)	0	1730	0	0	1883	0	1789	1921	0	1883	1817	0
Flt Permitted		0.980					0.950					
Satd. Flow (perm)	0	1730	0	0	1883	0	1789	1921	0	1883	1817	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		114.3			66.3			300.5			111.6	
Travel Time (s)		8.6			5.0			22.5			8.4	
Confl. Peds. (#/hr)			1				1					3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	0%	2%	2%	2%	2%	0%	2%	2%	5%	0%
Adj. Flow (vph)	29	0	43	0	0	0	113	388	0	0	517	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	72	0	0	0	0	113	388	0	0	555	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	

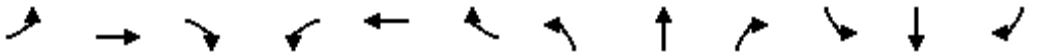
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	0	40	0	0	0	104	357	0	0	476	35
Future Volume (Veh/h)	27	0	40	0	0	0	104	357	0	0	476	35
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	0	43	0	0	0	113	388	0	0	517	38
Pedestrians		3						1				
Lane Width (m)		3.7						3.7				
Walking Speed (m/s)		1.1						1.1				
Percent Blockage		0						0				
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)								301			112	
pX, platoon unblocked	0.74	0.74	0.74	0.74	0.74		0.74					
vC, conflicting volume	1153	1153	540	1175	1172	388	558			388		
vC1, stage 1 conf vol	539	539		614	614							
vC2, stage 2 conf vol	614	614		561	558							
vCu, unblocked vol	1031	1031	201	1060	1056	388	226			388		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	92	100	93	100	100	100	89			100		
cM capacity (veh/h)	363	357	622	315	322	660	990			1170		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	72	0	113	388	0	555
Volume Left	29	0	113	0	0	0
Volume Right	43	0	0	0	0	38
cSH	483	1700	990	1700	1700	1700
Volume to Capacity	0.15	0.00	0.11	0.23	0.00	0.33
Queue Length 95th (m)	4.0	0.0	2.9	0.0	0.0	0.0
Control Delay (s)	13.8	0.0	9.1	0.0	0.0	0.0
Lane LOS	B	A	A			
Approach Delay (s)	13.8	0.0	2.1		0.0	
Approach LOS	B	A				

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	47.3%	ICU Level of Service	A	
Analysis Period (min)	15			

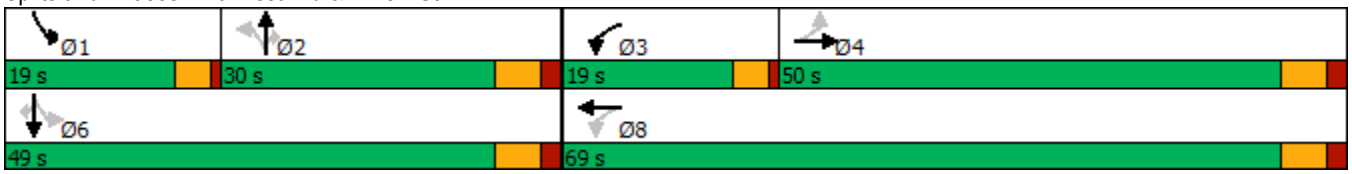


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	132	630	49	33	715	75	21	164	27	121	185	135
Future Volume (vph)	132	630	49	33	715	75	21	164	27	121	185	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		15.0	0.0		20.0
Storage Lanes	0		0	0		0	0		1	0		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			1.00				0.98
Frt		0.991			0.986				0.850			0.850
Flt Protected		0.992			0.998			0.994			0.981	
Satd. Flow (prot)	0	3497	0	0	3492	0	0	1893	1633	0	1833	1585
Flt Permitted		0.623			0.888			0.941			0.730	
Satd. Flow (perm)	0	2196	0	0	3107	0	0	1791	1633	0	1364	1560
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			14				102			77
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		337.1			195.7			132.7			300.5	
Travel Time (s)		25.3			14.7			10.0			22.5	
Confl. Peds. (#/hr)	1		3	3		1	2					2
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	3%	2%	3%	3%	0%	0%	1%	0%	1%	4%	3%
Adj. Flow (vph)	133	636	49	33	722	76	21	166	27	122	187	136
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	818	0	0	831	0	0	187	27	0	309	136
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane											Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	44.0	44.0		7.0	44.0		24.0	24.0	24.0	5.0	24.0	24.0
Minimum Split (s)	50.0	50.0		11.0	50.0		30.0	30.0	30.0	9.0	30.0	30.0
Total Split (s)	50.0	50.0		19.0	69.0		30.0	30.0	30.0	19.0	49.0	49.0
Total Split (%)	42.4%	42.4%		16.1%	58.5%		25.4%	25.4%	25.4%	16.1%	41.5%	41.5%
Maximum Green (s)	44.0	44.0		15.0	63.0		24.0	24.0	24.0	15.0	43.0	43.0
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)		6.0			6.0			6.0	6.0		6.0	6.0
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	32.0	32.0			32.0		7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	12.0	12.0			12.0		11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0		0	0
Act Effct Green (s)		63.3			63.3			36.0	36.0		36.0	36.0
Actuated g/C Ratio		0.57			0.57			0.32	0.32		0.32	0.32
v/c Ratio		0.65			0.47			0.32	0.05		0.70	0.24
Control Delay		20.8			16.0			29.5	0.1		41.9	13.3
Queue Delay		0.0			0.0			0.0	0.0		0.0	0.0
Total Delay		20.8			16.0			29.5	0.1		41.9	13.3
LOS		C			B			C	A		D	B
Approach Delay		20.8			16.0			25.8			33.2	
Approach LOS		C			B			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 118			
Actuated Cycle Length: 111.4			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 21.9		Intersection LOS: C	
Intersection Capacity Utilization 133.3%		ICU Level of Service H	
Analysis Period (min) 15			

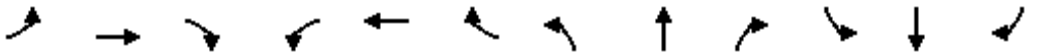
Splits and Phases: 6: Essa Rd & Innisfil St





Lane Group	EBT	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	818	831	187	27	309	136
v/c Ratio	0.65	0.47	0.32	0.05	0.70	0.24
Control Delay	20.8	16.0	29.5	0.1	41.9	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.8	16.0	29.5	0.1	41.9	13.3
Queue Length 50th (m)	65.7	56.6	30.4	0.0	58.2	8.9
Queue Length 95th (m)	94.0	77.1	48.3	0.0	89.0	22.7
Internal Link Dist (m)	313.1	171.7	108.7		276.5	
Turn Bay Length (m)				15.0		20.0
Base Capacity (vph)	1250	1771	579	597	529	652
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.47	0.32	0.05	0.58	0.21

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	132	630	49	33	715	75	21	164	27	121	185	135
Future Volume (vph)	132	630	49	33	715	75	21	164	27	121	185	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0	6.0		6.0	6.0
Lane Util. Factor		0.95			0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00			1.00			1.00	1.00		1.00	0.98
Flpb, ped/bikes		1.00			1.00			1.00	1.00		1.00	1.00
Frt		0.99			0.99			1.00	0.85		1.00	0.85
Flt Protected		0.99			1.00			0.99	1.00		0.98	1.00
Satd. Flow (prot)		3497			3493			1893	1633		1832	1561
Flt Permitted		0.62			0.89			0.94	1.00		0.73	1.00
Satd. Flow (perm)		2196			3108			1791	1633		1363	1561
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	133	636	49	33	722	76	21	166	27	122	187	136
RTOR Reduction (vph)	0	3	0	0	6	0	0	0	18	0	0	52
Lane Group Flow (vph)	0	815	0	0	825	0	0	187	9	0	309	84
Confl. Peds. (#/hr)	1		3	3		1	2					2
Heavy Vehicles (%)	0%	3%	2%	3%	3%	0%	0%	1%	0%	1%	4%	3%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)		63.3			63.3			36.0	36.0		36.0	36.0
Effective Green, g (s)		63.3			63.3			36.0	36.0		36.0	36.0
Actuated g/C Ratio		0.57			0.57			0.32	0.32		0.32	0.32
Clearance Time (s)		6.0			6.0			6.0	6.0		6.0	6.0
Vehicle Extension (s)		3.0			3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1248			1767			579	528		440	504
v/s Ratio Prot												
v/s Ratio Perm		c0.37			0.27			0.10	0.01		c0.23	0.05
v/c Ratio		0.65			0.47			0.32	0.02		0.70	0.17
Uniform Delay, d1		16.5			14.1			28.4	25.6		33.0	26.9
Progression Factor		1.00			1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2		2.7			0.2			0.3	0.0		5.0	0.2
Delay (s)		19.1			14.3			28.8	25.6		38.0	27.1
Level of Service		B			B			C	C		D	C
Approach Delay (s)		19.1			14.3			28.4			34.6	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	111.3	Sum of lost time (s)	20.0
Intersection Capacity Utilization	133.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

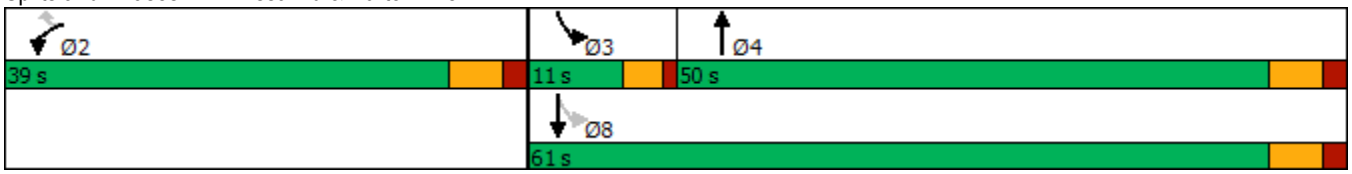


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	333	187	395	312	182	394
Future Volume (vph)	333	187	395	312	182	394
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	35.0		0.0	0.0	
Storage Lanes	1	1		0	0	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor		0.97	0.99			1.00
Frt		0.850	0.934			
Flt Protected	0.950					0.984
Satd. Flow (prot)	1772	1585	3316	0	0	3489
Flt Permitted	0.950					0.600
Satd. Flow (perm)	1772	1542	3316	0	0	2126
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		169	256			
Link Speed (k/h)	48		48			48
Link Distance (m)	133.2		195.7			221.2
Travel Time (s)	10.0		14.7			16.6
Confl. Peds. (#/hr)		9		7	7	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	3%	2%	1%	5%	2%
Adj. Flow (vph)	343	193	407	322	188	406
Shared Lane Traffic (%)						
Lane Group Flow (vph)	343	193	729	0	0	594
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	6.1	6.1	30.5		6.1	30.5
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	6.1	1.8		6.1	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	2		4		3	8
Permitted Phases		2			8	
Detector Phase	2	2	4		3	8
Switch Phase						
Minimum Initial (s)	15.0	15.0	44.0		7.0	44.0
Minimum Split (s)	23.0	23.0	50.0		11.0	50.0
Total Split (s)	39.0	39.0	50.0		11.0	61.0
Total Split (%)	39.0%	39.0%	50.0%		11.0%	61.0%
Maximum Green (s)	33.0	33.0	44.0		7.0	55.0
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.0	2.0	2.0		1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0			0.0
Total Lost Time (s)	6.0	6.0	6.0			6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)	7.0	7.0	33.0			33.0
Flash Dont Walk (s)	10.0	10.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	22.6	22.6	55.3			55.3
Actuated g/C Ratio	0.25	0.25	0.62			0.62
v/c Ratio	0.77	0.38	0.34			0.45
Control Delay	43.3	8.0	6.3			11.7
Queue Delay	0.0	0.0	0.0			0.0
Total Delay	43.3	8.0	6.3			11.7
LOS	D	A	A			B
Approach Delay	30.6		6.3			11.7
Approach LOS	C		A			B

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 89.9			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 15.0		Intersection LOS: B	
Intersection Capacity Utilization 106.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 7: Essa Rd & Burton Ave





Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	343	193	729	594
v/c Ratio	0.77	0.38	0.34	0.45
Control Delay	43.3	8.0	6.3	11.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	43.3	8.0	6.3	11.7
Queue Length 50th (m)	54.8	3.1	17.2	25.7
Queue Length 95th (m)	83.0	18.0	35.2	50.0
Internal Link Dist (m)	109.2		171.7	197.2
Turn Bay Length (m)		35.0		
Base Capacity (vph)	653	675	2137	1306
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.53	0.29	0.34	0.45

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	333	187	395	312	182	394
Future Volume (vph)	333	187	395	312	182	394
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frpb, ped/bikes	1.00	0.97	0.99			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	0.85	0.93			1.00
Flt Protected	0.95	1.00	1.00			0.98
Satd. Flow (prot)	1772	1544	3316			3488
Flt Permitted	0.95	1.00	1.00			0.60
Satd. Flow (perm)	1772	1544	3316			2126
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	343	193	407	322	188	406
RTOR Reduction (vph)	0	126	99	0	0	0
Lane Group Flow (vph)	343	67	630	0	0	594
Confl. Peds. (#/hr)		9		7	7	
Heavy Vehicles (%)	3%	3%	2%	1%	5%	2%
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	2		4		3	8
Permitted Phases		2			8	
Actuated Green, G (s)	22.6	22.6	55.2			55.2
Effective Green, g (s)	22.6	22.6	55.2			55.2
Actuated g/C Ratio	0.25	0.25	0.61			0.61
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	445	388	2038			1306
v/s Ratio Prot	c0.19		0.19			
v/s Ratio Perm		0.04				c0.28
v/c Ratio	0.77	0.17	0.31			0.45
Uniform Delay, d1	31.2	26.3	8.2			9.3
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	8.0	0.2	0.4			0.3
Delay (s)	39.2	26.5	8.6			9.5
Level of Service	D	C	A			A
Approach Delay (s)	34.7		8.6			9.5
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	89.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	106.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø8
Lane Configurations							
Traffic Volume (vph)	5	309	578	9	196	586	
Future Volume (vph)	5	309	578	9	196	586	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95	
Ped Bike Factor	0.98		1.00			1.00	
Frt	0.867		0.998				
Flt Protected	0.999					0.988	
Satd. Flow (prot)	1634	0	3571	0	0	3490	
Flt Permitted	0.999					0.666	
Satd. Flow (perm)	1634	0	3571	0	0	2351	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)	319		2				
Link Speed (k/h)	48		48			48	
Link Distance (m)	165.5		221.2			124.5	
Travel Time (s)	12.4		16.6			9.3	
Confl. Peds. (#/hr)		2		9	9		
Confl. Bikes (#/hr)		2		5			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	
Heavy Vehicles (%)	0%	0%	2%	0%	1%	3%	
Bus Blockages (#/hr)	0	0	0	0	0	4	
Adj. Flow (vph)	5	319	596	9	202	604	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	324	0	605	0	0	806	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Right	Left	Left	
Median Width(m)	3.7		0.0			0.0	
Link Offset(m)	0.0		0.0			0.0	
Crosswalk Width(m)	1.6		1.6			1.6	
Two way Left Turn Lane							
Headway Factor	0.99	0.99	0.99	0.99	0.99	1.00	
Turning Speed (k/h)	24	14		14	24		
Number of Detectors	1		2		1	2	
Detector Template	Left		Thru		Left	Thru	
Leading Detector (m)	6.1		30.5		6.1	30.5	
Trailing Detector (m)	0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0		0.0		0.0	0.0	
Detector 1 Size(m)	6.1		1.8		6.1	1.8	
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)	0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0		0.0		0.0	0.0	
Detector 2 Position(m)			28.7			28.7	
Detector 2 Size(m)			1.8			1.8	
Detector 2 Type			Cl+Ex			Cl+Ex	
Detector 2 Channel							
Detector 2 Extend (s)			0.0			0.0	
Turn Type	pm+pt		NA		pm+pt	NA	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø8
Protected Phases	3		2		1	6	8
Permitted Phases	8				6		
Detector Phase	3		2		1	6	
Switch Phase							
Minimum Initial (s)	10.0		80.0		7.0	80.0	10.0
Minimum Split (s)	27.0		86.0		11.0	86.0	27.0
Total Split (s)	31.0		89.0		11.0	100.0	31.0
Total Split (%)	23.7%		67.9%		8.4%	76.3%	24%
Maximum Green (s)	25.0		83.0		7.0	94.0	25.0
Yellow Time (s)	4.0		4.0		3.0	4.0	4.0
All-Red Time (s)	2.0		2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0			0.0	
Total Lost Time (s)	6.0		6.0			6.0	
Lead/Lag			Lag		Lead		
Lead-Lag Optimize?			Yes		Yes		
Vehicle Extension (s)	3.0		3.0		3.0	3.0	3.0
Recall Mode	None		Max		None	Max	None
Walk Time (s)	10.0		65.0			65.0	10.0
Flash Dont Walk (s)	11.0		15.0			15.0	11.0
Pedestrian Calls (#/hr)	0		0			0	0
Act Effct Green (s)	11.3		94.1			94.1	
Actuated g/C Ratio	0.10		0.80			0.80	
v/c Ratio	0.73		0.21			0.43	
Control Delay	16.0		3.1			4.5	
Queue Delay	0.0		0.0			0.7	
Total Delay	16.0		3.1			5.2	
LOS	B		A			A	
Approach Delay	16.0		3.1			5.2	
Approach LOS	B		A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 131			
Actuated Cycle Length: 117.4			
Natural Cycle: 125			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 6.5		Intersection LOS: A	
Intersection Capacity Utilization 168.0%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 8: Essa Rd & Gowan St





Lane Group	WBL	NBT	SBT
Lane Group Flow (vph)	324	605	806
v/c Ratio	0.73	0.21	0.43
Control Delay	16.0	3.1	4.5
Queue Delay	0.0	0.0	0.7
Total Delay	16.0	3.1	5.2
Queue Length 50th (m)	1.1	12.8	21.7
Queue Length 95th (m)	28.2	23.5	40.5
Internal Link Dist (m)	141.5	197.2	100.5
Turn Bay Length (m)			
Base Capacity (vph)	599	2862	1884
Starvation Cap Reductn	0	0	679
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.54	0.21	0.67

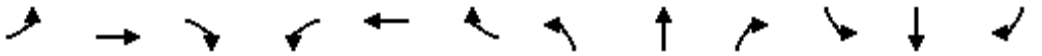
Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	309	578	9	196	586
Future Volume (vph)	5	309	578	9	196	586
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0			6.0
Lane Util. Factor	1.00		0.95			0.95
Frpb, ped/bikes	0.98		1.00			1.00
Flpb, ped/bikes	1.00		1.00			1.00
Frt	0.87		1.00			1.00
Flt Protected	1.00		1.00			0.99
Satd. Flow (prot)	1632		3570			3486
Flt Permitted	1.00		1.00			0.67
Satd. Flow (perm)	1632		3570			2351
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	5	319	596	9	202	604
RTOR Reduction (vph)	288	0	0	0	0	0
Lane Group Flow (vph)	36	0	605	0	0	806
Confl. Peds. (#/hr)		2		9	9	
Confl. Bikes (#/hr)		2		5		
Heavy Vehicles (%)	0%	0%	2%	0%	1%	3%
Bus Blockages (#/hr)	0	0	0	0	0	4
Turn Type	pm+pt		NA		pm+pt	NA
Protected Phases	3		2		1	6
Permitted Phases	8				6	
Actuated Green, G (s)	11.3		94.0			94.0
Effective Green, g (s)	11.3		94.0			94.0
Actuated g/C Ratio	0.10		0.80			0.80
Clearance Time (s)	6.0		6.0			6.0
Vehicle Extension (s)	3.0		3.0			3.0
Lane Grp Cap (vph)	157		2860			1884
v/s Ratio Prot	c0.02		0.17			
v/s Ratio Perm						c0.34
v/c Ratio	0.23		0.21			0.43
Uniform Delay, d1	49.0		2.8			3.5
Progression Factor	1.00		1.00			1.00
Incremental Delay, d2	0.7		0.2			0.2
Delay (s)	49.7		3.0			3.7
Level of Service	D		A			A
Approach Delay (s)	49.7		3.0			3.7
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	117.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	168.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

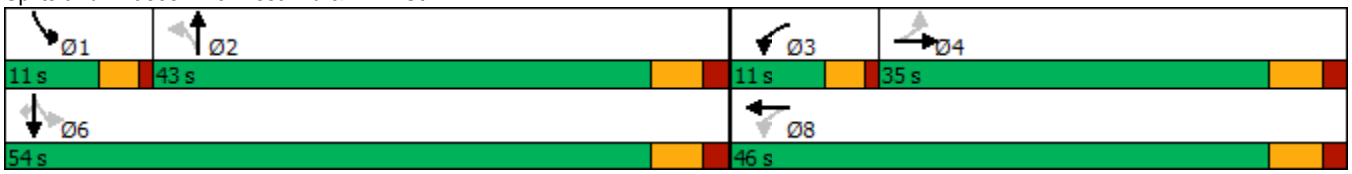


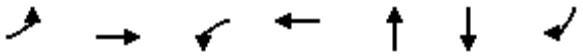
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	389	95	130	230	81	97	594	176	151	573	58
Future Volume (vph)	48	389	95	130	230	81	97	594	176	151	573	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	20.0		0.0	0.0		0.0	25.0		30.0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00
Ped Bike Factor	1.00	1.00			1.00			0.99			1.00	0.97
Frt		0.971			0.961			0.970				0.850
Flt Protected	0.950			0.950				0.994			0.990	
Satd. Flow (prot)	1772	1817	0	1706	1769	0	0	3474	0	0	3557	1601
Flt Permitted	0.566			0.148				0.690			0.562	
Satd. Flow (perm)	1052	1817	0	266	1769	0	0	2411	0	0	2019	1560
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			21			36				76
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		328.8			105.3			124.5			69.7	
Travel Time (s)		24.7			7.9			9.3			5.2	
Confl. Peds. (#/hr)	4		1	1		4	4		7	7		4
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
Heavy Vehicles (%)	3%	1%	8%	7%	1%	12%	0%	1%	0%	0%	2%	2%
Adj. Flow (vph)	49	401	98	134	237	84	100	612	181	156	591	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	49	499	0	134	321	0	0	893	0	0	747	60
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		3	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		34.0	34.0		7.0	34.0	34.0
Minimum Split (s)	31.0	31.0		11.0	31.0		40.0	40.0		11.0	40.0	40.0
Total Split (s)	35.0	35.0		11.0	46.0		43.0	43.0		11.0	54.0	54.0
Total Split (%)	35.0%	35.0%		11.0%	46.0%		43.0%	43.0%		11.0%	54.0%	54.0%
Maximum Green (s)	29.0	29.0		7.0	40.0		37.0	37.0		7.0	48.0	48.0
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	6.0	6.0		4.0	6.0			6.0			6.0	6.0
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max		None	Max		None	None		None	None	None
Walk Time (s)	10.0	10.0			10.0		22.0	22.0			22.0	22.0
Flash Dont Walk (s)	15.0	15.0			15.0		12.0	12.0			12.0	12.0
Pedestrian Calls (#/hr)	0	0			0		0	0			0	0
Act Effct Green (s)	29.1	29.1		42.2	40.2			42.1			42.1	42.1
Actuated g/C Ratio	0.31	0.31		0.45	0.43			0.45			0.45	0.45
v/c Ratio	0.15	0.88		0.59	0.42			0.82			0.83	0.08
Control Delay	27.2	49.7		29.3	20.7			28.6			31.9	2.6
Queue Delay	0.0	0.0		0.0	0.0			1.7			0.0	0.0
Total Delay	27.2	49.7		29.3	20.7			30.3			31.9	2.6
LOS	C	D		C	C			C			C	A
Approach Delay		47.7			23.3			30.3			29.8	
Approach LOS		D			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 94.3			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 32.5		Intersection LOS: C	
Intersection Capacity Utilization 108.5%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 9: Essa Rd & Tiffin St

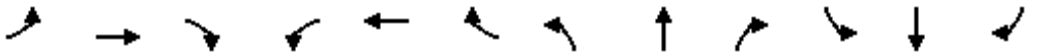




Lane Group	EBL	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	49	499	134	321	893	747	60
v/c Ratio	0.15	0.88	0.59	0.42	0.82	0.83	0.08
Control Delay	27.2	49.7	29.3	20.7	28.6	31.9	2.6
Queue Delay	0.0	0.0	0.0	0.0	1.7	0.0	0.0
Total Delay	27.2	49.7	29.3	20.7	30.3	31.9	2.6
Queue Length 50th (m)	6.7	86.6	14.8	38.6	69.2	60.6	0.0
Queue Length 95th (m)	16.2	#153.0	#30.5	64.8	94.5	85.5	4.6
Internal Link Dist (m)		304.8		81.3	100.5	45.7	
Turn Bay Length (m)	20.0		20.0				30.0
Base Capacity (vph)	324	569	226	765	1112	1032	834
Starvation Cap Reductn	0	0	0	0	97	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.88	0.59	0.42	0.88	0.72	0.07

Intersection Summary

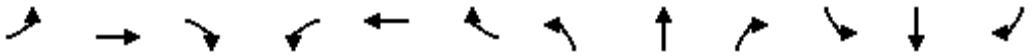
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	389	95	130	230	81	97	594	176	151	573	58
Future Volume (vph)	48	389	95	130	230	81	97	594	176	151	573	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		4.0	6.0			6.0			6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.99			1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Frt	1.00	0.97		1.00	0.96			0.97			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	1.00
Satd. Flow (prot)	1767	1817		1706	1769			3474			3554	1560
Flt Permitted	0.57	1.00		0.15	1.00			0.69			0.56	1.00
Satd. Flow (perm)	1053	1817		266	1769			2409			2020	1560
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)	49	401	98	134	237	84	100	612	181	156	591	60
RTOR Reduction (vph)	0	8	0	0	12	0	0	20	0	0	0	33
Lane Group Flow (vph)	49	491	0	134	309	0	0	873	0	0	747	27
Confl. Peds. (#/hr)	4		1	1		4	4		7	7		4
Heavy Vehicles (%)	3%	1%	8%	7%	1%	12%	0%	1%	0%	0%	2%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	29.2	29.2		40.2	40.2			42.1			42.1	42.1
Effective Green, g (s)	29.2	29.2		40.2	40.2			42.1			42.1	42.1
Actuated g/C Ratio	0.31	0.31		0.43	0.43			0.45			0.45	0.45
Clearance Time (s)	6.0	6.0		4.0	6.0			6.0			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	326	562		220	754			1075			901	696
v/s Ratio Prot		c0.27		c0.05	0.17							
v/s Ratio Perm	0.05			0.21				0.36			c0.37	0.02
v/c Ratio	0.15	0.87		0.61	0.41			0.81			0.83	0.04
Uniform Delay, d1	23.6	30.8		20.2	18.8			22.7			22.9	14.7
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	1.0	17.0		4.7	1.6			4.8			6.4	0.0
Delay (s)	24.5	47.8		24.9	20.5			27.4			29.3	14.7
Level of Service	C	D		C	C			C			C	B
Approach Delay (s)		45.7			21.8			27.4			28.2	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	30.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	94.3	Sum of lost time (s)	20.0
Intersection Capacity Utilization	108.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

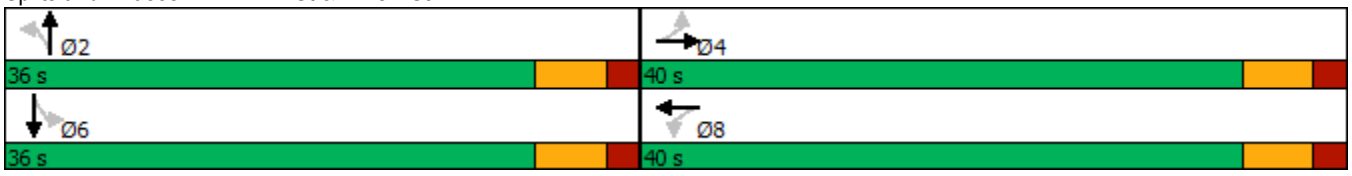


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	408	96	9	355	22	137	229	25	22	169	42
Future Volume (vph)	38	408	96	9	355	22	137	229	25	22	169	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	20.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00			1.00			1.00	
Frt		0.971			0.991			0.991			0.976	
Flt Protected	0.950			0.950				0.983			0.995	
Satd. Flow (prot)	1825	1739	0	1825	1822	0	0	1801	0	0	1802	0
Flt Permitted	0.448			0.325				0.767			0.943	
Satd. Flow (perm)	859	1739	0	624	1822	0	0	1404	0	0	1707	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			5			5			17	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		274.0			328.8			111.6			76.6	
Travel Time (s)		20.6			24.7			8.4			5.7	
Confl. Peds. (#/hr)	2					2	2		1	1		2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	8%	4%	0%	4%	10%	4%	4%	0%	6%	2%	6%
Bus Blockages (#/hr)	0	0	1	0	0	1	0	0	1	0	0	1
Adj. Flow (vph)	41	443	104	10	386	24	149	249	27	24	184	46
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	547	0	10	410	0	0	425	0	0	254	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane								Yes				
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	34.0	34.0		34.0	34.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		26.0	26.0		26.0	26.0	
Total Split (s)	40.0	40.0		40.0	40.0		36.0	36.0		36.0	36.0	
Total Split (%)	52.6%	52.6%		52.6%	52.6%		47.4%	47.4%		47.4%	47.4%	
Maximum Green (s)	34.0	34.0		34.0	34.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	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	
Total Lost Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		Min	Min		Min	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	34.2	34.2		34.2	34.2			24.7			24.7	
Actuated g/C Ratio	0.48	0.48		0.48	0.48			0.35			0.35	
v/c Ratio	0.10	0.65		0.03	0.47			0.86			0.42	
Control Delay	12.6	18.9		12.2	15.5			40.1			18.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	12.6	18.9		12.2	15.5			40.1			18.3	
LOS	B	B		B	B			D			B	
Approach Delay		18.5			15.4			40.1			18.3	
Approach LOS		B			B			D			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 76			
Actuated Cycle Length: 71			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 23.1		Intersection LOS: C	
Intersection Capacity Utilization 80.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: Tiffin St & Innisfil St

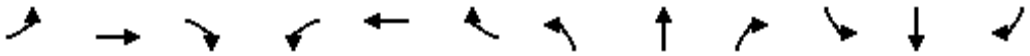




Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	41	547	10	410	425	254
v/c Ratio	0.10	0.65	0.03	0.47	0.86	0.42
Control Delay	12.6	18.9	12.2	15.5	40.1	18.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.6	18.9	12.2	15.5	40.1	18.3
Queue Length 50th (m)	3.0	53.0	0.7	36.3	50.8	23.3
Queue Length 95th (m)	8.8	92.9	3.3	63.2	#95.2	40.7
Internal Link Dist (m)		250.0		304.8	87.6	52.6
Turn Bay Length (m)	20.0		20.0			
Base Capacity (vph)	414	848	301	880	599	735
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.65	0.03	0.47	0.71	0.35

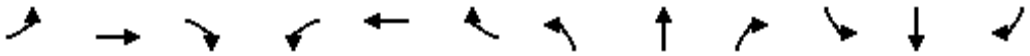
Intersection Summary

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



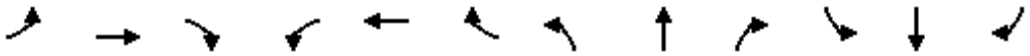
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	408	96	9	355	22	137	229	25	22	169	42
Future Volume (vph)	38	408	96	9	355	22	137	229	25	22	169	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.97		1.00	0.99			0.99			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.98			1.00	
Satd. Flow (prot)	1822	1740		1825	1822			1800			1801	
Flt Permitted	0.45	1.00		0.33	1.00			0.77			0.94	
Satd. Flow (perm)	859	1740		624	1822			1405			1707	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	41	443	104	10	386	24	149	249	27	24	184	46
RTOR Reduction (vph)	0	10	0	0	3	0	0	3	0	0	11	0
Lane Group Flow (vph)	41	537	0	10	407	0	0	422	0	0	243	0
Confl. Peds. (#/hr)	2					2	2		1	1		2
Heavy Vehicles (%)	0%	8%	4%	0%	4%	10%	4%	4%	0%	6%	2%	6%
Bus Blockages (#/hr)	0	0	1	0	0	1	0	0	1	0	0	1
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	34.2	34.2		34.2	34.2			24.7			24.7	
Effective Green, g (s)	34.2	34.2		34.2	34.2			24.7			24.7	
Actuated g/C Ratio	0.48	0.48		0.48	0.48			0.35			0.35	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	414	839		300	878			489			594	
v/s Ratio Prot		c0.31			0.22							
v/s Ratio Perm	0.05			0.02				c0.30			0.14	
v/c Ratio	0.10	0.64		0.03	0.46			0.86			0.41	
Uniform Delay, d1	10.0	13.7		9.7	12.2			21.5			17.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.5	3.7		0.2	1.8			14.5			0.5	
Delay (s)	10.5	17.5		9.9	14.0			36.0			18.0	
Level of Service	B	B		A	B			D			B	
Approach Delay (s)		17.0			13.9			36.0			18.0	
Approach LOS		B			B			D			B	

Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	70.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	0	39	40	0	66	48	281	13	22	236	15
Future Volume (vph)	39	0	39	40	0	66	48	281	13	22	236	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	50.0		0.0	15.0		15.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.932			0.915			0.993			0.991	
Flt Protected		0.976			0.982		0.950			0.950		
Satd. Flow (prot)	0	1748	0	0	1692	0	1706	1803	0	1789	1801	0
Flt Permitted		0.976			0.982		0.950			0.950		
Satd. Flow (perm)	0	1748	0	0	1692	0	1706	1803	0	1789	1801	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		130.3			112.4			115.2			111.6	
Travel Time (s)		9.8			8.4			8.6			8.4	
Confl. Peds. (#/hr)	1						6					6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	0%	2%	2%	2%	7%	6%	2%	2%	4%	33%
Adj. Flow (vph)	42	0	42	43	0	72	52	305	14	24	257	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	84	0	0	115	0	52	319	0	24	273	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	

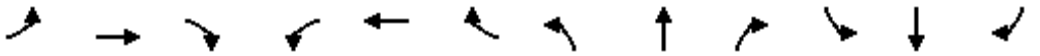
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.1%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	0	39	40	0	66	48	281	13	22	236	15
Future Volume (Veh/h)	39	0	39	40	0	66	48	281	13	22	236	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	42	0	42	43	0	72	52	305	14	24	257	16
Pedestrians		6									1	
Lane Width (m)		3.7									3.7	
Walking Speed (m/s)		1.1									1.1	
Percent Blockage		1									0	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)								301			112	
pX, platoon unblocked	0.96	0.96	0.96	0.96	0.96		0.96					
vC, conflicting volume	801	742	271	763	743	313	279			319		
vC1, stage 1 conf vol	319	319		416	416							
vC2, stage 2 conf vol	482	423		347	327							
vCu, unblocked vol	773	711	222	733	713	313	230			319		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	90	100	95	91	100	90	96			98		
cM capacity (veh/h)	429	481	787	475	479	727	1251			1241		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	84	115	52	319	24	273
Volume Left	42	43	52	0	24	0
Volume Right	42	72	0	14	0	16
cSH	555	606	1251	1700	1241	1700
Volume to Capacity	0.15	0.19	0.04	0.19	0.02	0.16
Queue Length 95th (m)	4.0	5.3	1.0	0.0	0.4	0.0
Control Delay (s)	12.6	12.3	8.0	0.0	8.0	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	12.6	12.3	1.1		0.6	
Approach LOS	B	B				

Intersection Summary				
Average Delay	3.6			
Intersection Capacity Utilization	36.1%	ICU Level of Service		A
Analysis Period (min)	15			

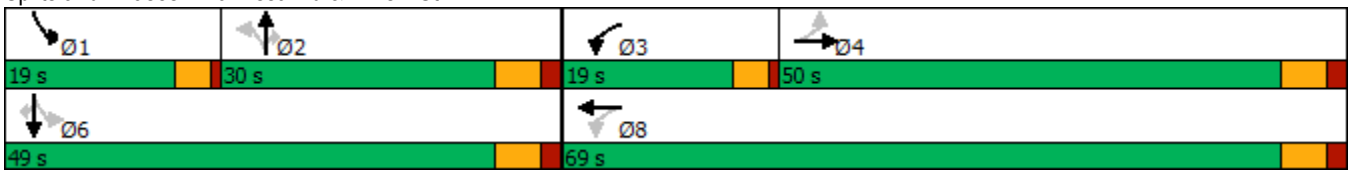


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	517	32	14	465	64	23	95	27	52	118	128
Future Volume (vph)	75	517	32	14	465	64	23	95	27	52	118	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		15.0	0.0		20.0
Storage Lanes	0		0	0		0	0		1	0		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00				0.99		1.00	
Frt		0.992			0.982				0.850			0.850
Flt Protected		0.994			0.999			0.990			0.985	
Satd. Flow (prot)	0	3446	0	0	3412	0	0	1811	1570	0	1830	1633
Flt Permitted		0.795			0.932			0.914			0.860	
Satd. Flow (perm)	0	2756	0	0	3183	0	0	1672	1548	0	1597	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			19				102			131
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		337.1			195.7			132.7			185.3	
Travel Time (s)		25.3			14.7			10.0			13.9	
Confl. Peds. (#/hr)	1					1			1	1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	4%	3%	7%	5%	2%	5%	5%	4%	2%	4%	0%
Adj. Flow (vph)	82	562	35	15	505	70	25	103	29	57	128	139
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	679	0	0	590	0	0	128	29	0	185	139
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane											Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	44.0	44.0		7.0	44.0		24.0	24.0	24.0	5.0	24.0	24.0
Minimum Split (s)	50.0	50.0		11.0	50.0		30.0	30.0	30.0	9.0	30.0	30.0
Total Split (s)	50.0	50.0		19.0	69.0		30.0	30.0	30.0	19.0	49.0	49.0
Total Split (%)	42.4%	42.4%		16.1%	58.5%		25.4%	25.4%	25.4%	16.1%	41.5%	41.5%
Maximum Green (s)	44.0	44.0		15.0	63.0		24.0	24.0	24.0	15.0	43.0	43.0
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)		6.0			6.0			6.0	6.0		6.0	6.0
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	32.0	32.0			32.0		7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	12.0	12.0			12.0		11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0		0	0
Act Effct Green (s)		63.0			63.0			24.0	24.0		24.0	24.0
Actuated g/C Ratio		0.64			0.64			0.24	0.24		0.24	0.24
v/c Ratio		0.39			0.29			0.32	0.06		0.48	0.28
Control Delay		9.4			8.2			33.4	0.3		37.0	8.0
Queue Delay		0.0			0.0			0.0	0.0		0.0	0.0
Total Delay		9.4			8.2			33.4	0.3		37.0	8.0
LOS		A			A			C	A		D	A
Approach Delay		9.4			8.2			27.3			24.6	
Approach LOS		A			A			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 118			
Actuated Cycle Length: 99			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.48			
Intersection Signal Delay: 13.4		Intersection LOS: B	
Intersection Capacity Utilization 104.4%		ICU Level of Service G	
Analysis Period (min) 15			

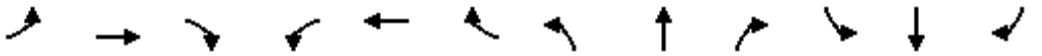
Splits and Phases: 6: Essa Rd & Innisfil St





Lane Group	EBT	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	679	590	128	29	185	139
v/c Ratio	0.39	0.29	0.32	0.06	0.48	0.28
Control Delay	9.4	8.2	33.4	0.3	37.0	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.4	8.2	33.4	0.3	37.0	8.0
Queue Length 50th (m)	29.7	23.2	20.2	0.0	30.5	1.2
Queue Length 95th (m)	40.2	31.6	36.2	0.0	51.2	15.4
Internal Link Dist (m)	313.1	171.7	108.7		161.3	
Turn Bay Length (m)				15.0		20.0
Base Capacity (vph)	1755	2032	405	452	693	783
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.29	0.32	0.06	0.27	0.18

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	517	32	14	465	64	23	95	27	52	118	128
Future Volume (vph)	75	517	32	14	465	64	23	95	27	52	118	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0	6.0		6.0	6.0
Lane Util. Factor		0.95			0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00			1.00			1.00	0.99		1.00	1.00
Flpb, ped/bikes		1.00			1.00			1.00	1.00		1.00	1.00
Frt		0.99			0.98			1.00	0.85		1.00	0.85
Flt Protected		0.99			1.00			0.99	1.00		0.98	1.00
Satd. Flow (prot)		3447			3411			1812	1549		1829	1633
Flt Permitted		0.80			0.93			0.91	1.00		0.86	1.00
Satd. Flow (perm)		2758			3184			1672	1549		1597	1633
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	562	35	15	505	70	25	103	29	57	128	139
RTOR Reduction (vph)	0	2	0	0	7	0	0	0	22	0	0	99
Lane Group Flow (vph)	0	677	0	0	583	0	0	128	7	0	185	40
Confl. Peds. (#/hr)	1					1			1	1		
Heavy Vehicles (%)	8%	4%	3%	7%	5%	2%	5%	5%	4%	2%	4%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)		63.0			63.0			24.0	24.0		24.0	24.0
Effective Green, g (s)		63.0			63.0			24.0	24.0		24.0	24.0
Actuated g/C Ratio		0.64			0.64			0.24	0.24		0.24	0.24
Clearance Time (s)		6.0			6.0			6.0	6.0		6.0	6.0
Vehicle Extension (s)		3.0			3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1755			2026			405	375		387	395
v/s Ratio Prot												
v/s Ratio Perm		c0.25			0.18			0.08	0.00		c0.12	0.02
v/c Ratio		0.39			0.29			0.32	0.02		0.48	0.10
Uniform Delay, d1		8.7			8.0			30.8	28.5		32.1	29.1
Progression Factor		1.00			1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2		0.6			0.1			0.5	0.0		0.9	0.1
Delay (s)		9.3			8.1			31.2	28.6		33.1	29.2
Level of Service		A			A			C	C		C	C
Approach Delay (s)		9.3			8.1			30.7			31.4	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	99.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	104.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

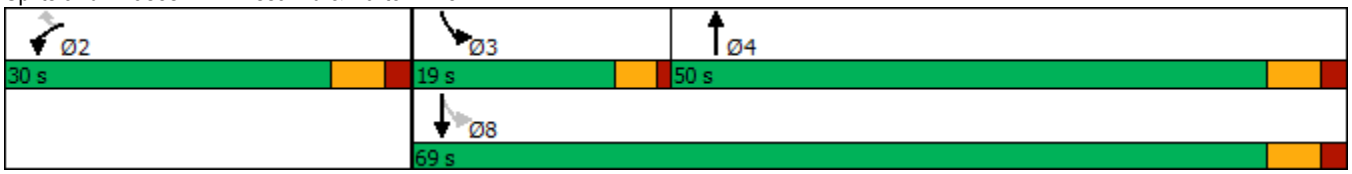


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	243	116	397	215	135	331
Future Volume (vph)	243	116	397	215	135	331
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	35.0		0.0	0.0	
Storage Lanes	1	1		0	0	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor		0.99	0.99			1.00
Frt		0.850	0.947			
Flt Protected	0.950					0.986
Satd. Flow (prot)	1738	1498	3305	0	0	3376
Flt Permitted	0.950					0.633
Satd. Flow (perm)	1738	1478	3305	0	0	2166
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		126	131			
Link Speed (k/h)	48		48			48
Link Distance (m)	133.2		195.7			153.8
Travel Time (s)	10.0		14.7			11.5
Confl. Peds. (#/hr)		1		4	4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	9%	3%	5%	13%	4%
Adj. Flow (vph)	264	126	432	234	147	360
Shared Lane Traffic (%)						
Lane Group Flow (vph)	264	126	666	0	0	507
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	6.1	6.1	30.5		6.1	30.5
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	6.1	1.8		6.1	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	2		4		3	8
Permitted Phases		2			8	
Detector Phase	2	2	4		3	8
Switch Phase						
Minimum Initial (s)	15.0	15.0	44.0		7.0	44.0
Minimum Split (s)	23.0	23.0	50.0		11.0	50.0
Total Split (s)	30.0	30.0	50.0		19.0	69.0
Total Split (%)	30.3%	30.3%	50.5%		19.2%	69.7%
Maximum Green (s)	24.0	24.0	44.0		15.0	63.0
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.0	2.0	2.0		1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0			0.0
Total Lost Time (s)	6.0	6.0	6.0			6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)	7.0	7.0	33.0			33.0
Flash Dont Walk (s)	10.0	10.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	19.3	19.3	63.1			63.1
Actuated g/C Ratio	0.20	0.20	0.67			0.67
v/c Ratio	0.74	0.31	0.30			0.35
Control Delay	48.6	8.0	5.8			8.1
Queue Delay	0.0	0.0	0.0			0.0
Total Delay	48.6	8.0	5.8			8.1
LOS	D	A	A			A
Approach Delay	35.5		5.8			8.1
Approach LOS	D		A			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 99			
Actuated Cycle Length: 94.4			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 13.9		Intersection LOS: B	
Intersection Capacity Utilization 101.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 7: Essa Rd & Burton Ave





Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	264	126	666	507
v/c Ratio	0.74	0.31	0.30	0.35
Control Delay	48.6	8.0	5.8	8.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	48.6	8.0	5.8	8.1
Queue Length 50th (m)	45.3	0.0	18.0	18.6
Queue Length 95th (m)	71.5	13.5	29.9	31.4
Internal Link Dist (m)	109.2		171.7	129.8
Turn Bay Length (m)		35.0		
Base Capacity (vph)	442	470	2251	1447
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.60	0.27	0.30	0.35

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	243	116	397	215	135	331
Future Volume (vph)	243	116	397	215	135	331
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frpb, ped/bikes	1.00	0.99	0.99			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	0.85	0.95			1.00
Flt Protected	0.95	1.00	1.00			0.99
Satd. Flow (prot)	1738	1478	3306			3373
Flt Permitted	0.95	1.00	1.00			0.63
Satd. Flow (perm)	1738	1478	3306			2165
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	264	126	432	234	147	360
RTOR Reduction (vph)	0	100	43	0	0	0
Lane Group Flow (vph)	264	26	623	0	0	507
Confl. Peds. (#/hr)		1		4	4	
Heavy Vehicles (%)	5%	9%	3%	5%	13%	4%
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	2		4		3	8
Permitted Phases		2			8	
Actuated Green, G (s)	19.3	19.3	63.1			63.1
Effective Green, g (s)	19.3	19.3	63.1			63.1
Actuated g/C Ratio	0.20	0.20	0.67			0.67
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	355	302	2209			1447
v/s Ratio Prot	c0.15		0.19			
v/s Ratio Perm		0.02				c0.23
v/c Ratio	0.74	0.09	0.28			0.35
Uniform Delay, d1	35.2	30.4	6.4			6.8
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	8.2	0.1	0.3			0.1
Delay (s)	43.4	30.5	6.7			6.9
Level of Service	D	C	A			A
Approach Delay (s)	39.3		6.7			6.9
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	94.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	101.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



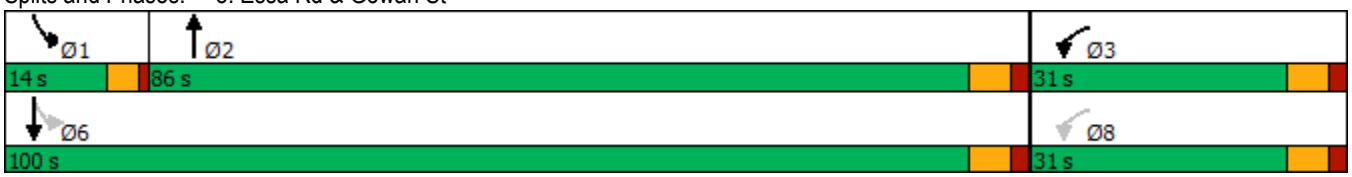
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø8
Lane Configurations							
Traffic Volume (vph)	2	196	495	3	110	388	
Future Volume (vph)	2	196	495	3	110	388	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95	
Ped Bike Factor	0.99		1.00				
Frt	0.866		0.999				
Flt Protected						0.989	
Satd. Flow (prot)	1601	0	3507	0	0	3382	
Flt Permitted						0.712	
Satd. Flow (perm)	1601	0	3507	0	0	2435	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)	213		1				
Link Speed (k/h)	48		48			48	
Link Distance (m)	165.5		67.4			124.5	
Travel Time (s)	12.4		5.1			9.3	
Confl. Bikes (#/hr)		2		5			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	50%	2%	4%	0%	2%	7%	
Bus Blockages (#/hr)	0	0	0	0	0	4	
Adj. Flow (vph)	2	213	538	3	120	422	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	215	0	541	0	0	542	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Right	Left	Left	
Median Width(m)	3.7		0.0			0.0	
Link Offset(m)	0.0		0.0			0.0	
Crosswalk Width(m)	1.6		1.6			1.6	
Two way Left Turn Lane							
Headway Factor	0.99	0.99	0.99	0.99	0.99	1.00	
Turning Speed (k/h)	24	14		14	24		
Number of Detectors	1		2		1	2	
Detector Template	Left		Thru		Left	Thru	
Leading Detector (m)	6.1		30.5		6.1	30.5	
Trailing Detector (m)	0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0		0.0		0.0	0.0	
Detector 1 Size(m)	6.1		1.8		6.1	1.8	
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)	0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0		0.0		0.0	0.0	
Detector 2 Position(m)			28.7			28.7	
Detector 2 Size(m)			1.8			1.8	
Detector 2 Type			Cl+Ex			Cl+Ex	
Detector 2 Channel							
Detector 2 Extend (s)			0.0			0.0	
Turn Type	pm+pt		NA		pm+pt	NA	
Protected Phases	3		2		1	6	8



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø8
Permitted Phases	8				6		
Detector Phase	3		2		1	6	
Switch Phase							
Minimum Initial (s)	10.0		80.0		7.0	80.0	10.0
Minimum Split (s)	27.0		86.0		11.0	86.0	27.0
Total Split (s)	31.0		86.0		14.0	100.0	31.0
Total Split (%)	23.7%		65.6%		10.7%	76.3%	24%
Maximum Green (s)	25.0		80.0		10.0	94.0	25.0
Yellow Time (s)	4.0		4.0		3.0	4.0	4.0
All-Red Time (s)	2.0		2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0			0.0	
Total Lost Time (s)	6.0		6.0			6.0	
Lead/Lag			Lag		Lead		
Lead-Lag Optimize?			Yes		Yes		
Vehicle Extension (s)	3.0		3.0		3.0	3.0	3.0
Recall Mode	None		Max		None	Max	None
Walk Time (s)	10.0		65.0			65.0	10.0
Flash Dont Walk (s)	11.0		15.0			15.0	11.0
Pedestrian Calls (#/hr)	0		0			0	0
Act Effct Green (s)	10.7		94.0			94.0	
Actuated g/C Ratio	0.09		0.80			0.80	
v/c Ratio	0.63		0.19			0.28	
Control Delay	15.8		2.9			3.3	
Queue Delay	0.0		0.0			0.4	
Total Delay	15.8		2.9			3.7	
LOS	B		A			A	
Approach Delay	15.8		2.9			3.7	
Approach LOS	B		A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 131			
Actuated Cycle Length: 116.8			
Natural Cycle: 125			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 5.4		Intersection LOS: A	
Intersection Capacity Utilization 114.5%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 8: Essa Rd & Gowan St



Lane Group	WBL	NBT	SBT
Lane Group Flow (vph)	215	541	542
v/c Ratio	0.63	0.19	0.28
Control Delay	15.8	2.9	3.3
Queue Delay	0.0	0.0	0.4
Total Delay	15.8	2.9	3.7
Queue Length 50th (m)	0.4	11.3	12.3
Queue Length 95th (m)	22.7	18.4	20.6
Internal Link Dist (m)	141.5	43.4	100.5
Turn Bay Length (m)			
Base Capacity (vph)	510	2824	1960
Starvation Cap Reductn	0	0	873
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.42	0.19	0.50

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	2	196	495	3	110	388
Future Volume (vph)	2	196	495	3	110	388
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0			6.0
Lane Util. Factor	1.00		0.95			0.95
Frpb, ped/bikes	0.98		1.00			1.00
Flpb, ped/bikes	1.00		1.00			1.00
Frt	0.87		1.00			1.00
Flt Protected	1.00		1.00			0.99
Satd. Flow (prot)	1597		3507			3382
Flt Permitted	1.00		1.00			0.71
Satd. Flow (perm)	1597		3507			2434
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	213	538	3	120	422
RTOR Reduction (vph)	193	0	0	0	0	0
Lane Group Flow (vph)	22	0	541	0	0	542
Confl. Bikes (#/hr)		2		5		
Heavy Vehicles (%)	50%	2%	4%	0%	2%	7%
Bus Blockages (#/hr)	0	0	0	0	0	4
Turn Type	pm+pt		NA		pm+pt	NA
Protected Phases	3		2		1	6
Permitted Phases	8				6	
Actuated Green, G (s)	10.7		94.0			94.0
Effective Green, g (s)	10.7		94.0			94.0
Actuated g/C Ratio	0.09		0.81			0.81
Clearance Time (s)	6.0		6.0			6.0
Vehicle Extension (s)	3.0		3.0			3.0
Lane Grp Cap (vph)	146		2824			1960
v/s Ratio Prot	c0.01		0.15			
v/s Ratio Perm						c0.22
v/c Ratio	0.15		0.19			0.28
Uniform Delay, d1	48.8		2.6			2.8
Progression Factor	1.00		1.00			1.00
Incremental Delay, d2	0.5		0.2			0.1
Delay (s)	49.3		2.8			2.9
Level of Service	D		A			A
Approach Delay (s)	49.3		2.8			2.9
Approach LOS	D		A			A

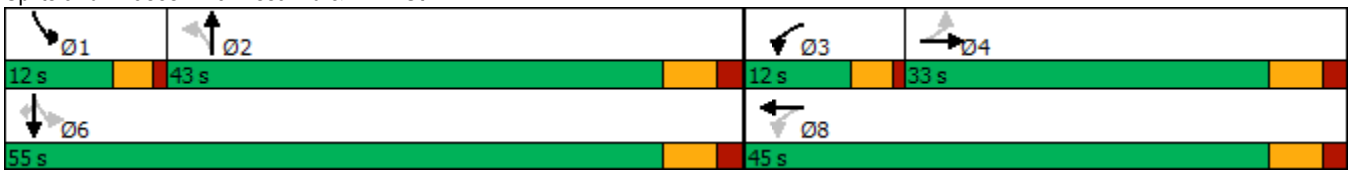
Intersection Summary			
HCM 2000 Control Delay	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	116.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	114.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

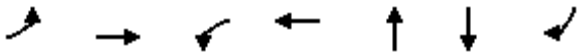
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	234	69	108	262	143	63	494	100	38	352	27
Future Volume (vph)	69	234	69	108	262	143	63	494	100	38	352	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	20.0		0.0	0.0		0.0	25.0		30.0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00			1.00			1.00	0.98
Frt		0.966			0.947			0.977				0.850
Flt Protected	0.950			0.950				0.995			0.995	
Satd. Flow (prot)	1825	1771	0	1706	1746	0	0	3417	0	0	3445	1633
Flt Permitted	0.509			0.370				0.856			0.832	
Satd. Flow (perm)	977	1771	0	664	1746	0	0	2939	0	0	2880	1596
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			32			23				76
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		328.8			105.3			124.5			69.7	
Travel Time (s)		24.7			7.9			9.3			5.2	
Confl. Peds. (#/hr)	1		2	2		1	2		6	6		2
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	4%	6%	7%	3%	5%	4%	3%	5%	0%	6%	0%
Adj. Flow (vph)	74	252	74	116	282	154	68	531	108	41	378	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	326	0	116	436	0	0	707	0	0	419	29
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		3	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		34.0	34.0		7.0	34.0	34.0
Minimum Split (s)	31.0	31.0		11.0	31.0		40.0	40.0		11.0	40.0	40.0
Total Split (s)	33.0	33.0		12.0	45.0		43.0	43.0		12.0	55.0	55.0
Total Split (%)	33.0%	33.0%		12.0%	45.0%		43.0%	43.0%		12.0%	55.0%	55.0%
Maximum Green (s)	27.0	27.0		8.0	39.0		37.0	37.0		8.0	49.0	49.0
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	6.0	6.0		4.0	6.0			6.0			6.0	6.0
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max		None	Max		None	None		None	None	None
Walk Time (s)	10.0	10.0			10.0		22.0	22.0			22.0	22.0
Flash Dont Walk (s)	15.0	15.0			15.0		12.0	12.0			12.0	12.0
Pedestrian Calls (#/hr)	0	0			0		0	0			0	0
Act Effct Green (s)	27.3	27.3		41.0	39.0			34.0			34.0	34.0
Actuated g/C Ratio	0.32	0.32		0.48	0.46			0.40			0.40	0.40
v/c Ratio	0.24	0.56		0.28	0.53			0.59			0.36	0.04
Control Delay	24.0	27.5		14.2	18.1			21.9			19.1	0.1
Queue Delay	0.0	0.0		0.0	0.0			0.1			0.0	0.0
Total Delay	24.0	27.5		14.2	18.1			22.0			19.1	0.1
LOS	C	C		B	B			C			B	A
Approach Delay		26.9			17.3			22.0			17.8	
Approach LOS		C			B			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 85			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 20.8		Intersection LOS: C	
Intersection Capacity Utilization 107.5%		ICU Level of Service G	
Analysis Period (min) 15			

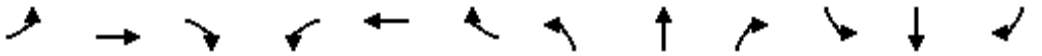
Splits and Phases: 9: Essa Rd & Tiffin St





Lane Group	EBL	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	74	326	116	436	707	419	29
v/c Ratio	0.24	0.56	0.28	0.53	0.59	0.36	0.04
Control Delay	24.0	27.5	14.2	18.1	21.9	19.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	24.0	27.5	14.2	18.1	22.0	19.1	0.1
Queue Length 50th (m)	8.8	41.8	10.0	44.9	44.8	24.5	0.0
Queue Length 95th (m)	19.3	67.4	19.0	71.3	62.2	35.8	0.2
Internal Link Dist (m)		304.8		81.3	100.5	45.7	
Turn Bay Length (m)	20.0		20.0				30.0
Base Capacity (vph)	313	577	418	818	1292	1660	952
Starvation Cap Reductn	0	0	0	0	55	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.56	0.28	0.53	0.57	0.25	0.03

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	234	69	108	262	143	63	494	100	38	352	27
Future Volume (vph)	69	234	69	108	262	143	63	494	100	38	352	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		4.0	6.0			6.0			6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Frt	1.00	0.97		1.00	0.95			0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			1.00			1.00	1.00
Satd. Flow (prot)	1824	1771		1705	1746			3418			3445	1596
Flt Permitted	0.51	1.00		0.37	1.00			0.86			0.83	1.00
Satd. Flow (perm)	978	1771		664	1746			2941			2879	1596
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	74	252	74	116	282	154	68	531	108	41	378	29
RTOR Reduction (vph)	0	10	0	0	17	0	0	14	0	0	0	17
Lane Group Flow (vph)	74	316	0	116	419	0	0	693	0	0	419	12
Confl. Peds. (#/hr)	1		2	2		1	2		6	6		2
Heavy Vehicles (%)	0%	4%	6%	7%	3%	5%	4%	3%	5%	0%	6%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	27.3	27.3		39.0	39.0			34.0			34.0	34.0
Effective Green, g (s)	27.3	27.3		39.0	39.0			34.0			34.0	34.0
Actuated g/C Ratio	0.32	0.32		0.46	0.46			0.40			0.40	0.40
Clearance Time (s)	6.0	6.0		4.0	6.0			6.0			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	314	568		398	801			1176			1151	638
v/s Ratio Prot		0.18		0.03	c0.24							
v/s Ratio Perm	0.08			0.11				c0.24			0.15	0.01
v/c Ratio	0.24	0.56		0.29	0.52			0.59			0.36	0.02
Uniform Delay, d1	21.2	23.9		14.1	16.4			20.0			17.9	15.4
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	1.8	3.9		0.4	2.4			0.8			0.2	0.0
Delay (s)	22.9	27.8		14.5	18.8			20.8			18.1	15.4
Level of Service	C	C		B	B			C			B	B
Approach Delay (s)		26.9			17.9			20.8			17.9	
Approach LOS		C			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	107.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	40	27	329	13	9	315
Future Volume (vph)	40	27	329	13	9	315
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	15.0	
Storage Lanes	1	0		0	1	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.946		0.995			
Flt Protected	0.971				0.950	
Satd. Flow (prot)	1730	0	1874	0	1789	1883
Flt Permitted	0.971				0.950	
Satd. Flow (perm)	1730	0	1874	0	1789	1883
Link Speed (k/h)	48		48			48
Link Distance (m)	34.7		185.3			115.2
Travel Time (s)	2.6		13.9			8.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	29	358	14	10	342
Shared Lane Traffic (%)						
Lane Group Flow (vph)	72	0	372	0	10	342
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane			Yes			Yes
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

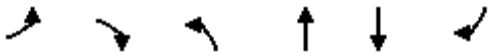
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	40	27	329	13	9	315
Future Volume (Veh/h)	40	27	329	13	9	315
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	29	358	14	10	342
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			185			227
pX, platoon unblocked	0.99	0.99			0.99	
vC, conflicting volume	727	365			372	
vC1, stage 1 conf vol	365					
vC2, stage 2 conf vol	362					
vCu, unblocked vol	721	356			363	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	96			99	
cM capacity (veh/h)	582	683			1186	

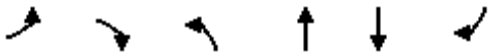
Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	72	372	10	342
Volume Left	43	0	10	0
Volume Right	29	14	0	0
cSH	619	1700	1186	1700
Volume to Capacity	0.12	0.22	0.01	0.20
Queue Length 95th (m)	3.0	0.0	0.2	0.0
Control Delay (s)	11.6	0.0	8.1	0.0
Lane LOS	B		A	
Approach Delay (s)	11.6	0.0	0.2	
Approach LOS	B			

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	28.6%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	13	80	26	495	388	4
Future Volume (vph)	13	80	26	495	388	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Frt	0.884				0.999	
Flt Protected	0.993			0.998		
Satd. Flow (prot)	1653	0	0	3571	3575	0
Flt Permitted	0.993			0.998		
Satd. Flow (perm)	1653	0	0	3571	3575	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	63.3			153.8	67.4	
Travel Time (s)	4.7			11.5	5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	14	87	28	538	422	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	101	0	0	566	426	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 40.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	13	80	26	495	388	4
Future Volume (Veh/h)	13	80	26	495	388	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	87	28	538	422	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				154	67	
pX, platoon unblocked	0.98	0.98	0.98			
vC, conflicting volume	749	213	426			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	706	159	376			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	90	98			
cM capacity (veh/h)	355	841	1156			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	101	207	359	281	145
Volume Left	14	28	0	0	0
Volume Right	87	0	0	0	4
cSH	707	1156	1700	1700	1700
Volume to Capacity	0.14	0.02	0.21	0.17	0.09
Queue Length 95th (m)	3.8	0.6	0.0	0.0	0.0
Control Delay (s)	10.9	1.3	0.0	0.0	0.0
Lane LOS	B	A			
Approach Delay (s)	10.9	0.5		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	40.9%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	35	30	0	106	93
Future Volume (vph)	0	35	30	0	106	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.937	
Flt Protected				0.950	0.974	
Satd. Flow (prot)	1629	0	0	1789	1719	0
Flt Permitted				0.950	0.974	
Satd. Flow (perm)	1629	0	0	1789	1719	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	112.4			49.3	29.1	
Travel Time (s)	8.4			3.7	2.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	38	33	0	115	101
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	0	0	33	216	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

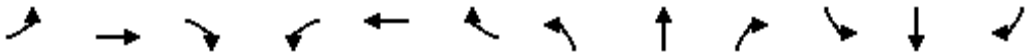
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	35	30	0	106	93
Future Volume (Veh/h)	0	35	30	0	106	93
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	38	33	0	115	101
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			38		85	19
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			38		85	19
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		87	90
cM capacity (veh/h)			1572		897	1059

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	38	33	216
Volume Left	0	33	115
Volume Right	38	0	101
cSH	1700	1572	966
Volume to Capacity	0.02	0.02	0.22
Queue Length 95th (m)	0.0	0.5	6.5
Control Delay (s)	0.0	7.3	9.8
Lane LOS		A	A
Approach Delay (s)	0.0	7.3	9.8
Approach LOS			A

Intersection Summary			
Average Delay		8.2	
Intersection Capacity Utilization		26.6%	ICU Level of Service A
Analysis Period (min)		15	

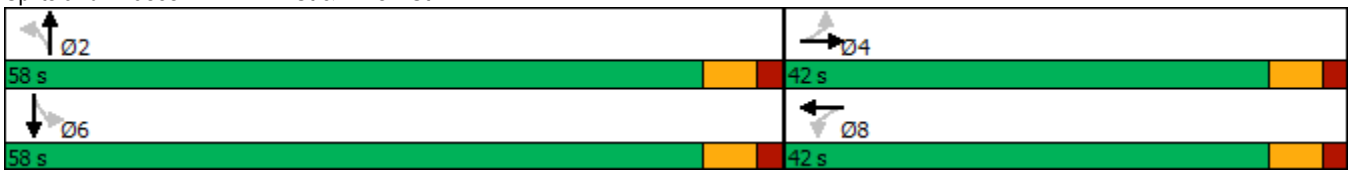


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	391	78	58	306	27	61	336	58	61	472	112
Future Volume (vph)	98	391	78	58	306	27	61	336	58	61	472	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	20.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00			0.99			0.99	
Frt		0.975			0.988			0.983			0.977	
Flt Protected	0.950			0.950				0.993			0.995	
Satd. Flow (prot)	1807	1837	0	1825	1860	0	0	1825	0	0	1815	0
Flt Permitted	0.470			0.326				0.825			0.917	
Satd. Flow (perm)	890	1837	0	625	1860	0	0	1516	0	0	1671	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			5			11			16	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		274.0			328.8			111.6			76.6	
Travel Time (s)		20.6			24.7			8.4			5.7	
Confl. Peds. (#/hr)	4		4	4		4	4		8	8		4
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	1%	5%	0%	2%	0%	0%	3%	0%	2%	3%	0%
Bus Blockages (#/hr)	0	0	1	0	0	1	0	0	1	0	0	1
Adj. Flow (vph)	100	399	80	59	312	28	62	343	59	62	482	114
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	479	0	59	340	0	0	464	0	0	658	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane								Yes				
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	34.0	34.0		34.0	34.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		26.0	26.0		26.0	26.0	
Total Split (s)	42.0	42.0		42.0	42.0		58.0	58.0		58.0	58.0	
Total Split (%)	42.0%	42.0%		42.0%	42.0%		58.0%	58.0%		58.0%	58.0%	
Maximum Green (s)	36.0	36.0		36.0	36.0		52.0	52.0		52.0	52.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	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	
Total Lost Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		Min	Min		Min	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	36.5	36.5		36.5	36.5			38.2			38.2	
Actuated g/C Ratio	0.42	0.42		0.42	0.42			0.44			0.44	
v/c Ratio	0.27	0.62		0.23	0.43			0.69			0.88	
Control Delay	22.4	25.8		22.9	22.1			24.3			36.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	22.4	25.8		22.9	22.1			24.3			36.0	
LOS	C	C		C	C			C			D	
Approach Delay		25.2			22.2			24.3			36.0	
Approach LOS		C			C			C			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 86.9			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 27.8		Intersection LOS: C	
Intersection Capacity Utilization 114.6%		ICU Level of Service H	
Analysis Period (min) 15			

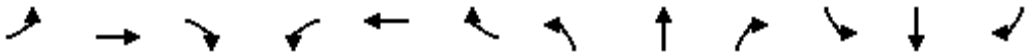
Splits and Phases: 2: Tiffin St & Innisfil St





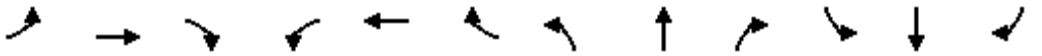
Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	100	479	59	340	464	658
v/c Ratio	0.27	0.62	0.23	0.43	0.69	0.88
Control Delay	22.4	25.8	22.9	22.1	24.3	36.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.4	25.8	22.9	22.1	24.3	36.0
Queue Length 50th (m)	10.8	60.7	6.3	39.3	57.7	93.6
Queue Length 95th (m)	27.5	114.1	18.6	76.2	88.5	139.7
Internal Link Dist (m)		250.0		304.8	87.6	52.6
Turn Bay Length (m)	20.0		20.0			
Base Capacity (vph)	374	778	262	784	924	1020
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.62	0.23	0.43	0.50	0.65

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	391	78	58	306	27	61	336	58	61	472	112
Future Volume (vph)	98	391	78	58	306	27	61	336	58	61	472	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.97		1.00	0.99			0.98			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1800	1837		1822	1859			1826			1814	
Flt Permitted	0.47	1.00		0.33	1.00			0.82			0.92	
Satd. Flow (perm)	890	1837		625	1859			1516			1672	
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)	100	399	80	59	312	28	62	343	59	62	482	114
RTOR Reduction (vph)	0	6	0	0	3	0	0	6	0	0	9	0
Lane Group Flow (vph)	100	473	0	59	337	0	0	458	0	0	649	0
Confl. Peds. (#/hr)	4		4	4		4	4		8	8		4
Heavy Vehicles (%)	1%	1%	5%	0%	2%	0%	0%	3%	0%	2%	3%	0%
Bus Blockages (#/hr)	0	0	1	0	0	1	0	0	1	0	0	1
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	36.5	36.5		36.5	36.5			38.2			38.2	
Effective Green, g (s)	36.5	36.5		36.5	36.5			38.2			38.2	
Actuated g/C Ratio	0.42	0.42		0.42	0.42			0.44			0.44	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	374	773		263	782			667			736	
v/s Ratio Prot		c0.26			0.18							
v/s Ratio Perm	0.11			0.09				0.30			c0.39	
v/c Ratio	0.27	0.61		0.22	0.43			0.69			0.88	
Uniform Delay, d1	16.4	19.6		16.0	17.8			19.4			22.2	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	1.7	3.6		2.0	1.7			2.9			12.0	
Delay (s)	18.1	23.2		18.0	19.5			22.4			34.2	
Level of Service	B	C		B	B			C			C	
Approach Delay (s)		22.3			19.3			22.4			34.2	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	86.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	114.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



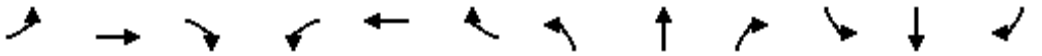
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	0	40	29	0	48	104	376	42	70	504	35
Future Volume (vph)	27	0	40	29	0	48	104	376	42	70	504	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.919			0.916			0.985			0.990	
Flt Protected		0.980			0.981		0.950			0.950		
Satd. Flow (prot)	0	1730	0	0	1692	0	1789	1888	0	1789	1817	0
Flt Permitted		0.980			0.981		0.950			0.950		
Satd. Flow (perm)	0	1730	0	0	1692	0	1789	1888	0	1789	1817	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		114.3			107.0			106.4			111.6	
Travel Time (s)		8.6			8.0			8.0			8.4	
Confl. Peds. (#/hr)			1				1					3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	0%	2%	2%	2%	2%	0%	2%	2%	5%	0%
Adj. Flow (vph)	29	0	43	32	0	52	113	409	46	76	548	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	72	0	0	84	0	113	455	0	76	586	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	0	40	29	0	48	104	376	42	70	504	35
Future Volume (Veh/h)	27	0	40	29	0	48	104	376	42	70	504	35
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	0	43	32	0	52	113	409	46	76	548	38
Pedestrians		3						1				
Lane Width (m)		3.7						3.7				
Walking Speed (m/s)		1.1						1.1				
Percent Blockage		0						0				
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)								301			112	
pX, platoon unblocked	0.74	0.74	0.74	0.74	0.74		0.74					
vC, conflicting volume	1409	1403	571	1402	1399	432	589			455		
vC1, stage 1 conf vol	722	722		658	658							
vC2, stage 2 conf vol	687	681		744	741							
vCu, unblocked vol	1376	1368	237	1367	1363	432	262			455		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	88	100	93	85	100	92	88			93		
cM capacity (veh/h)	234	257	591	217	233	624	955			1106		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	72	84	113	455	76	586
Volume Left	29	32	113	0	76	0
Volume Right	43	52	0	46	0	38
cSH	366	363	955	1700	1106	1700
Volume to Capacity	0.20	0.23	0.12	0.27	0.07	0.34
Queue Length 95th (m)	5.5	6.7	3.0	0.0	1.7	0.0
Control Delay (s)	17.2	17.9	9.3	0.0	8.5	0.0
Lane LOS	C	C	A		A	
Approach Delay (s)	17.2	17.9	1.8		1.0	
Approach LOS	C	C				

Intersection Summary				
Average Delay	3.2			
Intersection Capacity Utilization	50.2%	ICU Level of Service	A	
Analysis Period (min)	15			

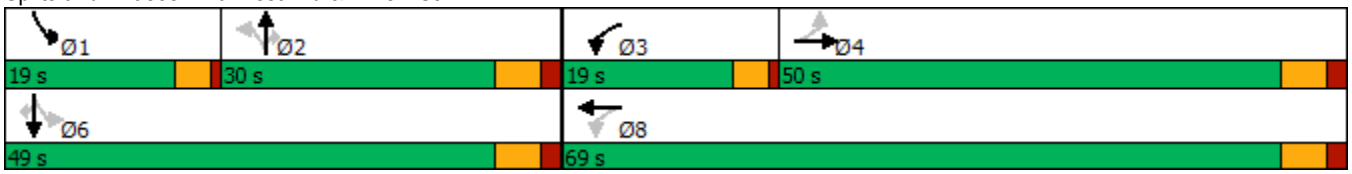


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	216	686	49	33	753	75	21	164	27	121	185	192
Future Volume (vph)	216	686	49	33	753	75	21	164	27	121	185	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		15.0	0.0		20.0
Storage Lanes	0		0	0		0	0		1	0		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			1.00				0.98
Frt		0.992			0.987				0.850			0.850
Flt Protected		0.989			0.998			0.994			0.981	
Satd. Flow (prot)	0	3497	0	0	3493	0	0	1893	1633	0	1833	1585
Flt Permitted		0.580			0.877			0.941			0.730	
Satd. Flow (perm)	0	2051	0	0	3070	0	0	1791	1633	0	1364	1560
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			13				102			109
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		337.1			195.7			132.7			194.2	
Travel Time (s)		25.3			14.7			10.0			14.6	
Confl. Peds. (#/hr)	1		3	3		1	2					2
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	3%	2%	3%	3%	0%	0%	1%	0%	1%	4%	3%
Adj. Flow (vph)	218	693	49	33	761	76	21	166	27	122	187	194
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	960	0	0	870	0	0	187	27	0	309	194
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane											Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	44.0	44.0		7.0	44.0		24.0	24.0	24.0	5.0	24.0	24.0
Minimum Split (s)	50.0	50.0		11.0	50.0		30.0	30.0	30.0	9.0	30.0	30.0
Total Split (s)	50.0	50.0		19.0	69.0		30.0	30.0	30.0	19.0	49.0	49.0
Total Split (%)	42.4%	42.4%		16.1%	58.5%		25.4%	25.4%	25.4%	16.1%	41.5%	41.5%
Maximum Green (s)	44.0	44.0		15.0	63.0		24.0	24.0	24.0	15.0	43.0	43.0
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)		6.0			6.0			6.0	6.0		6.0	6.0
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	32.0	32.0			32.0		7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	12.0	12.0			12.0		11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0		0	0
Act Effct Green (s)		63.3			63.3			36.2	36.2		36.2	36.2
Actuated g/C Ratio		0.57			0.57			0.32	0.32		0.32	0.32
v/c Ratio		0.82			0.50			0.32	0.05		0.70	0.34
Control Delay		28.6			16.6			29.4	0.1		41.7	13.7
Queue Delay		0.0			0.0			0.0	0.0		0.0	0.0
Total Delay		28.6			16.6			29.4	0.1		41.7	13.7
LOS		C			B			C	A		D	B
Approach Delay		28.6			16.6			25.7			30.9	
Approach LOS		C			B			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 118			
Actuated Cycle Length: 111.6			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 24.7		Intersection LOS: C	
Intersection Capacity Utilization 133.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 6: Essa Rd & Innisfil St

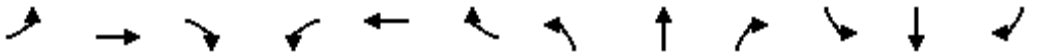




Lane Group	EBT	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	960	870	187	27	309	194
v/c Ratio	0.82	0.50	0.32	0.05	0.70	0.34
Control Delay	28.6	16.6	29.4	0.1	41.7	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.6	16.6	29.4	0.1	41.7	13.7
Queue Length 50th (m)	93.3	62.1	30.4	0.0	58.2	13.1
Queue Length 95th (m)	#144.1	82.4	48.3	0.0	89.0	30.6
Internal Link Dist (m)	313.1	171.7	108.7		170.2	
Turn Bay Length (m)				15.0		20.0
Base Capacity (vph)	1165	1747	581	598	528	670
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.50	0.32	0.05	0.59	0.29

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	216	686	49	33	753	75	21	164	27	121	185	192
Future Volume (vph)	216	686	49	33	753	75	21	164	27	121	185	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0	6.0		6.0	6.0
Lane Util. Factor		0.95			0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00			1.00			1.00	1.00		1.00	0.98
Flpb, ped/bikes		1.00			1.00			1.00	1.00		1.00	1.00
Frt		0.99			0.99			1.00	0.85		1.00	0.85
Flt Protected		0.99			1.00			0.99	1.00		0.98	1.00
Satd. Flow (prot)		3498			3493			1893	1633		1832	1561
Flt Permitted		0.58			0.88			0.94	1.00		0.73	1.00
Satd. Flow (perm)		2051			3071			1791	1633		1364	1561
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	218	693	49	33	761	76	21	166	27	122	187	194
RTOR Reduction (vph)	0	2	0	0	6	0	0	0	18	0	0	74
Lane Group Flow (vph)	0	958	0	0	864	0	0	187	9	0	309	120
Confl. Peds. (#/hr)	1		3	3		1	2					2
Heavy Vehicles (%)	0%	3%	2%	3%	3%	0%	0%	1%	0%	1%	4%	3%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)		63.3			63.3			36.2	36.2		36.2	36.2
Effective Green, g (s)		63.3			63.3			36.2	36.2		36.2	36.2
Actuated g/C Ratio		0.57			0.57			0.32	0.32		0.32	0.32
Clearance Time (s)		6.0			6.0			6.0	6.0		6.0	6.0
Vehicle Extension (s)		3.0			3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1164			1743			581	530		442	506
v/s Ratio Prot												
v/s Ratio Perm		c0.47			0.28			0.10	0.01		c0.23	0.08
v/c Ratio		0.82			0.50			0.32	0.02		0.70	0.24
Uniform Delay, d1		19.6			14.5			28.4	25.6		32.9	27.6
Progression Factor		1.00			1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2		6.6			0.2			0.3	0.0		4.8	0.2
Delay (s)		26.2			14.7			28.7	25.6		37.7	27.8
Level of Service		C			B			C	C		D	C
Approach Delay (s)		26.2			14.7			28.3			33.9	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	111.5	Sum of lost time (s)	20.0
Intersection Capacity Utilization	133.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

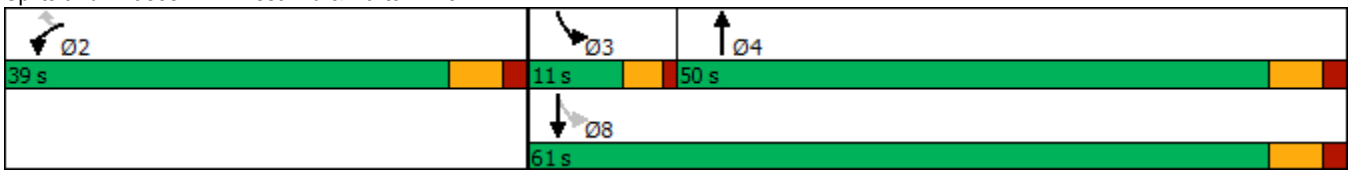


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	333	215	451	312	201	432
Future Volume (vph)	333	215	451	312	201	432
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	35.0		0.0	0.0	
Storage Lanes	1	1		0	0	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor		0.97	0.99			1.00
Frt		0.850	0.939			
Flt Protected	0.950					0.984
Satd. Flow (prot)	1772	1585	3335	0	0	3489
Flt Permitted	0.950					0.584
Satd. Flow (perm)	1772	1542	3335	0	0	2069
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		195	223			
Link Speed (k/h)	48		48			48
Link Distance (m)	133.2		195.7			144.3
Travel Time (s)	10.0		14.7			10.8
Confl. Peds. (#/hr)		9		7	7	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	3%	2%	1%	5%	2%
Adj. Flow (vph)	343	222	465	322	207	445
Shared Lane Traffic (%)						
Lane Group Flow (vph)	343	222	787	0	0	652
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	6.1	6.1	30.5		6.1	30.5
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	6.1	1.8		6.1	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	2		4		3	8
Permitted Phases		2			8	
Detector Phase	2	2	4		3	8
Switch Phase						
Minimum Initial (s)	15.0	15.0	44.0		7.0	44.0
Minimum Split (s)	23.0	23.0	50.0		11.0	50.0
Total Split (s)	39.0	39.0	50.0		11.0	61.0
Total Split (%)	39.0%	39.0%	50.0%		11.0%	61.0%
Maximum Green (s)	33.0	33.0	44.0		7.0	55.0
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.0	2.0	2.0		1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0			0.0
Total Lost Time (s)	6.0	6.0	6.0			6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)	7.0	7.0	33.0			33.0
Flash Dont Walk (s)	10.0	10.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	22.6	22.6	55.3			55.3
Actuated g/C Ratio	0.25	0.25	0.62			0.62
v/c Ratio	0.77	0.42	0.37			0.51
Control Delay	43.3	8.1	7.1			12.6
Queue Delay	0.0	0.0	0.0			0.0
Total Delay	43.3	8.1	7.1			12.6
LOS	D	A	A			B
Approach Delay	29.5		7.1			12.6
Approach LOS	C		A			B

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 89.9			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 15.2		Intersection LOS: B	
Intersection Capacity Utilization 106.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 7: Essa Rd & Burton Ave





Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	343	222	787	652
v/c Ratio	0.77	0.42	0.37	0.51
Control Delay	43.3	8.1	7.1	12.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	43.3	8.1	7.1	12.6
Queue Length 50th (m)	54.8	3.5	21.2	29.7
Queue Length 95th (m)	83.0	19.4	42.1	57.6
Internal Link Dist (m)	109.2		171.7	120.3
Turn Bay Length (m)		35.0		
Base Capacity (vph)	653	691	2136	1272
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.53	0.32	0.37	0.51

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	333	215	451	312	201	432
Future Volume (vph)	333	215	451	312	201	432
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frpb, ped/bikes	1.00	0.97	0.99			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	0.85	0.94			1.00
Flt Protected	0.95	1.00	1.00			0.98
Satd. Flow (prot)	1772	1544	3335			3488
Flt Permitted	0.95	1.00	1.00			0.58
Satd. Flow (perm)	1772	1544	3335			2071
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	343	222	465	322	207	445
RTOR Reduction (vph)	0	146	86	0	0	0
Lane Group Flow (vph)	343	76	701	0	0	652
Confl. Peds. (#/hr)		9		7	7	
Heavy Vehicles (%)	3%	3%	2%	1%	5%	2%
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	2		4		3	8
Permitted Phases		2			8	
Actuated Green, G (s)	22.6	22.6	55.2			55.2
Effective Green, g (s)	22.6	22.6	55.2			55.2
Actuated g/C Ratio	0.25	0.25	0.61			0.61
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	445	388	2050			1273
v/s Ratio Prot	c0.19		0.21			
v/s Ratio Perm		0.05				c0.31
v/c Ratio	0.77	0.20	0.34			0.51
Uniform Delay, d1	31.2	26.4	8.4			9.7
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	8.0	0.2	0.5			0.3
Delay (s)	39.2	26.7	8.9			10.1
Level of Service	D	C	A			B
Approach Delay (s)	34.3		8.9			10.1
Approach LOS	C		A			B

Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	89.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	106.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø8
Lane Configurations							
Traffic Volume (vph)	5	309	588	9	196	600	
Future Volume (vph)	5	309	588	9	196	600	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95	
Ped Bike Factor	0.98		1.00			1.00	
Frt	0.867		0.998				
Flt Protected	0.999					0.988	
Satd. Flow (prot)	1634	0	3571	0	0	3490	
Flt Permitted	0.999					0.665	
Satd. Flow (perm)	1634	0	3571	0	0	2347	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)	319		2				
Link Speed (k/h)	48		48			48	
Link Distance (m)	165.5		76.9			124.5	
Travel Time (s)	12.4		5.8			9.3	
Confl. Peds. (#/hr)		2		9	9		
Confl. Bikes (#/hr)		2		5			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	
Heavy Vehicles (%)	0%	0%	2%	0%	1%	3%	
Bus Blockages (#/hr)	0	0	0	0	0	4	
Adj. Flow (vph)	5	319	606	9	202	619	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	324	0	615	0	0	821	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Right	Left	Left	
Median Width(m)	3.7		0.0			0.0	
Link Offset(m)	0.0		0.0			0.0	
Crosswalk Width(m)	1.6		1.6			1.6	
Two way Left Turn Lane							
Headway Factor	0.99	0.99	0.99	0.99	0.99	1.00	
Turning Speed (k/h)	24	14		14	24		
Number of Detectors	1		2		1	2	
Detector Template	Left		Thru		Left	Thru	
Leading Detector (m)	6.1		30.5		6.1	30.5	
Trailing Detector (m)	0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0		0.0		0.0	0.0	
Detector 1 Size(m)	6.1		1.8		6.1	1.8	
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)	0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0		0.0		0.0	0.0	
Detector 2 Position(m)			28.7			28.7	
Detector 2 Size(m)			1.8			1.8	
Detector 2 Type			Cl+Ex			Cl+Ex	
Detector 2 Channel							
Detector 2 Extend (s)			0.0			0.0	
Turn Type	pm+pt		NA		pm+pt	NA	



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø8
Protected Phases	3		2		1	6	8
Permitted Phases	8				6		
Detector Phase	3		2		1	6	
Switch Phase							
Minimum Initial (s)	10.0		80.0		7.0	80.0	10.0
Minimum Split (s)	27.0		86.0		11.0	86.0	27.0
Total Split (s)	31.0		89.0		11.0	100.0	31.0
Total Split (%)	23.7%		67.9%		8.4%	76.3%	24%
Maximum Green (s)	25.0		83.0		7.0	94.0	25.0
Yellow Time (s)	4.0		4.0		3.0	4.0	4.0
All-Red Time (s)	2.0		2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0			0.0	
Total Lost Time (s)	6.0		6.0			6.0	
Lead/Lag			Lag		Lead		
Lead-Lag Optimize?			Yes		Yes		
Vehicle Extension (s)	3.0		3.0		3.0	3.0	3.0
Recall Mode	None		Max		None	Max	None
Walk Time (s)	10.0		65.0			65.0	10.0
Flash Dont Walk (s)	11.0		15.0			15.0	11.0
Pedestrian Calls (#/hr)	0		0			0	0
Act Effct Green (s)	11.3		94.1			94.1	
Actuated g/C Ratio	0.10		0.80			0.80	
v/c Ratio	0.73		0.21			0.44	
Control Delay	16.0		3.1			4.6	
Queue Delay	0.0		0.0			0.7	
Total Delay	16.0		3.1			5.3	
LOS	B		A			A	
Approach Delay	16.0		3.1			5.3	
Approach LOS	B		A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 131			
Actuated Cycle Length: 117.4			
Natural Cycle: 125			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 6.5		Intersection LOS: A	
Intersection Capacity Utilization 168.0%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 8: Essa Rd & Gowan St





Lane Group	WBL	NBT	SBT
Lane Group Flow (vph)	324	615	821
v/c Ratio	0.73	0.21	0.44
Control Delay	16.0	3.1	4.6
Queue Delay	0.0	0.0	0.7
Total Delay	16.0	3.1	5.3
Queue Length 50th (m)	1.1	13.1	22.4
Queue Length 95th (m)	28.2	23.9	41.5
Internal Link Dist (m)	141.5	52.9	100.5
Turn Bay Length (m)			
Base Capacity (vph)	599	2862	1880
Starvation Cap Reductn	0	0	669
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.54	0.21	0.68

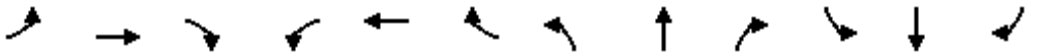
Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	309	588	9	196	600
Future Volume (vph)	5	309	588	9	196	600
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0			6.0
Lane Util. Factor	1.00		0.95			0.95
Frpb, ped/bikes	0.98		1.00			1.00
Flpb, ped/bikes	1.00		1.00			1.00
Frt	0.87		1.00			1.00
Flt Protected	1.00		1.00			0.99
Satd. Flow (prot)	1632		3570			3487
Flt Permitted	1.00		1.00			0.67
Satd. Flow (perm)	1632		3570			2349
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	5	319	606	9	202	619
RTOR Reduction (vph)	288	0	0	0	0	0
Lane Group Flow (vph)	36	0	615	0	0	821
Confl. Peds. (#/hr)		2		9	9	
Confl. Bikes (#/hr)		2		5		
Heavy Vehicles (%)	0%	0%	2%	0%	1%	3%
Bus Blockages (#/hr)	0	0	0	0	0	4
Turn Type	pm+pt		NA		pm+pt	NA
Protected Phases	3		2		1	6
Permitted Phases	8				6	
Actuated Green, G (s)	11.3		94.0			94.0
Effective Green, g (s)	11.3		94.0			94.0
Actuated g/C Ratio	0.10		0.80			0.80
Clearance Time (s)	6.0		6.0			6.0
Vehicle Extension (s)	3.0		3.0			3.0
Lane Grp Cap (vph)	157		2860			1882
v/s Ratio Prot	c0.02		0.17			
v/s Ratio Perm						c0.35
v/c Ratio	0.23		0.21			0.44
Uniform Delay, d1	49.0		2.8			3.6
Progression Factor	1.00		1.00			1.00
Incremental Delay, d2	0.7		0.2			0.2
Delay (s)	49.7		3.0			3.7
Level of Service	D		A			A
Approach Delay (s)	49.7		3.0			3.7
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	117.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	168.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

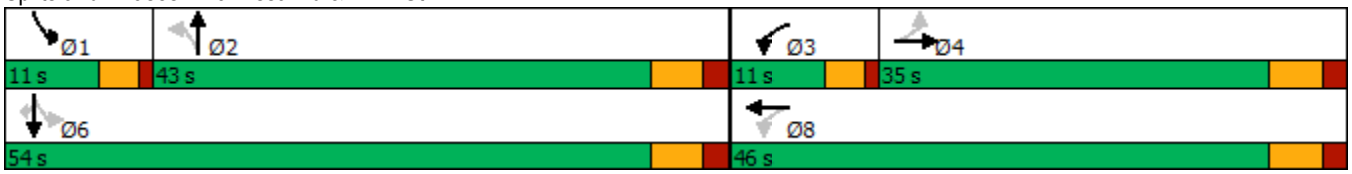


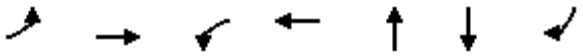
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	389	95	130	230	81	97	604	176	151	587	58
Future Volume (vph)	48	389	95	130	230	81	97	604	176	151	587	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	20.0		0.0	0.0		0.0	25.0		30.0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00
Ped Bike Factor	1.00	1.00			1.00			0.99			1.00	0.97
Frt		0.971			0.961			0.970				0.850
Flt Protected	0.950			0.950				0.994			0.990	
Satd. Flow (prot)	1772	1817	0	1706	1769	0	0	3474	0	0	3557	1601
Flt Permitted	0.566			0.146				0.686			0.561	
Satd. Flow (perm)	1052	1817	0	262	1769	0	0	2397	0	0	2015	1560
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			21			35				76
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		328.8			105.3			124.5			69.7	
Travel Time (s)		24.7			7.9			9.3			5.2	
Confl. Peds. (#/hr)	4		1	1		4	4		7	7		4
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
Heavy Vehicles (%)	3%	1%	8%	7%	1%	12%	0%	1%	0%	0%	2%	2%
Adj. Flow (vph)	49	401	98	134	237	84	100	623	181	156	605	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	49	499	0	134	321	0	0	904	0	0	761	60
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		3	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		34.0	34.0		7.0	34.0	34.0
Minimum Split (s)	31.0	31.0		11.0	31.0		40.0	40.0		11.0	40.0	40.0
Total Split (s)	35.0	35.0		11.0	46.0		43.0	43.0		11.0	54.0	54.0
Total Split (%)	35.0%	35.0%		11.0%	46.0%		43.0%	43.0%		11.0%	54.0%	54.0%
Maximum Green (s)	29.0	29.0		7.0	40.0		37.0	37.0		7.0	48.0	48.0
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	6.0	6.0		4.0	6.0			6.0			6.0	6.0
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max		None	Max		None	None		None	None	None
Walk Time (s)	10.0	10.0			10.0		22.0	22.0			22.0	22.0
Flash Dont Walk (s)	15.0	15.0			15.0		12.0	12.0			12.0	12.0
Pedestrian Calls (#/hr)	0	0			0		0	0			0	0
Act Effct Green (s)	29.1	29.1		42.1	40.1			42.5			42.5	42.5
Actuated g/C Ratio	0.31	0.31		0.44	0.42			0.45			0.45	0.45
v/c Ratio	0.15	0.88		0.60	0.42			0.83			0.84	0.08
Control Delay	27.5	50.6		29.9	21.0			29.2			32.7	2.6
Queue Delay	0.0	0.0		0.0	0.0			2.3			0.0	0.0
Total Delay	27.5	50.6		29.9	21.0			31.5			32.7	2.6
LOS	C	D		C	C			C			C	A
Approach Delay		48.5			23.6			31.5			30.5	
Approach LOS		D			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 94.7			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 33.3		Intersection LOS: C	
Intersection Capacity Utilization 108.5%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 9: Essa Rd & Tiffin St

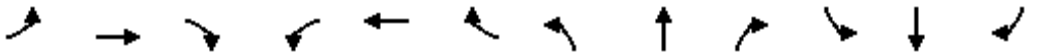




Lane Group	EBL	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	49	499	134	321	904	761	60
v/c Ratio	0.15	0.88	0.60	0.42	0.83	0.84	0.08
Control Delay	27.5	50.6	29.9	21.0	29.2	32.7	2.6
Queue Delay	0.0	0.0	0.0	0.0	2.3	0.0	0.0
Total Delay	27.5	50.6	29.9	21.0	31.5	32.7	2.6
Queue Length 50th (m)	6.8	88.6	15.3	39.7	70.9	62.5	0.0
Queue Length 95th (m)	16.2	#153.0	#30.8	64.8	97.0	88.3	4.6
Internal Link Dist (m)		304.8		81.3	100.5	45.7	
Turn Bay Length (m)	20.0		20.0				30.0
Base Capacity (vph)	323	566	223	761	1112	1024	830
Starvation Cap Reductn	0	0	0	0	106	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.88	0.60	0.42	0.90	0.74	0.07

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	389	95	130	230	81	97	604	176	151	587	58
Future Volume (vph)	48	389	95	130	230	81	97	604	176	151	587	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		4.0	6.0			6.0			6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.99			1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Frt	1.00	0.97		1.00	0.96			0.97			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	1.00
Satd. Flow (prot)	1767	1817		1706	1769			3476			3555	1560
Flt Permitted	0.57	1.00		0.15	1.00			0.69			0.56	1.00
Satd. Flow (perm)	1053	1817		262	1769			2398			2015	1560
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)	49	401	98	134	237	84	100	623	181	156	605	60
RTOR Reduction (vph)	0	8	0	0	12	0	0	19	0	0	0	33
Lane Group Flow (vph)	49	491	0	134	309	0	0	885	0	0	761	27
Confl. Peds. (#/hr)	4		1	1		4	4		7	7		4
Heavy Vehicles (%)	3%	1%	8%	7%	1%	12%	0%	1%	0%	0%	2%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	29.2	29.2		40.2	40.2			42.5			42.5	42.5
Effective Green, g (s)	29.2	29.2		40.2	40.2			42.5			42.5	42.5
Actuated g/C Ratio	0.31	0.31		0.42	0.42			0.45			0.45	0.45
Clearance Time (s)	6.0	6.0		4.0	6.0			6.0			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	324	560		217	750			1076			904	700
v/s Ratio Prot		c0.27		c0.05	0.17							
v/s Ratio Perm	0.05			0.22				0.37			c0.38	0.02
v/c Ratio	0.15	0.88		0.62	0.41			0.82			0.84	0.04
Uniform Delay, d1	23.8	31.0		20.4	19.0			22.8			23.1	14.6
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	1.0	17.4		5.1	1.7			5.2			7.2	0.0
Delay (s)	24.7	48.4		25.5	20.7			28.0			30.3	14.7
Level of Service	C	D		C	C			C			C	B
Approach Delay (s)		46.3			22.1			28.0			29.1	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	31.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	94.7	Sum of lost time (s)	20.0
Intersection Capacity Utilization	108.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	33	23	476	46	32	569
Future Volume (vph)	33	23	476	46	32	569
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.945		0.988			
Flt Protected	0.971				0.950	
Satd. Flow (prot)	1728	0	1861	0	1789	1883
Flt Permitted	0.971				0.950	
Satd. Flow (perm)	1728	0	1861	0	1789	1883
Link Speed (k/h)	48		48			48
Link Distance (m)	35.0		194.2			106.4
Travel Time (s)	2.6		14.6			8.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	25	517	50	35	618
Shared Lane Traffic (%)						
Lane Group Flow (vph)	61	0	567	0	35	618
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane			Yes			Yes
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

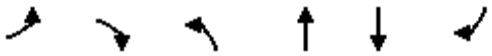
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	33	23	476	46	32	569
Future Volume (Veh/h)	33	23	476	46	32	569
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	36	25	517	50	35	618
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			194			218
pX, platoon unblocked	0.90	0.95			0.95	
vC, conflicting volume	1230	542			567	
vC1, stage 1 conf vol	542					
vC2, stage 2 conf vol	688					
vCu, unblocked vol	1067	489			515	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	95			96	
cM capacity (veh/h)	407	549			995	

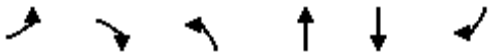
Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	61	567	35	618
Volume Left	36	0	35	0
Volume Right	25	50	0	0
cSH	455	1700	995	1700
Volume to Capacity	0.13	0.33	0.04	0.36
Queue Length 95th (m)	3.5	0.0	0.8	0.0
Control Delay (s)	14.1	0.0	8.7	0.0
Lane LOS	B		A	
Approach Delay (s)	14.1	0.0	0.5	
Approach LOS	B			

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	14	61	88	584	596	18
Future Volume (vph)	14	61	88	584	596	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Frt	0.890				0.996	
Flt Protected	0.991			0.993		
Satd. Flow (prot)	1661	0	0	3553	3564	0
Flt Permitted	0.991			0.993		
Satd. Flow (perm)	1661	0	0	3553	3564	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	60.0			144.3	76.9	
Travel Time (s)	4.5			10.8	5.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	66	96	635	648	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	81	0	0	731	668	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	61	88	584	596	18
Future Volume (Veh/h)	14	61	88	584	596	18
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	66	96	635	648	20
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				144	77	
pX, platoon unblocked	0.96	0.96	0.96			
vC, conflicting volume	1168	334	668			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1085	214	563			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	91	90			
cM capacity (veh/h)	182	757	961			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	81	308	423	432	236
Volume Left	15	96	0	0	0
Volume Right	66	0	0	0	20
cSH	477	961	1700	1700	1700
Volume to Capacity	0.17	0.10	0.25	0.25	0.14
Queue Length 95th (m)	4.6	2.5	0.0	0.0	0.0
Control Delay (s)	14.1	3.6	0.0	0.0	0.0
Lane LOS	B	A			
Approach Delay (s)	14.1	1.5		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	112	106	0	76	67
Future Volume (vph)	0	112	106	0	76	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.937	
Flt Protected				0.950	0.974	
Satd. Flow (prot)	1629	0	0	1789	1719	0
Flt Permitted				0.950	0.974	
Satd. Flow (perm)	1629	0	0	1789	1719	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	107.0			51.1	31.1	
Travel Time (s)	8.0			3.8	2.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	122	115	0	83	73
Shared Lane Traffic (%)						
Lane Group Flow (vph)	122	0	0	115	156	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

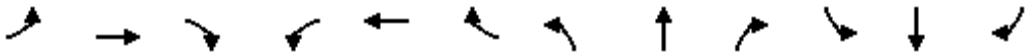
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 27.5%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	112	106	0	76	67
Future Volume (Veh/h)	0	112	106	0	76	67
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	122	115	0	83	73
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			122		291	61
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			122		291	61
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			92		87	93
cM capacity (veh/h)			1465		645	1004

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	122	115	156
Volume Left	0	115	83
Volume Right	122	0	73
cSH	1700	1465	774
Volume to Capacity	0.07	0.08	0.20
Queue Length 95th (m)	0.0	1.9	5.7
Control Delay (s)	0.0	7.7	10.8
Lane LOS		A	B
Approach Delay (s)	0.0	7.7	10.8
Approach LOS			B

Intersection Summary			
Average Delay	6.5		
Intersection Capacity Utilization	27.5%	ICU Level of Service	A
Analysis Period (min)	15		

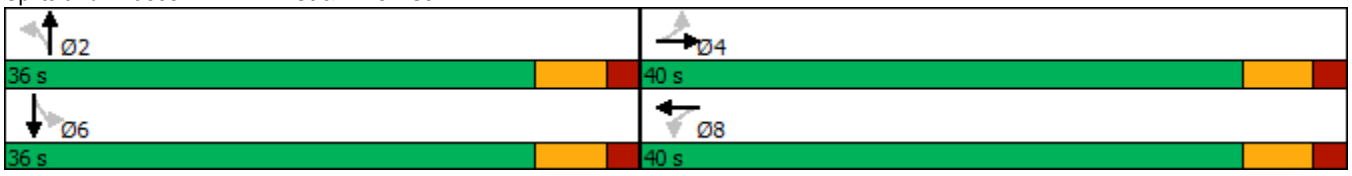


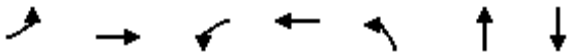
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	496	100	9	431	24	156	238	27	26	176	51
Future Volume (vph)	40	496	100	9	431	24	156	238	27	26	176	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	20.0		0.0	50.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00		1.00	1.00			1.00	
Frt		0.975			0.992			0.985			0.973	
Flt Protected	0.950			0.950			0.950				0.995	
Satd. Flow (prot)	1825	3316	0	1825	3467	0	1755	1824	0	0	1797	0
Flt Permitted	0.471			0.399			0.514				0.936	
Satd. Flow (perm)	903	3316	0	767	3467	0	948	1824	0	0	1690	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			10			9			20	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		274.0			328.8			111.6			76.6	
Travel Time (s)		20.6			24.7			8.4			5.7	
Confl. Peds. (#/hr)	2					2	2		1	1		2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	8%	4%	0%	4%	10%	4%	4%	0%	6%	2%	6%
Bus Blockages (#/hr)	0	0	1	0	0	1	0	0	1	0	0	1
Adj. Flow (vph)	43	539	109	10	468	26	170	259	29	28	191	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	648	0	10	494	0	170	288	0	0	274	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane								Yes				
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	34.0	34.0		34.0	34.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		26.0	26.0		26.0	26.0	
Total Split (s)	40.0	40.0		40.0	40.0		36.0	36.0		36.0	36.0	
Total Split (%)	52.6%	52.6%		52.6%	52.6%		47.4%	47.4%		47.4%	47.4%	
Maximum Green (s)	34.0	34.0		34.0	34.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	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	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		Min	Min		Min	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	34.3	34.3		34.3	34.3		16.0	16.0			16.0	
Actuated g/C Ratio	0.55	0.55		0.55	0.55		0.26	0.26			0.26	
v/c Ratio	0.09	0.35		0.02	0.26		0.70	0.61			0.61	
Control Delay	9.3	9.0		9.1	8.7		36.4	25.0			24.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	9.3	9.0		9.1	8.7		36.4	25.0			24.6	
LOS	A	A		A	A		D	C			C	
Approach Delay		9.0			8.7			29.2			24.6	
Approach LOS		A			A			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 76			
Actuated Cycle Length: 62.4			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 15.9		Intersection LOS: B	
Intersection Capacity Utilization 76.5%		ICU Level of Service D	
Analysis Period (min) 15			

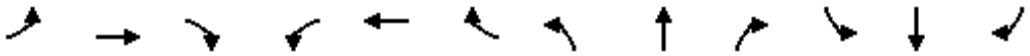
Splits and Phases: 2: Tiffin St & Innisfil St





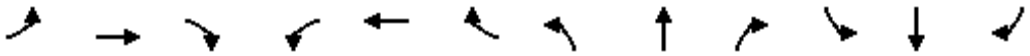
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	43	648	10	494	170	288	274
v/c Ratio	0.09	0.35	0.02	0.26	0.70	0.61	0.61
Control Delay	9.3	9.0	9.1	8.7	36.4	25.0	24.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.3	9.0	9.1	8.7	36.4	25.0	24.6
Queue Length 50th (m)	2.0	17.3	0.4	13.0	17.5	27.9	25.3
Queue Length 95th (m)	8.1	38.2	3.0	29.3	35.3	47.3	44.7
Internal Link Dist (m)		250.0		304.8		87.6	52.6
Turn Bay Length (m)	20.0		20.0		50.0		
Base Capacity (vph)	495	1839	421	1908	459	888	829
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.35	0.02	0.26	0.37	0.32	0.33

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	496	100	9	431	24	156	238	27	26	176	51
Future Volume (vph)	40	496	100	9	431	24	156	238	27	26	176	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.97		1.00	0.99		1.00	0.98			0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1823	3315		1825	3467		1753	1824			1797	
Flt Permitted	0.47	1.00		0.40	1.00		0.51	1.00			0.94	
Satd. Flow (perm)	904	3315		767	3467		949	1824			1690	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	539	109	10	468	26	170	259	29	28	191	55
RTOR Reduction (vph)	0	18	0	0	4	0	0	7	0	0	15	0
Lane Group Flow (vph)	43	630	0	10	490	0	170	281	0	0	259	0
Confl. Peds. (#/hr)	2					2	2		1	1		2
Heavy Vehicles (%)	0%	8%	4%	0%	4%	10%	4%	4%	0%	6%	2%	6%
Bus Blockages (#/hr)	0	0	1	0	0	1	0	0	1	0	0	1
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	34.3	34.3		34.3	34.3		16.0	16.0			16.0	
Effective Green, g (s)	34.3	34.3		34.3	34.3		16.0	16.0			16.0	
Actuated g/C Ratio	0.55	0.55		0.55	0.55		0.26	0.26			0.26	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	497	1825		422	1908		243	468			434	
v/s Ratio Prot		c0.19			0.14			0.15				
v/s Ratio Perm	0.05			0.01			c0.18				0.15	
v/c Ratio	0.09	0.35		0.02	0.26		0.70	0.60			0.60	
Uniform Delay, d1	6.6	7.8		6.4	7.3		21.0	20.3			20.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.3	0.5		0.1	0.3		8.5	2.2			2.2	
Delay (s)	6.9	8.3		6.5	7.7		29.5	22.5			22.5	
Level of Service	A	A		A	A		C	C			C	
Approach Delay (s)		8.2			7.6			25.1			22.5	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	62.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



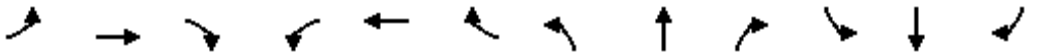
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	0	40	40	0	66	49	293	13	22	248	15
Future Volume (vph)	40	0	40	40	0	66	49	293	13	22	248	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	50.0		0.0	15.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.932			0.915			0.994			0.992	
Flt Protected		0.976			0.982		0.950			0.950		
Satd. Flow (prot)	0	1748	0	0	1692	0	1706	1804	0	1789	1804	0
Flt Permitted		0.976			0.982		0.950			0.950		
Satd. Flow (perm)	0	1748	0	0	1692	0	1706	1804	0	1789	1804	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		138.2			110.3			110.9			111.6	
Travel Time (s)		10.4			8.3			8.3			8.4	
Confl. Peds. (#/hr)	1						6					6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	0%	2%	2%	2%	7%	6%	2%	2%	4%	33%
Adj. Flow (vph)	43	0	43	43	0	72	53	318	14	24	270	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	86	0	0	115	0	53	332	0	24	286	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.7%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	0	40	40	0	66	49	293	13	22	248	15
Future Volume (Veh/h)	40	0	40	40	0	66	49	293	13	22	248	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	0	43	43	0	72	53	318	14	24	270	16
Pedestrians		6									1	
Lane Width (m)		3.7									3.7	
Walking Speed (m/s)		1.1									1.1	
Percent Blockage		1									0	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)								301			112	
pX, platoon unblocked	0.95	0.95	0.95	0.95	0.95		0.95					
vC, conflicting volume	829	770	284	792	771	326	292			332		
vC1, stage 1 conf vol	332	332		431	431							
vC2, stage 2 conf vol	497	438		361	340							
vCu, unblocked vol	797	735	225	758	736	326	233			332		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	90	100	94	91	100	90	96			98		
cM capacity (veh/h)	418	471	777	463	469	714	1237			1227		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	86	115	53	332	24	286
Volume Left	43	43	53	0	24	0
Volume Right	43	72	0	14	0	16
cSH	544	594	1237	1700	1227	1700
Volume to Capacity	0.16	0.19	0.04	0.20	0.02	0.17
Queue Length 95th (m)	4.2	5.4	1.0	0.0	0.5	0.0
Control Delay (s)	12.9	12.5	8.0	0.0	8.0	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	12.9	12.5	1.1		0.6	
Approach LOS	B	B				

Intersection Summary				
Average Delay	3.5			
Intersection Capacity Utilization	36.7%	ICU Level of Service		A
Analysis Period (min)	15			

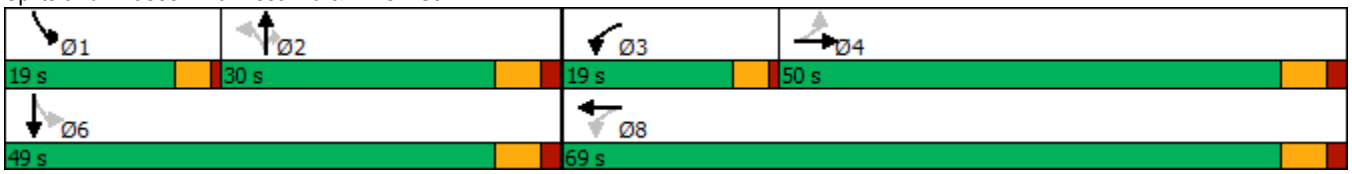


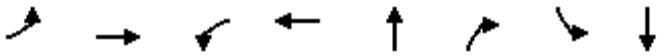
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	608	33	15	539	68	28	100	33	63	124	135
Future Volume (vph)	76	608	33	15	539	68	28	100	33	63	124	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	50.0		0.0	0.0		15.0	50.0		20.0
Storage Lanes	1		0	1		0	0		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00				0.99	1.00		
Frt		0.992			0.983				0.850		0.922	
Flt Protected	0.950			0.950				0.989		0.950		
Satd. Flow (prot)	1690	3483	0	1706	3420	0	0	1810	1558	1789	1738	0
Flt Permitted	0.401			0.314				0.875		0.539		
Satd. Flow (perm)	713	3483	0	564	3420	0	0	1601	1536	1014	1738	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			18				102		52	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		337.1			195.7			132.7			189.6	
Travel Time (s)		25.3			14.7			10.0			14.2	
Confl. Peds. (#/hr)	1					1			1	1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	4%	3%	7%	5%	2%	5%	5%	4%	2%	4%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	2	0	0	0
Adj. Flow (vph)	83	661	36	16	586	74	30	109	36	68	135	147
Shared Lane Traffic (%)												
Lane Group Flow (vph)	83	697	0	16	660	0	0	139	36	68	282	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane											Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	1.00	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		3	8		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	44.0	44.0		7.0	44.0		24.0	24.0	24.0	5.0	24.0	
Minimum Split (s)	50.0	50.0		11.0	50.0		30.0	30.0	30.0	9.0	30.0	
Total Split (s)	50.0	50.0		19.0	69.0		30.0	30.0	30.0	19.0	49.0	
Total Split (%)	42.4%	42.4%		16.1%	58.5%		25.4%	25.4%	25.4%	16.1%	41.5%	
Maximum Green (s)	44.0	44.0		15.0	63.0		24.0	24.0	24.0	15.0	43.0	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		4.0	6.0			6.0	6.0	4.0	6.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max		None	Max		None	None	None	None	None	
Walk Time (s)	32.0	32.0			32.0		7.0	7.0	7.0		7.0	
Flash Dont Walk (s)	12.0	12.0			12.0		11.0	11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0			0		0	0	0		0	
Act Effct Green (s)	58.9	58.9		65.2	63.2			24.1	24.1	36.2	34.2	
Actuated g/C Ratio	0.54	0.54		0.60	0.58			0.22	0.22	0.33	0.31	
v/c Ratio	0.22	0.37		0.04	0.33			0.39	0.09	0.17	0.49	
Control Delay	18.2	16.8		10.5	12.9			41.6	0.4	26.0	27.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay	18.2	16.8		10.5	12.9			41.6	0.4	26.0	27.3	
LOS	B	B		B	B			D	A	C	C	
Approach Delay		16.9			12.8			33.1			27.1	
Approach LOS		B			B			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 118			
Actuated Cycle Length: 109.4			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.49			
Intersection Signal Delay: 18.8		Intersection LOS: B	
Intersection Capacity Utilization 102.7%		ICU Level of Service G	
Analysis Period (min) 15			

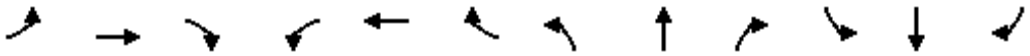
Splits and Phases: 6: Essa Rd & Innisfil St





Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	83	697	16	660	139	36	68	282
v/c Ratio	0.22	0.37	0.04	0.33	0.39	0.09	0.17	0.49
Control Delay	18.2	16.8	10.5	12.9	41.6	0.4	26.0	27.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.2	16.8	10.5	12.9	41.6	0.4	26.0	27.3
Queue Length 50th (m)	8.4	40.5	1.4	37.2	26.1	0.0	10.0	39.3
Queue Length 95th (m)	22.5	69.2	4.5	51.4	45.9	0.0	19.8	63.4
Internal Link Dist (m)		313.1		171.7	108.7			165.6
Turn Bay Length (m)	50.0		50.0			15.0	50.0	
Base Capacity (vph)	383	1877	492	1982	352	417	442	716
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.37	0.03	0.33	0.39	0.09	0.15	0.39

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	608	33	15	539	68	28	100	33	63	124	135
Future Volume (vph)	76	608	33	15	539	68	28	100	33	63	124	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		4.0	6.0			6.0	6.0	4.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.98			1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00	0.95	1.00	
Satd. Flow (prot)	1689	3484		1706	3421			1810	1536	1788	1738	
Flt Permitted	0.40	1.00		0.31	1.00			0.87	1.00	0.54	1.00	
Satd. Flow (perm)	713	3484		564	3421			1600	1536	1015	1738	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	83	661	36	16	586	74	30	109	36	68	135	147
RTOR Reduction (vph)	0	2	0	0	8	0	0	0	28	0	36	0
Lane Group Flow (vph)	83	695	0	16	652	0	0	139	8	68	246	0
Confl. Peds. (#/hr)	1					1			1	1		
Heavy Vehicles (%)	8%	4%	3%	7%	5%	2%	5%	5%	4%	2%	4%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	2	0	0	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	58.9	58.9		65.6	65.6			24.1	24.1	35.1	35.1	
Effective Green, g (s)	58.9	58.9		65.6	65.6			24.1	24.1	35.1	35.1	
Actuated g/C Ratio	0.52	0.52		0.58	0.58			0.21	0.21	0.31	0.31	
Clearance Time (s)	6.0	6.0		4.0	6.0			6.0	6.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	372	1820		355	1991			342	328	364	541	
v/s Ratio Prot		c0.20		0.00	c0.19					0.01	c0.14	
v/s Ratio Perm	0.12			0.03				0.09	0.01	0.05		
v/c Ratio	0.22	0.38		0.05	0.33			0.41	0.02	0.19	0.46	
Uniform Delay, d1	14.5	16.0		10.6	12.2			38.1	35.0	27.9	31.1	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.4	0.6		0.1	0.4			0.8	0.0	0.2	0.6	
Delay (s)	15.9	16.7		10.6	12.6			38.9	35.0	28.2	31.7	
Level of Service	B	B		B	B			D	D	C	C	
Approach Delay (s)		16.6			12.6			38.1			31.0	
Approach LOS		B			B			D			C	

Intersection Summary			
HCM 2000 Control Delay	19.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	112.7	Sum of lost time (s)	20.0
Intersection Capacity Utilization	102.7%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

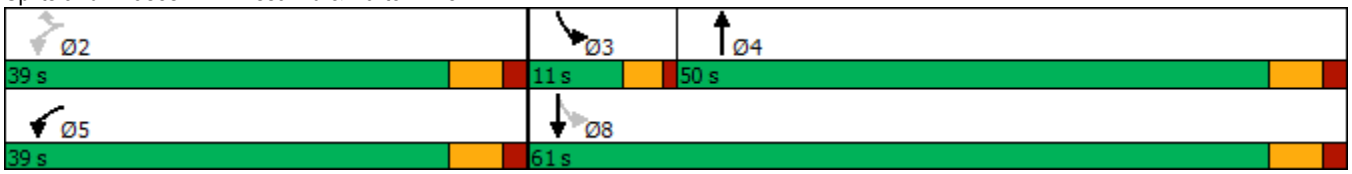


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	296	139	462	238	146	375
Future Volume (vph)	296	139	462	238	146	375
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	35.0		0.0	50.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Ped Bike Factor		0.99	0.99		1.00	
Frt		0.850	0.949			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1738	1498	3313	0	1615	3510
Flt Permitted	0.950				0.282	
Satd. Flow (perm)	1738	1478	3313	0	479	3510
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		141	117			
Link Speed (k/h)	48		48			48
Link Distance (m)	133.2		195.7			141.5
Travel Time (s)	10.0		14.7			10.6
Confl. Peds. (#/hr)		1		4	4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	9%	3%	5%	13%	4%
Adj. Flow (vph)	322	151	502	259	159	408
Shared Lane Traffic (%)						
Lane Group Flow (vph)	322	151	761	0	159	408
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	6.1	6.1	30.5		6.1	30.5
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	6.1	1.8		6.1	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Turn Type	pm+pt	Perm	NA		pm+pt	NA
Protected Phases	5		4		3	8
Permitted Phases	2	2			8	
Detector Phase	5	2	4		3	8
Switch Phase						
Minimum Initial (s)	15.0	15.0	44.0		7.0	44.0
Minimum Split (s)	23.0	23.0	50.0		11.0	50.0
Total Split (s)	39.0	39.0	50.0		11.0	61.0
Total Split (%)	39.0%	39.0%	50.0%		11.0%	61.0%
Maximum Green (s)	33.0	33.0	44.0		7.0	55.0
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.0	2.0	2.0		1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		4.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)	7.0	7.0	33.0			33.0
Flash Dont Walk (s)	10.0	10.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	21.7	21.7	44.1		57.2	55.2
Actuated g/C Ratio	0.24	0.24	0.50		0.64	0.62
v/c Ratio	0.76	0.32	0.45		0.40	0.19
Control Delay	43.3	7.4	13.7		10.4	8.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	43.3	7.4	13.7		10.4	8.2
LOS	D	A	B		B	A
Approach Delay	31.9		13.7			8.9
Approach LOS	C		B			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 88.9			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 17.0		Intersection LOS: B	
Intersection Capacity Utilization 74.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 7: Essa Rd & Burton Ave





Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	322	151	761	159	408
v/c Ratio	0.76	0.32	0.45	0.40	0.19
Control Delay	43.3	7.4	13.7	10.4	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	43.3	7.4	13.7	10.4	8.2
Queue Length 50th (m)	51.0	1.3	34.5	9.4	14.0
Queue Length 95th (m)	78.4	14.7	58.9	22.3	26.3
Internal Link Dist (m)	109.2		171.7		117.5
Turn Bay Length (m)		35.0		50.0	
Base Capacity (vph)	647	639	1704	397	2179
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.50	0.24	0.45	0.40	0.19

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	296	139	462	238	146	375
Future Volume (vph)	296	139	462	238	146	375
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		4.0	6.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frpb, ped/bikes	1.00	0.99	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.95		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1738	1478	3314		1615	3510
Flt Permitted	0.95	1.00	1.00		0.28	1.00
Satd. Flow (perm)	1738	1478	3314		479	3510
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	322	151	502	259	159	408
RTOR Reduction (vph)	0	107	59	0	0	0
Lane Group Flow (vph)	322	44	702	0	159	408
Confl. Peds. (#/hr)		1		4	4	
Heavy Vehicles (%)	5%	9%	3%	5%	13%	4%
Turn Type	pm+pt	Perm	NA		pm+pt	NA
Protected Phases	5		4		3	8
Permitted Phases	2	2			8	
Actuated Green, G (s)	21.7	21.7	44.2		55.2	55.2
Effective Green, g (s)	21.7	21.7	44.2		55.2	55.2
Actuated g/C Ratio	0.24	0.24	0.50		0.62	0.62
Clearance Time (s)	6.0	6.0	6.0		4.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	424	360	1647		386	2179
v/s Ratio Prot	c0.19		0.21		c0.03	0.12
v/s Ratio Perm		0.03			c0.22	
v/c Ratio	0.76	0.12	0.43		0.41	0.19
Uniform Delay, d1	31.2	26.2	14.3		8.0	7.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	7.6	0.2	0.8		0.7	0.2
Delay (s)	38.8	26.3	15.1		8.7	7.4
Level of Service	D	C	B		A	A
Approach Delay (s)	34.8		15.1			7.8
Approach LOS	C		B			A

Intersection Summary			
HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	88.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø8
Lane Configurations							
Traffic Volume (vph)	3	238	583	3	116	455	
Future Volume (vph)	3	238	583	3	116	455	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (m)	0.0	0.0		0.0	15.0		
Storage Lanes	1	0		0	1		
Taper Length (m)	2.5				2.5		
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95	
Ped Bike Factor	0.99		1.00				
Frt	0.867		0.999				
Flt Protected	0.999				0.950		
Satd. Flow (prot)	1599	0	3506	0	1789	3384	
Flt Permitted	0.999				0.383		
Satd. Flow (perm)	1599	0	3506	0	721	3384	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)	259		1				
Link Speed (k/h)	48		48			48	
Link Distance (m)	165.5		79.7			124.5	
Travel Time (s)	12.4		6.0			9.3	
Confl. Bikes (#/hr)		2		5			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	50%	2%	4%	0%	2%	7%	
Bus Blockages (#/hr)	0	0	0	0	0	4	
Adj. Flow (vph)	3	259	634	3	126	495	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	262	0	637	0	126	495	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Right	Left	Left	
Median Width(m)	3.7		3.7			3.7	
Link Offset(m)	0.0		0.0			0.0	
Crosswalk Width(m)	1.6		1.6			1.6	
Two way Left Turn Lane							
Headway Factor	0.99	0.99	0.99	0.99	0.99	1.00	
Turning Speed (k/h)	24	14		14	24		
Number of Detectors	1		2		1	2	
Detector Template	Left		Thru		Left	Thru	
Leading Detector (m)	6.1		30.5		6.1	30.5	
Trailing Detector (m)	0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0		0.0		0.0	0.0	
Detector 1 Size(m)	6.1		1.8		6.1	1.8	
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)	0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0		0.0		0.0	0.0	
Detector 2 Position(m)			28.7			28.7	
Detector 2 Size(m)			1.8			1.8	
Detector 2 Type			Cl+Ex			Cl+Ex	
Detector 2 Channel							



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø8
Detector 2 Extend (s)			0.0			0.0	
Turn Type	pm+pt		NA		pm+pt	NA	
Protected Phases	3		2		1	6	8
Permitted Phases	8				6		
Detector Phase	3		2		1	6	
Switch Phase							
Minimum Initial (s)	10.0		80.0		7.0	80.0	10.0
Minimum Split (s)	27.0		86.0		11.0	86.0	27.0
Total Split (s)	30.0		89.0		11.0	100.0	30.0
Total Split (%)	23.1%		68.5%		8.5%	76.9%	23%
Maximum Green (s)	24.0		83.0		7.0	94.0	24.0
Yellow Time (s)	4.0		4.0		3.0	4.0	4.0
All-Red Time (s)	2.0		2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0	
Total Lost Time (s)	6.0		6.0		4.0	6.0	
Lead/Lag			Lag		Lead		
Lead-Lag Optimize?			Yes		Yes		
Vehicle Extension (s)	3.0		3.0		3.0	3.0	3.0
Recall Mode	None		Max		None	Max	None
Walk Time (s)	10.0		65.0			65.0	10.0
Flash Dont Walk (s)	11.0		15.0			15.0	11.0
Pedestrian Calls (#/hr)	0		0			0	0
Act Effct Green (s)	11.0		83.0		96.0	94.0	
Actuated g/C Ratio	0.09		0.71		0.82	0.80	
v/c Ratio	0.68		0.26		0.19	0.18	
Control Delay	15.9		6.5		2.9	2.9	
Queue Delay	0.0		0.0		0.0	0.0	
Total Delay	15.9		6.5		2.9	2.9	
LOS	B		A		A	A	
Approach Delay	15.9		6.5			2.9	
Approach LOS	B		A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 117			
Natural Cycle: 125			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 6.6		Intersection LOS: A	
Intersection Capacity Utilization 101.3%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 8: Essa Rd & Gowan St





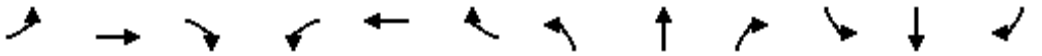
Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	262	637	126	495
v/c Ratio	0.68	0.26	0.19	0.18
Control Delay	15.9	6.5	2.9	2.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	15.9	6.5	2.9	2.9
Queue Length 50th (m)	0.7	23.3	4.0	10.3
Queue Length 95th (m)	25.1	35.5	9.3	18.0
Internal Link Dist (m)	141.5	55.7		100.5
Turn Bay Length (m)			15.0	
Base Capacity (vph)	534	2487	655	2719
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.49	0.26	0.19	0.18

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	3	238	583	3	116	455
Future Volume (vph)	3	238	583	3	116	455
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0		4.0	6.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frpb, ped/bikes	0.98		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.87		1.00		1.00	1.00
Flt Protected	1.00		1.00		0.95	1.00
Satd. Flow (prot)	1596		3508		1789	3384
Flt Permitted	1.00		1.00		0.38	1.00
Satd. Flow (perm)	1596		3508		721	3384
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	259	634	3	126	495
RTOR Reduction (vph)	235	0	0	0	0	0
Lane Group Flow (vph)	27	0	637	0	126	495
Confl. Bikes (#/hr)		2		5		
Heavy Vehicles (%)	50%	2%	4%	0%	2%	7%
Bus Blockages (#/hr)	0	0	0	0	0	4
Turn Type	pm+pt		NA		pm+pt	NA
Protected Phases	3		2		1	6
Permitted Phases	8				6	
Actuated Green, G (s)	11.0		83.0		94.0	94.0
Effective Green, g (s)	11.0		83.0		94.0	94.0
Actuated g/C Ratio	0.09		0.71		0.80	0.80
Clearance Time (s)	6.0		6.0		4.0	6.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	150		2488		643	2718
v/s Ratio Prot	c0.02		c0.18		0.01	c0.15
v/s Ratio Perm					0.15	
v/c Ratio	0.18		0.26		0.20	0.18
Uniform Delay, d1	48.9		6.0		2.6	2.6
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	0.6		0.2		0.2	0.1
Delay (s)	49.4		6.3		2.8	2.8
Level of Service	D		A		A	A
Approach Delay (s)	49.4		6.3			2.8
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	117.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	101.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

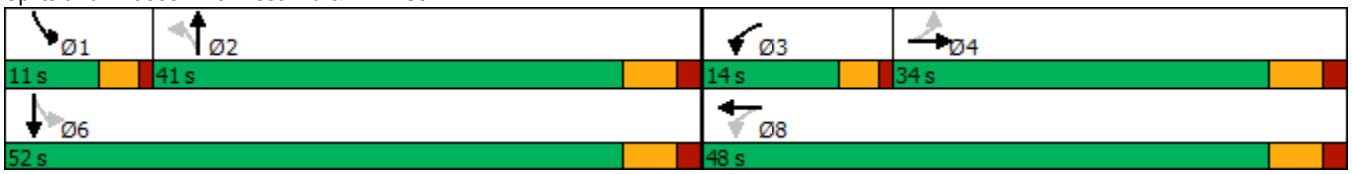


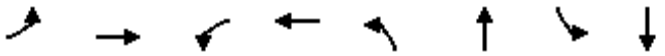
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	283	82	132	318	174	76	582	121	46	412	32
Future Volume (vph)	82	283	82	132	318	174	76	582	121	46	412	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	20.0		0.0	50.0		0.0	25.0		30.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.966			0.947			0.974			0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3365	0	1706	3318	0	1755	3430	0	1825	3416	0
Flt Permitted	0.456			0.411			0.479			0.212		
Satd. Flow (perm)	876	3365	0	737	3318	0	884	3430	0	407	3416	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			128			27			10	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		328.8			105.3			124.5			69.7	
Travel Time (s)		24.7			7.9			9.3			5.2	
Confl. Peds. (#/hr)	1		2	2		1	2		6	6		2
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	4%	6%	7%	3%	5%	4%	3%	5%	0%	6%	0%
Adj. Flow (vph)	88	304	88	142	342	187	82	626	130	49	443	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	88	392	0	142	529	0	82	756	0	49	477	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		3	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		34.0	34.0		7.0	34.0	
Minimum Split (s)	31.0	31.0		11.0	31.0		40.0	40.0		11.0	40.0	
Total Split (s)	34.0	34.0		14.0	48.0		41.0	41.0		11.0	52.0	
Total Split (%)	34.0%	34.0%		14.0%	48.0%		41.0%	41.0%		11.0%	52.0%	
Maximum Green (s)	28.0	28.0		10.0	42.0		35.0	35.0		7.0	46.0	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		4.0	6.0		6.0	6.0		4.0	6.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		None	Max		None	None		None	None	
Walk Time (s)	10.0	10.0			10.0		22.0	22.0			22.0	
Flash Dont Walk (s)	15.0	15.0			15.0		12.0	12.0			12.0	
Pedestrian Calls (#/hr)	0	0			0		0	0			0	
Act Effct Green (s)	28.9	28.9		44.1	42.1		34.3	34.3		44.9	42.9	
Actuated g/C Ratio	0.30	0.30		0.45	0.43		0.35	0.35		0.46	0.44	
v/c Ratio	0.34	0.38		0.33	0.35		0.26	0.62		0.17	0.31	
Control Delay	32.8	26.4		19.0	14.8		26.3	28.0		15.4	17.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.5		0.0	0.0	
Total Delay	32.8	26.4		19.0	14.8		26.3	28.6		15.4	17.6	
LOS	C	C		B	B		C	C		B	B	
Approach Delay		27.6			15.7			28.3			17.4	
Approach LOS		C			B			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 97			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay: 22.5		Intersection LOS: C	
Intersection Capacity Utilization 105.8%		ICU Level of Service G	
Analysis Period (min) 15			

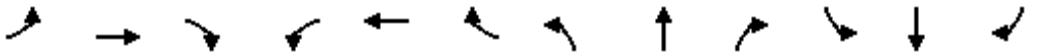
Splits and Phases: 9: Essa Rd & Tiffin St





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	88	392	142	529	82	756	49	477
v/c Ratio	0.34	0.38	0.33	0.35	0.26	0.62	0.17	0.31
Control Delay	32.8	26.4	19.0	14.8	26.3	28.0	15.4	17.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0
Total Delay	32.8	26.4	19.0	14.8	26.3	28.6	15.4	17.6
Queue Length 50th (m)	13.4	28.7	16.0	26.0	11.3	61.1	4.9	28.8
Queue Length 95th (m)	27.9	42.4	28.7	39.1	23.2	80.2	10.9	40.0
Internal Link Dist (m)		304.8		81.3		100.5		45.7
Turn Bay Length (m)	20.0		20.0		50.0		25.0	
Base Capacity (vph)	261	1029	435	1512	319	1258	290	1628
Starvation Cap Reductn	0	0	0	0	0	183	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.38	0.33	0.35	0.26	0.70	0.17	0.29

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	283	82	132	318	174	76	582	121	46	412	32
Future Volume (vph)	82	283	82	132	318	174	76	582	121	46	412	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		4.0	6.0		6.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.95		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1824	3366		1705	3318		1753	3431		1825	3417	
Flt Permitted	0.46	1.00		0.41	1.00		0.48	1.00		0.21	1.00	
Satd. Flow (perm)	875	3366		737	3318		884	3431		407	3417	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	88	304	88	142	342	187	82	626	130	49	443	34
RTOR Reduction (vph)	0	26	0	0	73	0	0	18	0	0	6	0
Lane Group Flow (vph)	88	366	0	142	456	0	82	738	0	49	471	0
Confl. Peds. (#/hr)	1		2	2		1	2		6	6		2
Heavy Vehicles (%)	0%	4%	6%	7%	3%	5%	4%	3%	5%	0%	6%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	28.9	28.9		42.1	42.1		34.3	34.3		43.8	43.8	
Effective Green, g (s)	28.9	28.9		42.1	42.1		34.3	34.3		43.8	43.8	
Actuated g/C Ratio	0.30	0.30		0.43	0.43		0.35	0.35		0.45	0.45	
Clearance Time (s)	6.0	6.0		4.0	6.0		6.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	258	993		407	1426		309	1202		261	1528	
v/s Ratio Prot		0.11		c0.03	0.14			c0.22		0.01	c0.14	
v/s Ratio Perm	0.10			c0.12			0.09			0.07		
v/c Ratio	0.34	0.37		0.35	0.32		0.27	0.61		0.19	0.31	
Uniform Delay, d1	27.0	27.3		17.6	18.4		22.8	26.3		16.8	17.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.6	1.1		0.5	0.6		0.5	0.9		0.4	0.1	
Delay (s)	30.6	28.3		18.2	19.0		23.2	27.3		17.1	17.5	
Level of Service	C	C		B	B		C	C		B	B	
Approach Delay (s)		28.8			18.8			26.9			17.4	
Approach LOS		C			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	97.9	Sum of lost time (s)	20.0
Intersection Capacity Utilization	105.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	40	27	342	13	9	328
Future Volume (vph)	40	27	342	13	9	328
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	15.0	
Storage Lanes	1	0		0	1	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.946		0.995			
Flt Protected	0.971				0.950	
Satd. Flow (prot)	1730	0	1874	0	1789	1883
Flt Permitted	0.971				0.950	
Satd. Flow (perm)	1730	0	1874	0	1789	1883
Link Speed (k/h)	48		48			48
Link Distance (m)	39.2		189.6			110.9
Travel Time (s)	2.9		14.2			8.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	29	372	14	10	357
Shared Lane Traffic (%)						
Lane Group Flow (vph)	72	0	386	0	10	357
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane			Yes			Yes
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

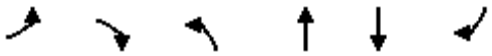
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 29.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	40	27	342	13	9	328
Future Volume (Veh/h)	40	27	342	13	9	328
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	29	372	14	10	357
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			190			223
pX, platoon unblocked	0.98	0.98			0.98	
vC, conflicting volume	756	379			386	
vC1, stage 1 conf vol	379					
vC2, stage 2 conf vol	377					
vCu, unblocked vol	739	354			361	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	96			99	
cM capacity (veh/h)	571	675			1171	

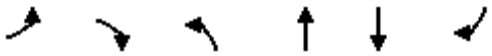
Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	72	386	10	357
Volume Left	43	0	10	0
Volume Right	29	14	0	0
cSH	609	1700	1171	1700
Volume to Capacity	0.12	0.23	0.01	0.21
Queue Length 95th (m)	3.0	0.0	0.2	0.0
Control Delay (s)	11.7	0.0	8.1	0.0
Lane LOS	B		A	
Approach Delay (s)	11.7	0.0	0.2	
Approach LOS	B			

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	29.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	13	80	26	583	455	4
Future Volume (vph)	13	80	26	583	455	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Frt	0.884				0.999	
Flt Protected	0.993			0.998		
Satd. Flow (prot)	1653	0	0	3571	3575	0
Flt Permitted	0.993			0.998		
Satd. Flow (perm)	1653	0	0	3571	3575	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	57.5			141.5	79.7	
Travel Time (s)	4.3			10.6	6.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	14	87	28	634	495	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	101	0	0	662	499	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 45.2%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	13	80	26	583	455	4
Future Volume (Veh/h)	13	80	26	583	455	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	87	28	634	495	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				141	80	
pX, platoon unblocked	0.95	0.97	0.97			
vC, conflicting volume	870	250	499			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	631	175	431			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	89	97			
cM capacity (veh/h)	382	816	1095			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	101	239	423	330	169
Volume Left	14	28	0	0	0
Volume Right	87	0	0	0	4
cSH	705	1095	1700	1700	1700
Volume to Capacity	0.14	0.03	0.25	0.19	0.10
Queue Length 95th (m)	3.8	0.6	0.0	0.0	0.0
Control Delay (s)	11.0	1.2	0.0	0.0	0.0
Lane LOS	B	A			
Approach Delay (s)	11.0	0.4		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	45.2%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	35	30	0	106	93
Future Volume (vph)	0	35	30	0	106	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.937	
Flt Protected				0.950	0.974	
Satd. Flow (prot)	1629	0	0	1789	1719	0
Flt Permitted				0.950	0.974	
Satd. Flow (perm)	1629	0	0	1789	1719	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	110.3			56.5	34.9	
Travel Time (s)	8.3			4.2	2.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	38	33	0	115	101
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	0	0	33	216	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	35	30	0	106	93
Future Volume (Veh/h)	0	35	30	0	106	93
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	38	33	0	115	101
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			38		85	19
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			38		85	19
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		87	90
cM capacity (veh/h)			1572		897	1059

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	38	33	216
Volume Left	0	33	115
Volume Right	38	0	101
cSH	1700	1572	966
Volume to Capacity	0.02	0.02	0.22
Queue Length 95th (m)	0.0	0.5	6.5
Control Delay (s)	0.0	7.3	9.8
Lane LOS		A	A
Approach Delay (s)	0.0	7.3	9.8
Approach LOS			A

Intersection Summary			
Average Delay		8.2	
Intersection Capacity Utilization		26.6%	ICU Level of Service
Analysis Period (min)		15	

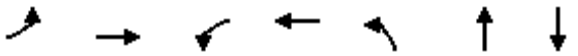
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	473	80	60	371	28	66	351	68	74	493	137
Future Volume (vph)	103	473	80	60	371	28	66	351	68	74	493	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	20.0		0.0	50.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt		0.978			0.989			0.976			0.974	
Flt Protected	0.950			0.950			0.950				0.995	
Satd. Flow (prot)	1807	3499	0	1825	3537	0	1825	1822	0	0	1813	0
Flt Permitted	0.488			0.375			0.314				0.860	
Satd. Flow (perm)	924	3499	0	718	3537	0	602	1822	0	0	1566	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			7			15			19	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		274.0			328.8			111.6			76.6	
Travel Time (s)		20.6			24.7			8.4			5.7	
Confl. Peds. (#/hr)	4		4	4		4	4		8	8		4
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	1%	5%	0%	2%	0%	0%	3%	0%	2%	3%	0%
Bus Blockages (#/hr)	0	0	1	0	0	1	0	0	1	0	0	1
Adj. Flow (vph)	105	483	82	61	379	29	67	358	69	76	503	140
Shared Lane Traffic (%)												
Lane Group Flow (vph)	105	565	0	61	408	0	67	427	0	0	719	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane								Yes				
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	34.0	34.0		34.0	34.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		26.0	26.0		26.0	26.0	
Total Split (s)	40.0	40.0		40.0	40.0		70.0	70.0		70.0	70.0	
Total Split (%)	36.4%	36.4%		36.4%	36.4%		63.6%	63.6%		63.6%	63.6%	
Maximum Green (s)	34.0	34.0		34.0	34.0		64.0	64.0		64.0	64.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	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	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		Min	Min		Min	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	34.7	34.7		34.7	34.7		44.3	44.3			44.3	
Actuated g/C Ratio	0.38	0.38		0.38	0.38		0.49	0.49			0.49	
v/c Ratio	0.30	0.42		0.22	0.30		0.23	0.48			0.93	
Control Delay	27.1	23.6		26.8	22.6		14.5	16.2			40.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	27.1	23.6		26.8	22.6		14.5	16.2			40.8	
LOS	C	C		C	C		B	B			D	
Approach Delay		24.2			23.2			16.0			40.8	
Approach LOS		C			C			B			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 91.2			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 27.3		Intersection LOS: C	
Intersection Capacity Utilization 137.9%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 2: Tiffin St & Innisfil St



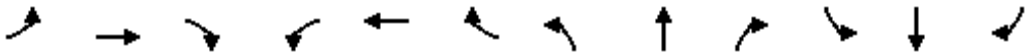


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	105	565	61	408	67	427	719
v/c Ratio	0.30	0.42	0.22	0.30	0.23	0.48	0.93
Control Delay	27.1	23.6	26.8	22.6	14.5	16.2	40.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.1	23.6	26.8	22.6	14.5	16.2	40.8
Queue Length 50th (m)	12.5	36.0	7.0	25.0	6.4	45.2	109.0
Queue Length 95th (m)	33.3	67.4	21.5	48.6	14.0	66.1	163.0
Internal Link Dist (m)		250.0		304.8		87.6	52.6
Turn Bay Length (m)	20.0		20.0		50.0		
Base Capacity (vph)	351	1340	272	1348	430	1307	1125
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.42	0.22	0.30	0.16	0.33	0.64

Intersection Summary

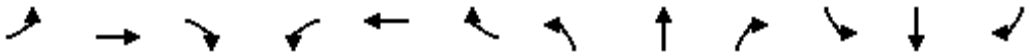
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	473	80	60	371	28	66	351	68	74	493	137
Future Volume (vph)	103	473	80	60	371	28	66	351	68	74	493	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.98		1.00	0.99		1.00	0.98			0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1799	3501		1819	3538		1823	1822			1812	
Flt Permitted	0.49	1.00		0.37	1.00		0.31	1.00			0.86	
Satd. Flow (perm)	925	3501		717	3538		602	1822			1566	
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)	105	483	82	61	379	29	67	358	69	76	503	140
RTOR Reduction (vph)	0	11	0	0	4	0	0	8	0	0	10	0
Lane Group Flow (vph)	105	554	0	61	404	0	67	419	0	0	709	0
Confl. Peds. (#/hr)	4		4	4		4	4		8	8		4
Heavy Vehicles (%)	1%	1%	5%	0%	2%	0%	0%	3%	0%	2%	3%	0%
Bus Blockages (#/hr)	0	0	1	0	0	1	0	0	1	0	0	1
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	34.6	34.6		34.6	34.6		44.3	44.3			44.3	
Effective Green, g (s)	34.6	34.6		34.6	34.6		44.3	44.3			44.3	
Actuated g/C Ratio	0.38	0.38		0.38	0.38		0.49	0.49			0.49	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	352	1332		272	1346		293	887			763	
v/s Ratio Prot		c0.16			0.11			0.23				
v/s Ratio Perm	0.11			0.09			0.11				c0.45	
v/c Ratio	0.30	0.42		0.22	0.30		0.23	0.47			0.93	
Uniform Delay, d1	19.7	20.7		19.1	19.7		13.4	15.5			21.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	2.2	1.0		1.9	0.6		0.4	0.4			17.5	
Delay (s)	21.8	21.7		21.0	20.3		13.8	15.9			39.3	
Level of Service	C	C		C	C		B	B			D	
Approach Delay (s)		21.7			20.3			15.6			39.3	
Approach LOS		C			C			B			D	

Intersection Summary			
HCM 2000 Control Delay	25.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	90.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	137.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	0	41	29	0	48	106	394	42	70	528	35
Future Volume (vph)	28	0	41	29	0	48	106	394	42	70	528	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	15.0		0.0	15.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.919			0.916			0.985			0.991	
Flt Protected		0.980			0.981		0.950			0.950		
Satd. Flow (prot)	0	1730	0	0	1692	0	1789	1889	0	1789	1819	0
Flt Permitted		0.980			0.981		0.950			0.950		
Satd. Flow (perm)	0	1730	0	0	1692	0	1789	1889	0	1789	1819	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		113.3			101.4			102.4			111.6	
Travel Time (s)		8.5			7.6			7.7			8.4	
Confl. Peds. (#/hr)			1				1					3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	0%	2%	2%	2%	2%	0%	2%	2%	5%	0%
Adj. Flow (vph)	30	0	45	32	0	52	115	428	46	76	574	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	75	0	0	84	0	115	474	0	76	612	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	

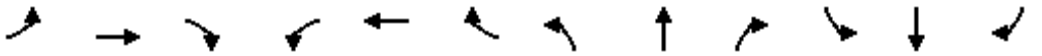
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	0	41	29	0	48	106	394	42	70	528	35
Future Volume (Veh/h)	28	0	41	29	0	48	106	394	42	70	528	35
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	30	0	45	32	0	52	115	428	46	76	574	38
Pedestrians		3						1				
Lane Width (m)		3.7						3.7				
Walking Speed (m/s)		1.1						1.1				
Percent Blockage		0						0				
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)								301			112	
pX, platoon unblocked	0.73	0.73	0.73	0.73	0.73		0.73					
vC, conflicting volume	1458	1452	597	1453	1448	451	615			474		
vC1, stage 1 conf vol	748	748		681	681							
vC2, stage 2 conf vol	710	704		772	767							
vCu, unblocked vol	1442	1434	255	1435	1428	451	280			474		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	87	100	92	84	100	91	88			93		
cM capacity (veh/h)	222	246	570	200	220	608	928			1088		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	75	84	115	474	76	612
Volume Left	30	32	115	0	76	0
Volume Right	45	52	0	46	0	38
cSH	351	342	928	1700	1088	1700
Volume to Capacity	0.21	0.25	0.12	0.28	0.07	0.36
Queue Length 95th (m)	6.1	7.2	3.2	0.0	1.7	0.0
Control Delay (s)	18.0	18.9	9.4	0.0	8.6	0.0
Lane LOS	C	C	A		A	
Approach Delay (s)	18.0	18.9	1.8		0.9	
Approach LOS	C	C				

Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	51.6%	ICU Level of Service	A	
Analysis Period (min)	15			

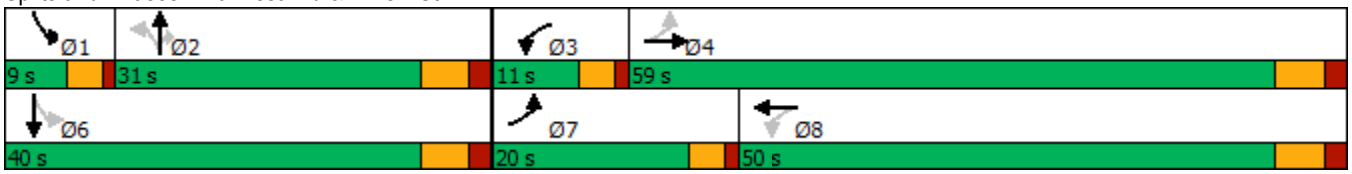


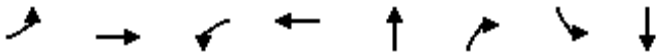
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	220	805	51	34	894	79	25	173	33	147	194	220
Future Volume (vph)	220	805	51	34	894	79	25	173	33	147	194	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	50.0		0.0	0.0		15.0	50.0		20.0
Storage Lanes	1		0	1		0	0		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00			1.00			0.99	
Frt		0.991			0.988				0.850		0.920	
Flt Protected	0.950			0.950				0.994		0.950		
Satd. Flow (prot)	1825	3509	0	1772	3504	0	0	1893	1620	1807	1694	0
Flt Permitted	0.163			0.297				0.841		0.443		
Satd. Flow (perm)	313	3509	0	553	3504	0	0	1601	1620	843	1694	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			10				149		54	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		337.1			195.7			132.7			198.2	
Travel Time (s)		25.3			14.7			10.0			14.9	
Confl. Peds. (#/hr)	1		3	3		1	2					2
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	3%	2%	3%	3%	0%	0%	1%	0%	1%	4%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	2	0	0	0
Adj. Flow (vph)	222	813	52	34	903	80	25	175	33	148	196	222
Shared Lane Traffic (%)												
Lane Group Flow (vph)	222	865	0	34	983	0	0	200	33	148	418	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane											Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	1.00	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	44.0		7.0	44.0		24.0	24.0	24.0	5.0	24.0	
Minimum Split (s)	9.5	50.0		11.0	50.0		30.0	30.0	30.0	9.0	30.0	
Total Split (s)	20.0	59.0		11.0	50.0		31.0	31.0	31.0	9.0	40.0	
Total Split (%)	18.2%	53.6%		10.0%	45.5%		28.2%	28.2%	28.2%	8.2%	36.4%	
Maximum Green (s)	16.0	53.0		7.0	44.0		25.0	25.0	25.0	5.0	34.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.0		4.0	6.0			6.0	6.0	4.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Max		None	Max		None	None	None	None	None	
Walk Time (s)		32.0			32.0		7.0	7.0	7.0		7.0	
Flash Dont Walk (s)		12.0			12.0		11.0	11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0			0		0	0	0		0	
Act Effct Green (s)	63.4	54.9		54.5	45.5			24.4	24.4	35.4	33.4	
Actuated g/C Ratio	0.59	0.51		0.51	0.43			0.23	0.23	0.33	0.31	
v/c Ratio	0.63	0.48		0.09	0.66			0.55	0.07	0.46	0.74	
Control Delay	19.0	18.4		10.1	27.1			43.4	0.3	32.4	37.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay	19.0	18.4		10.1	27.1			43.4	0.3	32.4	37.9	
LOS	B	B		B	C			D	A	C	D	
Approach Delay		18.5			26.5			37.3			36.4	
Approach LOS		B			C			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 106.8			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 26.3		Intersection LOS: C	
Intersection Capacity Utilization 111.0%		ICU Level of Service H	
Analysis Period (min) 15			

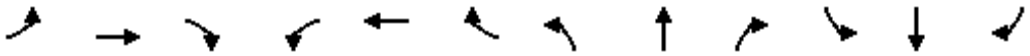
Splits and Phases: 6: Essa Rd & Innisfil St





Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	222	865	34	983	200	33	148	418
v/c Ratio	0.63	0.48	0.09	0.66	0.55	0.07	0.46	0.74
Control Delay	19.0	18.4	10.1	27.1	43.4	0.3	32.4	37.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.0	18.4	10.1	27.1	43.4	0.3	32.4	37.9
Queue Length 50th (m)	19.8	63.1	2.7	81.7	38.1	0.0	23.2	70.5
Queue Length 95th (m)	33.6	81.7	6.7	113.0	61.6	0.0	39.0	107.2
Internal Link Dist (m)		313.1		171.7	108.7			174.2
Turn Bay Length (m)	50.0		50.0			15.0	50.0	
Base Capacity (vph)	412	1808	362	1499	375	493	324	576
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.48	0.09	0.66	0.53	0.07	0.46	0.73

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	220	805	51	34	894	79	25	173	33	147	194	220
Future Volume (vph)	220	805	51	34	894	79	25	173	33	147	194	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0			6.0	6.0	4.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.99			1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00	0.95	1.00	
Satd. Flow (prot)	1825	3509		1771	3503			1892	1620	1807	1695	
Flt Permitted	0.16	1.00		0.30	1.00			0.84	1.00	0.44	1.00	
Satd. Flow (perm)	312	3509		554	3503			1601	1620	842	1695	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	222	813	52	34	903	80	25	175	33	148	196	222
RTOR Reduction (vph)	0	4	0	0	6	0	0	0	26	0	37	0
Lane Group Flow (vph)	222	861	0	34	977	0	0	200	7	148	381	0
Confl. Peds. (#/hr)	1		3	3		1	2					2
Heavy Vehicles (%)	0%	3%	2%	3%	3%	0%	0%	1%	0%	1%	4%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	2	0	0	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	63.1	55.0		51.4	47.3			24.4	24.4	33.4	33.4	
Effective Green, g (s)	63.1	55.0		51.4	47.3			24.4	24.4	33.4	33.4	
Actuated g/C Ratio	0.58	0.51		0.47	0.44			0.22	0.22	0.31	0.31	
Clearance Time (s)	4.0	6.0		4.0	6.0			6.0	6.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	345	1778		308	1527			360	364	303	521	
v/s Ratio Prot	c0.07	0.25		0.00	0.28					0.02	c0.22	
v/s Ratio Perm	c0.30			0.05				0.12	0.00	0.13		
v/c Ratio	0.64	0.48		0.11	0.64			0.56	0.02	0.49	0.73	
Uniform Delay, d1	14.7	17.5		15.4	23.9			37.2	32.7	30.5	33.5	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.1	0.9		0.2	2.1			1.9	0.0	1.2	5.2	
Delay (s)	18.8	18.4		15.6	26.0			39.1	32.8	31.7	38.8	
Level of Service	B	B		B	C			D	C	C	D	
Approach Delay (s)		18.5			25.7			38.2			36.9	
Approach LOS		B			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	26.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	108.5	Sum of lost time (s)	20.0
Intersection Capacity Utilization	111.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

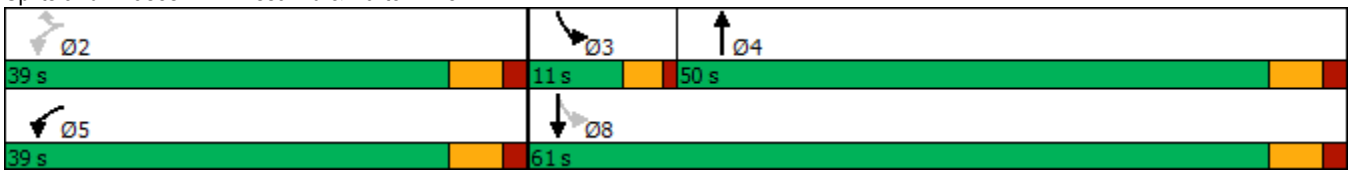


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	405	254	520	345	219	503
Future Volume (vph)	405	254	520	345	219	503
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	35.0		0.0	50.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Ped Bike Factor		0.97	0.99		1.00	
Frt		0.850	0.940			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1772	1585	3340	0	1738	3579
Flt Permitted	0.950				0.218	
Satd. Flow (perm)	1772	1542	3340	0	398	3579
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		189	203			
Link Speed (k/h)	48		48			48
Link Distance (m)	133.2		195.7			152.1
Travel Time (s)	10.0		14.7			11.4
Confl. Peds. (#/hr)		9		7	7	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	3%	2%	1%	5%	2%
Adj. Flow (vph)	418	262	536	356	226	519
Shared Lane Traffic (%)						
Lane Group Flow (vph)	418	262	892	0	226	519
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	6.1	6.1	30.5		6.1	30.5
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	6.1	1.8		6.1	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Turn Type	pm+pt	Perm	NA		pm+pt	NA
Protected Phases	5		4		3	8
Permitted Phases	2	2			8	
Detector Phase	5	2	4		3	8
Switch Phase						
Minimum Initial (s)	15.0	15.0	44.0		7.0	44.0
Minimum Split (s)	23.0	23.0	50.0		11.0	50.0
Total Split (s)	39.0	39.0	50.0		11.0	61.0
Total Split (%)	39.0%	39.0%	50.0%		11.0%	61.0%
Maximum Green (s)	33.0	33.0	44.0		7.0	55.0
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.0	2.0	2.0		1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		4.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)	7.0	7.0	33.0			33.0
Flash Dont Walk (s)	10.0	10.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	26.0	26.0	44.2		57.2	55.2
Actuated g/C Ratio	0.28	0.28	0.47		0.61	0.59
v/c Ratio	0.85	0.46	0.53		0.66	0.25
Control Delay	48.0	10.9	15.0		20.4	10.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	48.0	10.9	15.0		20.4	10.2
LOS	D	B	B		C	B
Approach Delay	33.7		15.0			13.3
Approach LOS	C		B			B

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 93.3			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 19.9		Intersection LOS: B	
Intersection Capacity Utilization 84.6%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 7: Essa Rd & Burton Ave





Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	418	262	892	226	519
v/c Ratio	0.85	0.46	0.53	0.66	0.25
Control Delay	48.0	10.9	15.0	20.4	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	48.0	10.9	15.0	20.4	10.2
Queue Length 50th (m)	70.5	9.9	44.0	17.0	22.1
Queue Length 95th (m)	104.9	29.5	68.7	#36.4	35.6
Internal Link Dist (m)	109.2		171.7		128.1
Turn Bay Length (m)		35.0		50.0	
Base Capacity (vph)	629	669	1688	344	2118
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.66	0.39	0.53	0.66	0.25

Intersection Summary

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



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	405	254	520	345	219	503
Future Volume (vph)	405	254	520	345	219	503
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		4.0	6.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frpb, ped/bikes	1.00	0.97	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.94		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1772	1543	3341		1738	3579
Flt Permitted	0.95	1.00	1.00		0.22	1.00
Satd. Flow (perm)	1772	1543	3341		398	3579
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	418	262	536	356	226	519
RTOR Reduction (vph)	0	136	107	0	0	0
Lane Group Flow (vph)	418	126	785	0	226	519
Confl. Peds. (#/hr)		9		7	7	
Heavy Vehicles (%)	3%	3%	2%	1%	5%	2%
Turn Type	pm+pt	Perm	NA		pm+pt	NA
Protected Phases	5		4		3	8
Permitted Phases	2	2			8	
Actuated Green, G (s)	26.0	26.0	44.2		55.2	55.2
Effective Green, g (s)	26.0	26.0	44.2		55.2	55.2
Actuated g/C Ratio	0.28	0.28	0.47		0.59	0.59
Clearance Time (s)	6.0	6.0	6.0		4.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	494	430	1584		336	2119
v/s Ratio Prot	c0.24		0.24		c0.05	0.15
v/s Ratio Perm		0.08			c0.35	
v/c Ratio	0.85	0.29	0.50		0.67	0.24
Uniform Delay, d1	31.7	26.4	16.8		11.0	9.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	12.6	0.4	1.1		5.2	0.3
Delay (s)	44.3	26.8	18.0		16.2	9.3
Level of Service	D	C	B		B	A
Approach Delay (s)	37.6		18.0			11.4
Approach LOS	D		B			B

Intersection Summary			
HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	93.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	84.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø8
Lane Configurations							
Traffic Volume (vph)	7	376	696	10	206	712	
Future Volume (vph)	7	376	696	10	206	712	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (m)	0.0	0.0		0.0	15.0		
Storage Lanes	1	0		0	1		
Taper Length (m)	2.5				2.5		
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95	
Ped Bike Factor	0.98		1.00		1.00		
Frt	0.867		0.998				
Flt Protected	0.999				0.950		
Satd. Flow (prot)	1635	0	3571	0	1807	3515	
Flt Permitted	0.999				0.338		
Satd. Flow (perm)	1635	0	3571	0	641	3515	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)	298		2				
Link Speed (k/h)	48		48			48	
Link Distance (m)	165.5		69.2			124.5	
Travel Time (s)	12.4		5.2			9.3	
Confl. Peds. (#/hr)		2		9	9		
Confl. Bikes (#/hr)		2		5			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	
Heavy Vehicles (%)	0%	0%	2%	0%	1%	3%	
Bus Blockages (#/hr)	0	0	0	0	0	4	
Adj. Flow (vph)	7	388	718	10	212	734	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	395	0	728	0	212	734	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Right	Left	Left	
Median Width(m)	3.7		3.7			3.7	
Link Offset(m)	0.0		0.0			0.0	
Crosswalk Width(m)	1.6		1.6			1.6	
Two way Left Turn Lane							
Headway Factor	0.99	0.99	0.99	0.99	0.99	1.00	
Turning Speed (k/h)	24	14		14	24		
Number of Detectors	1		2		1	2	
Detector Template	Left		Thru		Left	Thru	
Leading Detector (m)	6.1		30.5		6.1	30.5	
Trailing Detector (m)	0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0		0.0		0.0	0.0	
Detector 1 Size(m)	6.1		1.8		6.1	1.8	
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)	0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0		0.0		0.0	0.0	
Detector 2 Position(m)			28.7			28.7	
Detector 2 Size(m)			1.8			1.8	
Detector 2 Type			Cl+Ex			Cl+Ex	



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø8
Detector 2 Channel							
Detector 2 Extend (s)			0.0			0.0	
Turn Type	pm+pt		NA		pm+pt	NA	
Protected Phases	3		2		1	6	8
Permitted Phases	8				6		
Detector Phase	3		2		1	6	
Switch Phase							
Minimum Initial (s)	10.0		80.0		7.0	80.0	10.0
Minimum Split (s)	27.0		86.0		11.0	86.0	27.0
Total Split (s)	33.0		86.0		11.0	97.0	33.0
Total Split (%)	25.4%		66.2%		8.5%	74.6%	25%
Maximum Green (s)	27.0		80.0		7.0	91.0	27.0
Yellow Time (s)	4.0		4.0		3.0	4.0	4.0
All-Red Time (s)	2.0		2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0	
Total Lost Time (s)	6.0		6.0		4.0	6.0	
Lead/Lag			Lag		Lead		
Lead-Lag Optimize?			Yes		Yes		
Vehicle Extension (s)	3.0		3.0		3.0	3.0	3.0
Recall Mode	None		Max		None	Max	None
Walk Time (s)	10.0		65.0			65.0	10.0
Flash Dont Walk (s)	11.0		15.0			15.0	11.0
Pedestrian Calls (#/hr)	0		0			0	0
Act Effct Green (s)	15.5		80.2		93.2	91.2	
Actuated g/C Ratio	0.13		0.68		0.78	0.77	
v/c Ratio	0.84		0.30		0.37	0.27	
Control Delay	29.0		8.9		5.7	4.9	
Queue Delay	0.0		0.0		0.0	0.5	
Total Delay	29.0		8.9		5.7	5.4	
LOS	C		A		A	A	
Approach Delay	29.0		8.9			5.5	
Approach LOS	C		A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 118.8			
Natural Cycle: 125			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 11.2		Intersection LOS: B	
Intersection Capacity Utilization 115.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 8: Essa Rd & Gowan St





Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	395	728	212	734
v/c Ratio	0.84	0.30	0.37	0.27
Control Delay	29.0	8.9	5.7	4.9
Queue Delay	0.0	0.0	0.0	0.5
Total Delay	29.0	8.9	5.7	5.4
Queue Length 50th (m)	21.2	30.9	8.9	20.1
Queue Length 95th (m)	57.7	55.7	24.0	42.5
Internal Link Dist (m)	141.5	45.2		100.5
Turn Bay Length (m)			15.0	
Base Capacity (vph)	602	2411	571	2699
Starvation Cap Reductn	0	0	0	1454
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.66	0.30	0.37	0.59

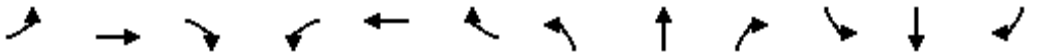
Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	7	376	696	10	206	712
Future Volume (vph)	7	376	696	10	206	712
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0		4.0	6.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frpb, ped/bikes	0.98		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.87		1.00		1.00	1.00
Flt Protected	1.00		1.00		0.95	1.00
Satd. Flow (prot)	1634		3571		1806	3515
Flt Permitted	1.00		1.00		0.34	1.00
Satd. Flow (perm)	1634		3571		642	3515
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	7	388	718	10	212	734
RTOR Reduction (vph)	259	0	1	0	0	0
Lane Group Flow (vph)	136	0	727	0	212	734
Confl. Peds. (#/hr)		2		9	9	
Confl. Bikes (#/hr)		2		5		
Heavy Vehicles (%)	0%	0%	2%	0%	1%	3%
Bus Blockages (#/hr)	0	0	0	0	0	4
Turn Type	pm+pt		NA		pm+pt	NA
Protected Phases	3		2		1	6
Permitted Phases	8				6	
Actuated Green, G (s)	15.5		80.3		91.3	91.3
Effective Green, g (s)	15.5		80.3		91.3	91.3
Actuated g/C Ratio	0.13		0.68		0.77	0.77
Clearance Time (s)	6.0		6.0		4.0	6.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	213		2413		561	2701
v/s Ratio Prot	c0.08		0.20		c0.02	0.21
v/s Ratio Perm					c0.27	
v/c Ratio	0.64		0.30		0.38	0.27
Uniform Delay, d1	49.0		7.8		4.0	4.0
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	6.1		0.3		0.4	0.2
Delay (s)	55.1		8.2		4.5	4.3
Level of Service	E		A		A	A
Approach Delay (s)	55.1		8.2			4.3
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	118.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	115.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

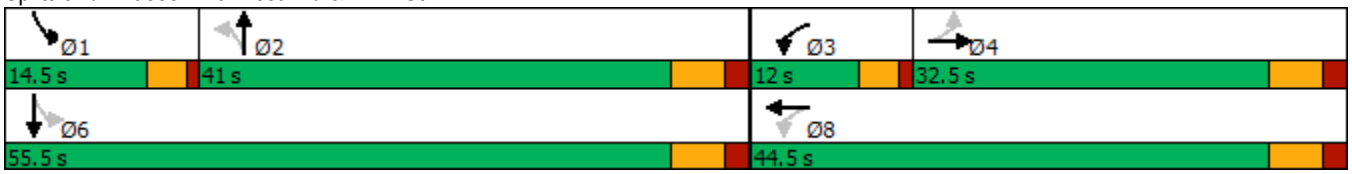


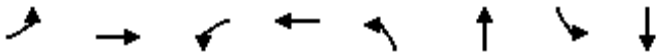
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	471	115	158	277	99	117	716	214	184	697	69
Future Volume (vph)	58	471	115	158	277	99	117	716	214	184	697	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	20.0		0.0	50.0		0.0	25.0		30.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.970			0.961			0.965			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	3449	0	1706	3362	0	1825	3481	0	1825	3527	0
Flt Permitted	0.522			0.236			0.353			0.120		
Satd. Flow (perm)	971	3449	0	424	3362	0	677	3481	0	230	3527	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29			59			43			15	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		328.8			105.3			124.5			69.7	
Travel Time (s)		24.7			7.9			9.3			5.2	
Confl. Peds. (#/hr)	4		1	1		4	4		7	7		4
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
Heavy Vehicles (%)	3%	1%	8%	7%	1%	12%	0%	1%	0%	0%	2%	2%
Adj. Flow (vph)	60	486	119	163	286	102	121	738	221	190	719	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	605	0	163	388	0	121	959	0	190	790	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		3	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		34.0	34.0		5.0	34.0	
Minimum Split (s)	31.0	31.0		11.0	31.0		40.0	40.0		9.5	40.0	
Total Split (s)	32.5	32.5		12.0	44.5		41.0	41.0		14.5	55.5	
Total Split (%)	32.5%	32.5%		12.0%	44.5%		41.0%	41.0%		14.5%	55.5%	
Maximum Green (s)	26.5	26.5		8.0	38.5		35.0	35.0		10.5	49.5	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		4.0	6.0		6.0	6.0		4.0	6.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		None	Max		None	None		None	None	
Walk Time (s)	10.0	10.0			10.0		22.0	22.0			22.0	
Flash Dont Walk (s)	15.0	15.0			15.0		12.0	12.0			12.0	
Pedestrian Calls (#/hr)	0	0			0		0	0			0	
Act Effct Green (s)	26.6	26.6		40.5	38.5		34.6	34.6		50.5	48.5	
Actuated g/C Ratio	0.27	0.27		0.41	0.39		0.35	0.35		0.51	0.49	
v/c Ratio	0.23	0.64		0.59	0.29		0.51	0.77		0.69	0.46	
Control Delay	31.7	34.2		29.2	18.3		35.0	32.4		29.2	17.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	3.0		0.0	0.0	
Total Delay	31.7	34.2		29.2	18.3		35.0	35.3		29.2	17.2	
LOS	C	C		C	B		D	D		C	B	
Approach Delay		33.9			21.5			35.3			19.6	
Approach LOS		C			C			D			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 99			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 28.0		Intersection LOS: C	
Intersection Capacity Utilization 105.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 9: Essa Rd & Tiffin St

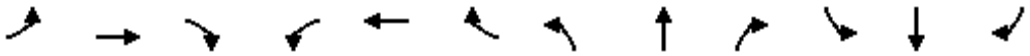




Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	60	605	163	388	121	959	190	790
v/c Ratio	0.23	0.64	0.59	0.29	0.51	0.77	0.69	0.46
Control Delay	31.7	34.2	29.2	18.3	35.0	32.4	29.2	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Total Delay	31.7	34.2	29.2	18.3	35.0	35.3	29.2	17.2
Queue Length 50th (m)	9.1	52.1	20.4	22.5	18.4	82.5	19.0	49.2
Queue Length 95th (m)	19.9	70.4	34.7	33.4	37.2	106.4	#41.0	64.0
Internal Link Dist (m)		304.8		81.3		100.5		45.7
Turn Bay Length (m)	20.0		20.0		50.0		25.0	
Base Capacity (vph)	260	947	277	1344	239	1259	286	1772
Starvation Cap Reductn	0	0	0	0	0	197	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.64	0.59	0.29	0.51	0.90	0.66	0.45

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	471	115	158	277	99	117	716	214	184	697	69
Future Volume (vph)	58	471	115	158	277	99	117	716	214	184	697	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		4.0	6.0		6.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.96		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1767	3451		1706	3360		1823	3483		1825	3525	
Flt Permitted	0.52	1.00		0.24	1.00		0.35	1.00		0.12	1.00	
Satd. Flow (perm)	972	3451		423	3360		677	3483		231	3525	
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)	60	486	119	163	286	102	121	738	221	190	719	71
RTOR Reduction (vph)	0	21	0	0	36	0	0	28	0	0	8	0
Lane Group Flow (vph)	60	584	0	163	352	0	121	931	0	190	782	0
Confl. Peds. (#/hr)	4		1	1		4	4		7	7		4
Heavy Vehicles (%)	3%	1%	8%	7%	1%	12%	0%	1%	0%	0%	2%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	26.6	26.6		38.5	38.5		34.6	34.6		48.4	48.4	
Effective Green, g (s)	26.6	26.6		38.5	38.5		34.6	34.6		48.4	48.4	
Actuated g/C Ratio	0.27	0.27		0.39	0.39		0.35	0.35		0.49	0.49	
Clearance Time (s)	6.0	6.0		4.0	6.0		6.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	261	928		267	1307		236	1218		270	1725	
v/s Ratio Prot		0.17		c0.05	0.10			c0.27		c0.07	0.22	
v/s Ratio Perm	0.06			c0.19			0.18			0.27		
v/c Ratio	0.23	0.63		0.61	0.27		0.51	0.76		0.70	0.45	
Uniform Delay, d1	28.2	31.8		21.6	20.6		25.5	28.5		18.4	16.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.0	3.2		4.1	0.5		1.9	2.9		8.1	0.2	
Delay (s)	30.2	35.0		25.7	21.1		27.3	31.4		26.5	16.8	
Level of Service	C	D		C	C		C	C		C	B	
Approach Delay (s)		34.6			22.5			31.0			18.6	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	26.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	98.9	Sum of lost time (s)	20.0
Intersection Capacity Utilization	105.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	33	23	496	46	32	594
Future Volume (vph)	33	23	496	46	32	594
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	15.0	
Storage Lanes	1	0		0	1	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.945		0.989			
Flt Protected	0.971				0.950	
Satd. Flow (prot)	1728	0	1863	0	1789	1883
Flt Permitted	0.971				0.950	
Satd. Flow (perm)	1728	0	1863	0	1789	1883
Link Speed (k/h)	48		48			48
Link Distance (m)	32.4		198.2			102.4
Travel Time (s)	2.4		14.9			7.7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	25	539	50	35	646
Shared Lane Traffic (%)						
Lane Group Flow (vph)	61	0	589	0	35	646
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane			Yes			Yes
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

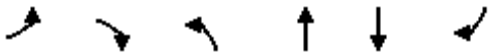
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 41.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	33	23	496	46	32	594
Future Volume (Veh/h)	33	23	496	46	32	594
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	36	25	539	50	35	646
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			198			214
pX, platoon unblocked	0.89	0.88			0.88	
vC, conflicting volume	1280	564			589	
vC1, stage 1 conf vol	564					
vC2, stage 2 conf vol	716					
vCu, unblocked vol	1197	432			461	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	95			96	
cM capacity (veh/h)	388	546			965	

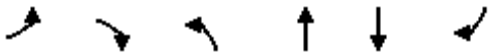
Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	61	589	35	646
Volume Left	36	0	35	0
Volume Right	25	50	0	0
cSH	440	1700	965	1700
Volume to Capacity	0.14	0.35	0.04	0.38
Queue Length 95th (m)	3.6	0.0	0.9	0.0
Control Delay (s)	14.5	0.0	8.9	0.0
Lane LOS	B		A	
Approach Delay (s)	14.5	0.0	0.5	
Approach LOS	B			

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	41.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	14	61	88	692	708	18
Future Volume (vph)	14	61	88	692	708	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Frt	0.890				0.996	
Flt Protected	0.991			0.994		
Satd. Flow (prot)	1661	0	0	3557	3564	0
Flt Permitted	0.991			0.994		
Satd. Flow (perm)	1661	0	0	3557	3564	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	65.0			152.1	69.2	
Travel Time (s)	4.9			11.4	5.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	66	96	752	770	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	81	0	0	848	790	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 56.4%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	61	88	692	708	18
Future Volume (Veh/h)	14	61	88	692	708	18
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	66	96	752	770	20
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				152	69	
pX, platoon unblocked	0.94	0.94	0.94			
vC, conflicting volume	1348	395	790			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1243	229	649			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	91	89			
cM capacity (veh/h)	140	727	877			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	81	347	501	513	277
Volume Left	15	96	0	0	0
Volume Right	66	0	0	0	20
cSH	409	877	1700	1700	1700
Volume to Capacity	0.20	0.11	0.29	0.30	0.16
Queue Length 95th (m)	5.5	2.8	0.0	0.0	0.0
Control Delay (s)	16.0	3.6	0.0	0.0	0.0
Lane LOS	C	A			
Approach Delay (s)	16.0	1.5		0.0	
Approach LOS	C				

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	56.4%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	112	106	0	76	67
Future Volume (vph)	0	112	106	0	76	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.937	
Flt Protected				0.950	0.974	
Satd. Flow (prot)	1629	0	0	1789	1719	0
Flt Permitted				0.950	0.974	
Satd. Flow (perm)	1629	0	0	1789	1719	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	101.4			58.2	35.6	
Travel Time (s)	7.6			4.4	2.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	122	115	0	83	73
Shared Lane Traffic (%)						
Lane Group Flow (vph)	122	0	0	115	156	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

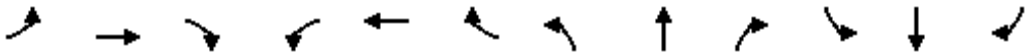
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 27.5%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	112	106	0	76	67
Future Volume (Veh/h)	0	112	106	0	76	67
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	122	115	0	83	73
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			122		291	61
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			122		291	61
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			92		87	93
cM capacity (veh/h)			1465		645	1004

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	122	115	156
Volume Left	0	115	83
Volume Right	122	0	73
cSH	1700	1465	774
Volume to Capacity	0.07	0.08	0.20
Queue Length 95th (m)	0.0	1.9	5.7
Control Delay (s)	0.0	7.7	10.8
Lane LOS		A	B
Approach Delay (s)	0.0	7.7	10.8
Approach LOS			B

Intersection Summary			
Average Delay	6.5		
Intersection Capacity Utilization	27.5%	ICU Level of Service	A
Analysis Period (min)	15		

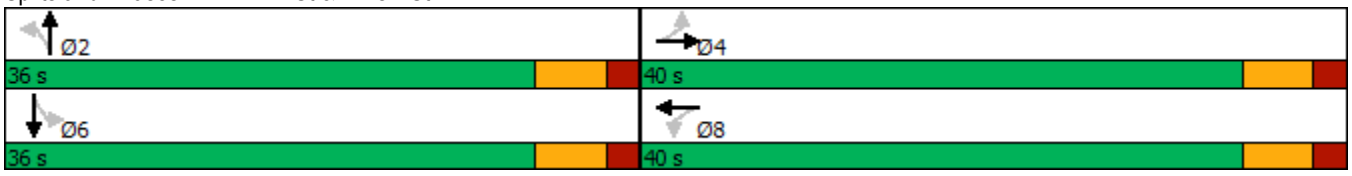


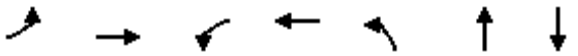
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	602	104	10	524	25	178	246	29	32	184	62
Future Volume (vph)	42	602	104	10	524	25	178	246	29	32	184	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	20.0		0.0	50.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00		1.00	1.00			1.00	
Frt		0.978			0.993			0.984			0.970	
Flt Protected	0.950			0.950			0.950				0.994	
Satd. Flow (prot)	1825	3324	0	1825	3472	0	1755	1823	0	0	1787	0
Flt Permitted	0.421			0.332			0.493				0.926	
Satd. Flow (perm)	808	3324	0	638	3472	0	910	1823	0	0	1664	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		33			8			9			22	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		274.0			328.8			111.6			76.6	
Travel Time (s)		20.6			24.7			8.4			5.7	
Confl. Peds. (#/hr)	2					2	2		1	1		2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	8%	4%	0%	4%	10%	4%	4%	0%	6%	2%	6%
Bus Blockages (#/hr)	0	0	1	0	0	1	0	0	1	0	0	1
Adj. Flow (vph)	46	654	113	11	570	27	193	267	32	35	200	67
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	767	0	11	597	0	193	299	0	0	302	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane								Yes				
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	34.0	34.0		34.0	34.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		26.0	26.0		26.0	26.0	
Total Split (s)	40.0	40.0		40.0	40.0		36.0	36.0		36.0	36.0	
Total Split (%)	52.6%	52.6%		52.6%	52.6%		47.4%	47.4%		47.4%	47.4%	
Maximum Green (s)	34.0	34.0		34.0	34.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	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	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		Min	Min		Min	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	34.4	34.4		34.4	34.4		18.3	18.3			18.3	
Actuated g/C Ratio	0.53	0.53		0.53	0.53		0.28	0.28			0.28	
v/c Ratio	0.11	0.43		0.03	0.32		0.75	0.57			0.62	
Control Delay	11.0	11.0		10.7	10.4		39.5	23.3			24.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	11.0	11.0		10.7	10.4		39.5	23.3			24.1	
LOS	B	B		B	B		D	C			C	
Approach Delay		11.0			10.4			29.6			24.1	
Approach LOS		B			B			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 76			
Actuated Cycle Length: 64.8			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 16.8		Intersection LOS: B	
Intersection Capacity Utilization 80.0%		ICU Level of Service D	
Analysis Period (min) 15			

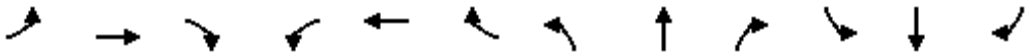
Splits and Phases: 2: Tiffin St & Innisfil St





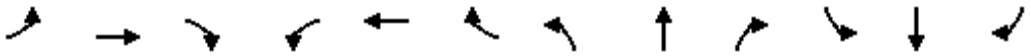
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	46	767	11	597	193	299	302
v/c Ratio	0.11	0.43	0.03	0.32	0.75	0.57	0.62
Control Delay	11.0	11.0	10.7	10.4	39.5	23.3	24.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	11.0	10.7	10.4	39.5	23.3	24.1
Queue Length 50th (m)	2.5	25.3	0.6	19.1	20.7	29.2	28.6
Queue Length 95th (m)	9.8	52.7	3.6	40.2	40.7	48.7	49.0
Internal Link Dist (m)		250.0		304.8		87.6	52.6
Turn Bay Length (m)	20.0		20.0		50.0		
Base Capacity (vph)	428	1779	338	1846	426	858	790
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.43	0.03	0.32	0.45	0.35	0.38

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	602	104	10	524	25	178	246	29	32	184	62
Future Volume (vph)	42	602	104	10	524	25	178	246	29	32	184	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.98		1.00	0.99		1.00	0.98			0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1823	3323		1825	3473		1753	1823			1787	
Flt Permitted	0.42	1.00		0.33	1.00		0.49	1.00			0.93	
Satd. Flow (perm)	808	3323		638	3473		910	1823			1664	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	654	113	11	570	27	193	267	32	35	200	67
RTOR Reduction (vph)	0	15	0	0	4	0	0	6	0	0	16	0
Lane Group Flow (vph)	46	752	0	11	593	0	193	293	0	0	286	0
Confl. Peds. (#/hr)	2					2	2		1	1		2
Heavy Vehicles (%)	0%	8%	4%	0%	4%	10%	4%	4%	0%	6%	2%	6%
Bus Blockages (#/hr)	0	0	1	0	0	1	0	0	1	0	0	1
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	34.4	34.4		34.4	34.4		18.3	18.3			18.3	
Effective Green, g (s)	34.4	34.4		34.4	34.4		18.3	18.3			18.3	
Actuated g/C Ratio	0.53	0.53		0.53	0.53		0.28	0.28			0.28	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	429	1766		339	1846		257	515			470	
v/s Ratio Prot		c0.23			0.17			0.16				
v/s Ratio Perm	0.06			0.02			c0.21				0.17	
v/c Ratio	0.11	0.43		0.03	0.32		0.75	0.57			0.61	
Uniform Delay, d1	7.5	9.2		7.2	8.6		21.1	19.8			20.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.5	0.8		0.2	0.5		11.7	1.4			2.2	
Delay (s)	8.0	9.9		7.4	9.0		32.8	21.3			22.3	
Level of Service	A	A		A	A		C	C			C	
Approach Delay (s)		9.8			9.0			25.8			22.3	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	64.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



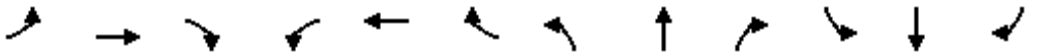
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	0	41	40	0	66	51	306	13	22	260	16
Future Volume (vph)	40	0	41	40	0	66	51	306	13	22	260	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	50.0		0.0	15.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.931			0.915			0.994			0.991	
Flt Protected		0.976			0.982		0.950			0.950		
Satd. Flow (prot)	0	1746	0	0	1692	0	1706	1804	0	1789	1802	0
Flt Permitted		0.976			0.982		0.950			0.950		
Satd. Flow (perm)	0	1746	0	0	1692	0	1706	1804	0	1789	1802	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		138.2			110.3			110.9			111.6	
Travel Time (s)		10.4			8.3			8.3			8.4	
Confl. Peds. (#/hr)	1						6					6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	0%	2%	2%	2%	7%	6%	2%	2%	4%	33%
Adj. Flow (vph)	43	0	45	43	0	72	55	333	14	24	283	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	88	0	0	115	0	55	347	0	24	300	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 37.5%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	0	41	40	0	66	51	306	13	22	260	16
Future Volume (Veh/h)	40	0	41	40	0	66	51	306	13	22	260	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	0	45	43	0	72	55	333	14	24	283	17
Pedestrians		6									1	
Lane Width (m)		3.7									3.7	
Walking Speed (m/s)		1.1									1.1	
Percent Blockage		1									0	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)								301			112	
pX, platoon unblocked	0.96	0.96	0.96	0.96	0.96		0.96					
vC, conflicting volume	862	802	298	826	804	341	306			347		
vC1, stage 1 conf vol	346	346		450	450							
vC2, stage 2 conf vol	516	457		376	354							
vCu, unblocked vol	834	773	247	797	775	341	255			347		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	89	100	94	90	100	90	95			98		
cM capacity (veh/h)	405	459	760	447	456	701	1222			1212		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	88	115	55	347	24	300
Volume Left	43	43	55	0	24	0
Volume Right	45	72	0	14	0	17
cSH	532	578	1222	1700	1212	1700
Volume to Capacity	0.17	0.20	0.05	0.20	0.02	0.18
Queue Length 95th (m)	4.5	5.6	1.1	0.0	0.5	0.0
Control Delay (s)	13.1	12.8	8.1	0.0	8.0	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	13.1	12.8	1.1		0.6	
Approach LOS	B	B				

Intersection Summary				
Average Delay	3.5			
Intersection Capacity Utilization	37.5%	ICU Level of Service		A
Analysis Period (min)	15			

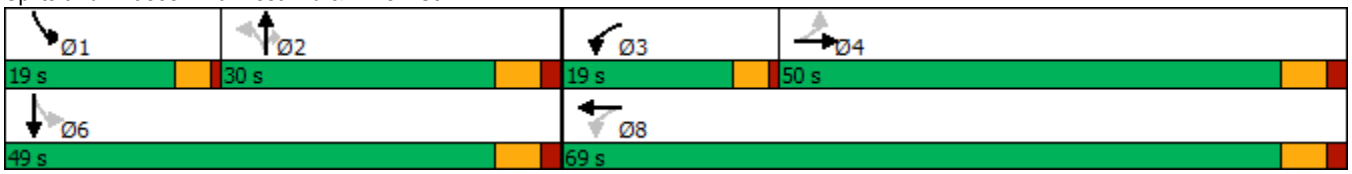


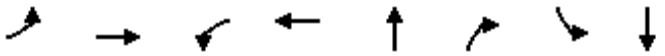
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	719	35	16	628	71	34	105	40	77	131	143
Future Volume (vph)	77	719	35	16	628	71	34	105	40	77	131	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	50.0		0.0	0.0		15.0	50.0		20.0
Storage Lanes	1		0	1		0	0		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00				0.99	1.00		
Frt		0.993			0.985				0.850		0.922	
Flt Protected	0.950			0.950				0.988		0.950		
Satd. Flow (prot)	1690	3487	0	1706	3427	0	0	1808	1558	1789	1738	0
Flt Permitted	0.357			0.260				0.848		0.516		
Satd. Flow (perm)	635	3487	0	467	3427	0	0	1552	1536	971	1738	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			16				102		52	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		337.1			195.7			132.7			189.6	
Travel Time (s)		25.3			14.7			10.0			14.2	
Confl. Peds. (#/hr)	1					1			1	1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	4%	3%	7%	5%	2%	5%	5%	4%	2%	4%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	2	0	0	0
Adj. Flow (vph)	84	782	38	17	683	77	37	114	43	84	142	155
Shared Lane Traffic (%)												
Lane Group Flow (vph)	84	820	0	17	760	0	0	151	43	84	297	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane											Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	1.00	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		3	8		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	44.0	44.0		7.0	44.0		24.0	24.0	24.0	5.0	24.0	
Minimum Split (s)	50.0	50.0		11.0	50.0		30.0	30.0	30.0	9.0	30.0	
Total Split (s)	50.0	50.0		19.0	69.0		30.0	30.0	30.0	19.0	49.0	
Total Split (%)	42.4%	42.4%		16.1%	58.5%		25.4%	25.4%	25.4%	16.1%	41.5%	
Maximum Green (s)	44.0	44.0		15.0	63.0		24.0	24.0	24.0	15.0	43.0	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		4.0	6.0			6.0	6.0	4.0	6.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	Max	Max		None	Max		None	None	None	None	None	
Walk Time (s)	32.0	32.0			32.0		7.0	7.0	7.0		7.0	
Flash Dont Walk (s)	12.0	12.0			12.0		11.0	11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0			0		0	0	0		0	
Act Effct Green (s)	59.0	59.0		65.2	63.2			24.1	24.1	36.9	34.9	
Actuated g/C Ratio	0.54	0.54		0.59	0.57			0.22	0.22	0.34	0.32	
v/c Ratio	0.25	0.44		0.05	0.39			0.45	0.10	0.21	0.51	
Control Delay	19.5	18.1		10.9	13.9			43.4	0.5	26.4	27.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay	19.5	18.1		10.9	13.9			43.4	0.5	26.4	27.9	
LOS	B	B		B	B			D	A	C	C	
Approach Delay		18.2			13.8			33.9			27.6	
Approach LOS		B			B			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 118			
Actuated Cycle Length: 110.1			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.51			
Intersection Signal Delay: 19.6		Intersection LOS: B	
Intersection Capacity Utilization 109.2%		ICU Level of Service H	
Analysis Period (min) 15			

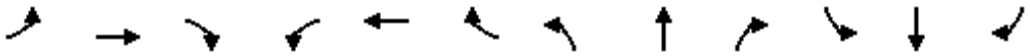
Splits and Phases: 6: Essa Rd & Innisfil St





Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	84	820	17	760	151	43	84	297
v/c Ratio	0.25	0.44	0.05	0.39	0.45	0.10	0.21	0.51
Control Delay	19.5	18.1	10.9	13.9	43.4	0.5	26.4	27.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.5	18.1	10.9	13.9	43.4	0.5	26.4	27.9
Queue Length 50th (m)	8.8	50.8	1.5	45.5	29.0	0.0	12.5	42.3
Queue Length 95th (m)	23.9	85.4	4.8	62.4	50.5	0.0	23.4	67.5
Internal Link Dist (m)		313.1		171.7	108.7			165.6
Turn Bay Length (m)	50.0		50.0			15.0	50.0	
Base Capacity (vph)	340	1869	445	1974	339	415	436	712
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.44	0.04	0.39	0.45	0.10	0.19	0.42

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	719	35	16	628	71	34	105	40	77	131	143
Future Volume (vph)	77	719	35	16	628	71	34	105	40	77	131	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		4.0	6.0			6.0	6.0	4.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.98			1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00	0.95	1.00	
Satd. Flow (prot)	1689	3487		1706	3426			1807	1536	1788	1737	
Flt Permitted	0.36	1.00		0.26	1.00			0.85	1.00	0.52	1.00	
Satd. Flow (perm)	636	3487		466	3426			1551	1536	971	1737	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	84	782	38	17	683	77	37	114	43	84	142	155
RTOR Reduction (vph)	0	2	0	0	7	0	0	0	34	0	36	0
Lane Group Flow (vph)	84	818	0	17	753	0	0	151	9	84	261	0
Confl. Peds. (#/hr)	1					1			1	1		
Heavy Vehicles (%)	8%	4%	3%	7%	5%	2%	5%	5%	4%	2%	4%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	2	0	0	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	58.9	58.9		65.6	65.6			24.1	24.1	35.8	35.8	
Effective Green, g (s)	58.9	58.9		65.6	65.6			24.1	24.1	35.8	35.8	
Actuated g/C Ratio	0.52	0.52		0.58	0.58			0.21	0.21	0.32	0.32	
Clearance Time (s)	6.0	6.0		4.0	6.0			6.0	6.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	330	1811		299	1981			329	326	362	548	
v/s Ratio Prot		c0.23		0.00	c0.22					0.02	c0.15	
v/s Ratio Perm	0.13			0.03				0.10	0.01	0.06		
v/c Ratio	0.25	0.45		0.06	0.38			0.46	0.03	0.23	0.48	
Uniform Delay, d1	15.1	17.1		11.2	12.9			39.0	35.4	28.0	31.3	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.9	0.8		0.1	0.6			1.0	0.0	0.3	0.7	
Delay (s)	16.9	17.9		11.3	13.5			40.0	35.4	28.4	31.9	
Level of Service	B	B		B	B			D	D	C	C	
Approach Delay (s)		17.8			13.4			39.0			31.1	
Approach LOS		B			B			D			C	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	113.4	Sum of lost time (s)	20.0
Intersection Capacity Utilization	109.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

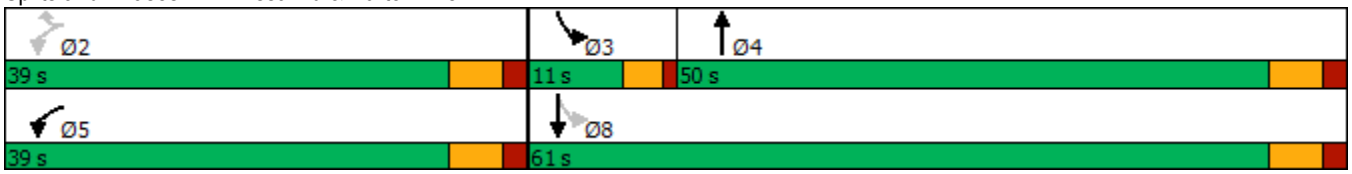


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	360	166	542	263	157	430
Future Volume (vph)	360	166	542	263	157	430
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	35.0		0.0	50.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Ped Bike Factor		0.99	0.99		1.00	
Frt		0.850	0.951			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1738	1498	3322	0	1615	3510
Flt Permitted	0.950				0.227	
Satd. Flow (perm)	1738	1478	3322	0	386	3510
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		139	105			
Link Speed (k/h)	48		48			48
Link Distance (m)	133.2		195.7			141.5
Travel Time (s)	10.0		14.7			10.6
Confl. Peds. (#/hr)		1		4	4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	9%	3%	5%	13%	4%
Adj. Flow (vph)	391	180	589	286	171	467
Shared Lane Traffic (%)						
Lane Group Flow (vph)	391	180	875	0	171	467
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	6.1	6.1	30.5		6.1	30.5
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	6.1	1.8		6.1	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Turn Type	pm+pt	Perm	NA		pm+pt	NA
Protected Phases	5		4		3	8
Permitted Phases	2	2			8	
Detector Phase	5	2	4		3	8
Switch Phase						
Minimum Initial (s)	15.0	15.0	44.0		7.0	44.0
Minimum Split (s)	23.0	23.0	50.0		11.0	50.0
Total Split (s)	39.0	39.0	50.0		11.0	61.0
Total Split (%)	39.0%	39.0%	50.0%		11.0%	61.0%
Maximum Green (s)	33.0	33.0	44.0		7.0	55.0
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.0	2.0	2.0		1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		4.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)	7.0	7.0	33.0			33.0
Flash Dont Walk (s)	10.0	10.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	25.0	25.0	44.2		57.2	55.2
Actuated g/C Ratio	0.27	0.27	0.48		0.62	0.60
v/c Ratio	0.83	0.36	0.53		0.51	0.22
Control Delay	47.1	9.6	16.9		14.6	9.7
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	47.1	9.6	16.9		14.6	9.7
LOS	D	A	B		B	A
Approach Delay	35.3		16.9			11.0
Approach LOS	D		B			B

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 92.3			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 20.1		Intersection LOS: C	
Intersection Capacity Utilization 78.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 7: Essa Rd & Burton Ave





Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	391	180	875	171	467
v/c Ratio	0.83	0.36	0.53	0.51	0.22
Control Delay	47.1	9.6	16.9	14.6	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	47.1	9.6	16.9	14.6	9.7
Queue Length 50th (m)	65.0	5.4	48.5	12.0	18.9
Queue Length 95th (m)	97.4	20.4	75.7	25.3	32.1
Internal Link Dist (m)	109.2		171.7		117.5
Turn Bay Length (m)		35.0		50.0	
Base Capacity (vph)	623	619	1644	333	2099
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.63	0.29	0.53	0.51	0.22

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	360	166	542	263	157	430
Future Volume (vph)	360	166	542	263	157	430
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		4.0	6.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frpb, ped/bikes	1.00	0.99	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.95		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1738	1478	3322		1615	3510
Flt Permitted	0.95	1.00	1.00		0.23	1.00
Satd. Flow (perm)	1738	1478	3322		386	3510
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	391	180	589	286	171	467
RTOR Reduction (vph)	0	101	55	0	0	0
Lane Group Flow (vph)	391	79	820	0	171	467
Confl. Peds. (#/hr)		1		4	4	
Heavy Vehicles (%)	5%	9%	3%	5%	13%	4%
Turn Type	pm+pt	Perm	NA		pm+pt	NA
Protected Phases	5		4		3	8
Permitted Phases	2	2			8	
Actuated Green, G (s)	25.0	25.0	44.2		55.2	55.2
Effective Green, g (s)	25.0	25.0	44.2		55.2	55.2
Actuated g/C Ratio	0.27	0.27	0.48		0.60	0.60
Clearance Time (s)	6.0	6.0	6.0		4.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	471	400	1592		324	2101
v/s Ratio Prot	c0.22		0.25		c0.04	0.13
v/s Ratio Perm		0.05			c0.28	
v/c Ratio	0.83	0.20	0.52		0.53	0.22
Uniform Delay, d1	31.6	25.9	16.6		10.0	8.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	11.8	0.2	1.2		1.6	0.2
Delay (s)	43.4	26.1	17.8		11.5	8.8
Level of Service	D	C	B		B	A
Approach Delay (s)	37.9		17.8			9.5
Approach LOS	D		B			A

Intersection Summary			
HCM 2000 Control Delay	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	92.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	78.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø8
Lane Configurations							
Traffic Volume (vph)	3	290	689	3	122	536	
Future Volume (vph)	3	290	689	3	122	536	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (m)	0.0	0.0		0.0	15.0		
Storage Lanes	1	0		0	1		
Taper Length (m)	2.5				2.5		
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95	
Ped Bike Factor	0.99		1.00				
Frt	0.866		0.999				
Flt Protected					0.950		
Satd. Flow (prot)	1601	0	3506	0	1789	3384	
Flt Permitted					0.334		
Satd. Flow (perm)	1601	0	3506	0	629	3384	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)	303		1				
Link Speed (k/h)	48		48			48	
Link Distance (m)	165.5		79.7			124.5	
Travel Time (s)	12.4		6.0			9.3	
Confl. Bikes (#/hr)		2		5			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	50%	2%	4%	0%	2%	7%	
Bus Blockages (#/hr)	0	0	0	0	0	4	
Adj. Flow (vph)	3	315	749	3	133	583	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	318	0	752	0	133	583	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Right	Left	Left	
Median Width(m)	3.7		3.7			3.7	
Link Offset(m)	0.0		0.0			0.0	
Crosswalk Width(m)	1.6		1.6			1.6	
Two way Left Turn Lane							
Headway Factor	0.99	0.99	0.99	0.99	0.99	1.00	
Turning Speed (k/h)	24	14		14	24		
Number of Detectors	1		2		1	2	
Detector Template	Left		Thru		Left	Thru	
Leading Detector (m)	6.1		30.5		6.1	30.5	
Trailing Detector (m)	0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0		0.0		0.0	0.0	
Detector 1 Size(m)	6.1		1.8		6.1	1.8	
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)	0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0		0.0		0.0	0.0	
Detector 2 Position(m)			28.7			28.7	
Detector 2 Size(m)			1.8			1.8	
Detector 2 Type			Cl+Ex			Cl+Ex	
Detector 2 Channel							



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø8
Detector 2 Extend (s)			0.0			0.0	
Turn Type	pm+pt		NA		pm+pt	NA	
Protected Phases	3		2		1	6	8
Permitted Phases	8				6		
Detector Phase	3		2		1	6	
Switch Phase							
Minimum Initial (s)	10.0		80.0		7.0	80.0	10.0
Minimum Split (s)	27.0		86.0		11.0	86.0	27.0
Total Split (s)	30.0		89.0		11.0	100.0	30.0
Total Split (%)	23.1%		68.5%		8.5%	76.9%	23%
Maximum Green (s)	24.0		83.0		7.0	94.0	24.0
Yellow Time (s)	4.0		4.0		3.0	4.0	4.0
All-Red Time (s)	2.0		2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0	
Total Lost Time (s)	6.0		6.0		4.0	6.0	
Lead/Lag			Lag		Lead		
Lead-Lag Optimize?			Yes		Yes		
Vehicle Extension (s)	3.0		3.0		3.0	3.0	3.0
Recall Mode	None		Max		None	Max	None
Walk Time (s)	10.0		65.0			65.0	10.0
Flash Dont Walk (s)	11.0		15.0			15.0	11.0
Pedestrian Calls (#/hr)	0		0			0	0
Act Effct Green (s)	11.7		83.0		96.0	94.0	
Actuated g/C Ratio	0.10		0.71		0.82	0.80	
v/c Ratio	0.74		0.30		0.23	0.22	
Control Delay	17.8		7.1		3.4	3.3	
Queue Delay	0.0		0.0		0.0	0.4	
Total Delay	17.8		7.1		3.4	3.7	
LOS	B		A		A	A	
Approach Delay	17.8		7.1			3.6	
Approach LOS	B		A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 117.7			
Natural Cycle: 125			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 7.6		Intersection LOS: A	
Intersection Capacity Utilization 104.9%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 8: Essa Rd & Gowan St





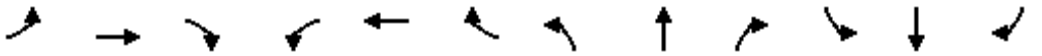
Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	318	752	133	583
v/c Ratio	0.74	0.30	0.23	0.22
Control Delay	17.8	7.1	3.4	3.3
Queue Delay	0.0	0.0	0.0	0.4
Total Delay	17.8	7.1	3.4	3.7
Queue Length 50th (m)	3.2	28.6	4.3	12.5
Queue Length 95th (m)	30.8	46.5	11.1	24.1
Internal Link Dist (m)	141.5	55.7		100.5
Turn Bay Length (m)			15.0	
Base Capacity (vph)	567	2473	582	2703
Starvation Cap Reductn	0	0	0	1537
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.56	0.30	0.23	0.50

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	3	290	689	3	122	536
Future Volume (vph)	3	290	689	3	122	536
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0		4.0	6.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frpb, ped/bikes	0.98		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.87		1.00		1.00	1.00
Flt Protected	1.00		1.00		0.95	1.00
Satd. Flow (prot)	1597		3508		1789	3384
Flt Permitted	1.00		1.00		0.33	1.00
Satd. Flow (perm)	1597		3508		628	3384
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	315	749	3	133	583
RTOR Reduction (vph)	273	0	0	0	0	0
Lane Group Flow (vph)	45	0	752	0	133	583
Confl. Bikes (#/hr)		2		5		
Heavy Vehicles (%)	50%	2%	4%	0%	2%	7%
Bus Blockages (#/hr)	0	0	0	0	0	4
Turn Type	pm+pt		NA		pm+pt	NA
Protected Phases	3		2		1	6
Permitted Phases	8				6	
Actuated Green, G (s)	11.7		83.1		94.1	94.1
Effective Green, g (s)	11.7		83.1		94.1	94.1
Actuated g/C Ratio	0.10		0.71		0.80	0.80
Clearance Time (s)	6.0		6.0		4.0	6.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	158		2474		570	2703
v/s Ratio Prot	c0.03		c0.21		0.01	c0.17
v/s Ratio Perm					0.17	
v/c Ratio	0.29		0.30		0.23	0.22
Uniform Delay, d1	49.2		6.5		2.9	2.9
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	1.0		0.3		0.2	0.2
Delay (s)	50.2		6.8		3.1	3.1
Level of Service	D		A		A	A
Approach Delay (s)	50.2		6.8			3.1
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	117.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	104.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



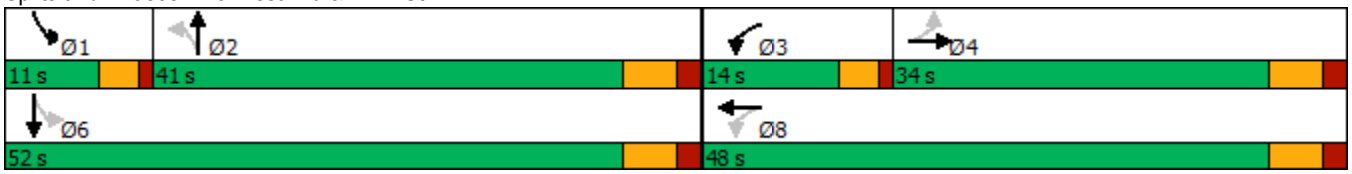
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	342	99	160	385	211	92	688	147	56	485	39
Future Volume (vph)	99	342	99	160	385	211	92	688	147	56	485	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	20.0		0.0	50.0		0.0	25.0		30.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.966			0.947			0.974			0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3365	0	1706	3318	0	1755	3430	0	1825	3417	0
Flt Permitted	0.408			0.346			0.440			0.147		
Satd. Flow (perm)	783	3365	0	621	3318	0	812	3430	0	282	3417	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			128			28			11	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		328.8			105.3			124.5			69.7	
Travel Time (s)		24.7			7.9			9.3			5.2	
Confl. Peds. (#/hr)	1		2	2		1	2		6	6		2
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	4%	6%	7%	3%	5%	4%	3%	5%	0%	6%	0%
Adj. Flow (vph)	106	368	106	172	414	227	99	740	158	60	522	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	106	474	0	172	641	0	99	898	0	60	564	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

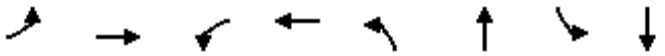
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		3	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		34.0	34.0		7.0	34.0	
Minimum Split (s)	31.0	31.0		11.0	31.0		40.0	40.0		11.0	40.0	
Total Split (s)	34.0	34.0		14.0	48.0		41.0	41.0		11.0	52.0	
Total Split (%)	34.0%	34.0%		14.0%	48.0%		41.0%	41.0%		11.0%	52.0%	
Maximum Green (s)	28.0	28.0		10.0	42.0		35.0	35.0		7.0	46.0	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		4.0	6.0		6.0	6.0		4.0	6.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		None	Max		None	None		None	None	
Walk Time (s)	10.0	10.0			10.0		22.0	22.0			22.0	
Flash Dont Walk (s)	15.0	15.0			15.0		12.0	12.0			12.0	
Pedestrian Calls (#/hr)	0	0			0		0	0			0	
Act Effct Green (s)	28.6	28.6		44.1	42.1		34.5	34.5		45.1	43.1	
Actuated g/C Ratio	0.29	0.29		0.45	0.43		0.35	0.35		0.46	0.44	
v/c Ratio	0.46	0.47		0.44	0.42		0.34	0.73		0.25	0.37	
Control Delay	37.4	28.3		20.9	16.5		28.3	31.0		16.7	18.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	1.3		0.0	0.0	
Total Delay	37.4	28.3		20.9	16.5		28.3	32.3		16.7	18.3	
LOS	D	C		C	B		C	C		B	B	
Approach Delay		30.0			17.4			31.9			18.1	
Approach LOS		C			B			C			B	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 97.2
Natural Cycle: 95
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 24.8 Intersection LOS: C
Intersection Capacity Utilization 105.8% ICU Level of Service G
Analysis Period (min) 15

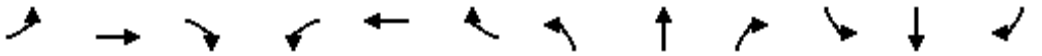
Splits and Phases: 9: Essa Rd & Tiffin St





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	106	474	172	641	99	898	60	564
v/c Ratio	0.46	0.47	0.44	0.42	0.34	0.73	0.25	0.37
Control Delay	37.4	28.3	20.9	16.5	28.3	31.0	16.7	18.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0
Total Delay	37.4	28.3	20.9	16.5	28.3	32.3	16.7	18.3
Queue Length 50th (m)	16.9	36.4	19.8	35.0	14.1	77.0	6.0	35.2
Queue Length 95th (m)	34.3	52.1	34.0	50.2	28.2	99.6	12.7	47.6
Internal Link Dist (m)		304.8		81.3		100.5		45.7
Turn Bay Length (m)	20.0		20.0		50.0		25.0	
Base Capacity (vph)	230	1017	393	1509	293	1255	242	1626
Starvation Cap Reductn	0	0	0	0	0	173	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.47	0.44	0.42	0.34	0.83	0.25	0.35

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	342	99	160	385	211	92	688	147	56	485	39
Future Volume (vph)	99	342	99	160	385	211	92	688	147	56	485	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		4.0	6.0		6.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.95		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1824	3367		1705	3317		1753	3428		1825	3416	
Flt Permitted	0.41	1.00		0.35	1.00		0.44	1.00		0.15	1.00	
Satd. Flow (perm)	784	3367		621	3317		813	3428		282	3416	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	106	368	106	172	414	227	99	740	158	60	522	42
RTOR Reduction (vph)	0	26	0	0	73	0	0	18	0	0	6	0
Lane Group Flow (vph)	106	448	0	172	568	0	99	880	0	60	558	0
Confl. Peds. (#/hr)	1		2	2		1	2		6	6		2
Heavy Vehicles (%)	0%	4%	6%	7%	3%	5%	4%	3%	5%	0%	6%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	28.7	28.7		42.1	42.1		34.5	34.5		44.0	44.0	
Effective Green, g (s)	28.7	28.7		42.1	42.1		34.5	34.5		44.0	44.0	
Actuated g/C Ratio	0.29	0.29		0.43	0.43		0.35	0.35		0.45	0.45	
Clearance Time (s)	6.0	6.0		4.0	6.0		6.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	229	985		370	1423		285	1205		212	1532	
v/s Ratio Prot		0.13		c0.04	0.17			c0.26		0.02	c0.16	
v/s Ratio Perm	0.14			c0.15			0.12			0.11		
v/c Ratio	0.46	0.45		0.46	0.40		0.35	0.73		0.28	0.36	
Uniform Delay, d1	28.4	28.3		18.3	19.3		23.5	27.7		17.8	17.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.6	1.5		0.9	0.8		0.7	2.3		0.7	0.1	
Delay (s)	35.0	29.8		19.2	20.1		24.2	30.0		18.6	18.0	
Level of Service	C	C		B	C		C	C		B	B	
Approach Delay (s)		30.8			19.9			29.5			18.0	
Approach LOS		C			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	98.1	Sum of lost time (s)	20.0
Intersection Capacity Utilization	105.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	40	27	357	13	9	341
Future Volume (vph)	40	27	357	13	9	341
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	15.0	
Storage Lanes	1	0		0	1	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.946		0.995			
Flt Protected	0.971				0.950	
Satd. Flow (prot)	1730	0	1874	0	1789	1883
Flt Permitted	0.971				0.950	
Satd. Flow (perm)	1730	0	1874	0	1789	1883
Link Speed (k/h)	48		48			48
Link Distance (m)	39.2		189.6			110.9
Travel Time (s)	2.9		14.2			8.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	29	388	14	10	371
Shared Lane Traffic (%)						
Lane Group Flow (vph)	72	0	402	0	10	371
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane			Yes			Yes
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

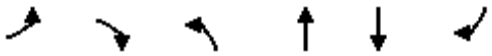
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.1%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	40	27	357	13	9	341
Future Volume (Veh/h)	40	27	357	13	9	341
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	29	388	14	10	371
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			190			223
pX, platoon unblocked	0.98	0.98			0.98	
vC, conflicting volume	786	395			402	
vC1, stage 1 conf vol	395					
vC2, stage 2 conf vol	391					
vCu, unblocked vol	768	367			374	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	96			99	
cM capacity (veh/h)	559	662			1155	

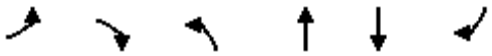
Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	72	402	10	371
Volume Left	43	0	10	0
Volume Right	29	14	0	0
cSH	596	1700	1155	1700
Volume to Capacity	0.12	0.24	0.01	0.22
Queue Length 95th (m)	3.1	0.0	0.2	0.0
Control Delay (s)	11.9	0.0	8.1	0.0
Lane LOS	B		A	
Approach Delay (s)	11.9	0.0	0.2	
Approach LOS	B			

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	30.1%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	13	80	26	689	536	4
Future Volume (vph)	13	80	26	689	536	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Frt	0.884				0.999	
Flt Protected	0.993			0.998		
Satd. Flow (prot)	1653	0	0	3571	3575	0
Flt Permitted	0.993			0.998		
Satd. Flow (perm)	1653	0	0	3571	3575	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	57.5			141.5	79.7	
Travel Time (s)	4.3			10.6	6.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	14	87	28	749	583	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	101	0	0	777	587	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	13	80	26	689	536	4
Future Volume (Veh/h)	13	80	26	689	536	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	87	28	749	583	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				141	80	
pX, platoon unblocked	0.91	0.96	0.96			
vC, conflicting volume	1016	294	587			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	628	191	496			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	89	97			
cM capacity (veh/h)	366	788	1025			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	101	278	499	389	198
Volume Left	14	28	0	0	0
Volume Right	87	0	0	0	4
cSH	679	1025	1700	1700	1700
Volume to Capacity	0.15	0.03	0.29	0.23	0.12
Queue Length 95th (m)	4.0	0.6	0.0	0.0	0.0
Control Delay (s)	11.2	1.1	0.0	0.0	0.0
Lane LOS	B	A			
Approach Delay (s)	11.2	0.4		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	35	30	0	106	93
Future Volume (vph)	0	35	30	0	106	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.937	
Flt Protected				0.950	0.974	
Satd. Flow (prot)	1629	0	0	1789	1719	0
Flt Permitted				0.950	0.974	
Satd. Flow (perm)	1629	0	0	1789	1719	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	110.3			56.5	34.9	
Travel Time (s)	8.3			4.2	2.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	38	33	0	115	101
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	0	0	33	216	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

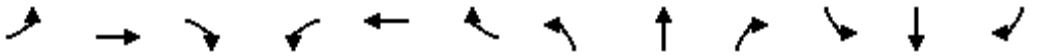
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	35	30	0	106	93
Future Volume (Veh/h)	0	35	30	0	106	93
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	38	33	0	115	101
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			38		85	19
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			38		85	19
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		87	90
cM capacity (veh/h)			1572		897	1059

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	38	33	216
Volume Left	0	33	115
Volume Right	38	0	101
cSH	1700	1572	966
Volume to Capacity	0.02	0.02	0.22
Queue Length 95th (m)	0.0	0.5	6.5
Control Delay (s)	0.0	7.3	9.8
Lane LOS		A	A
Approach Delay (s)	0.0	7.3	9.8
Approach LOS			A

Intersection Summary			
Average Delay		8.2	
Intersection Capacity Utilization		26.6%	ICU Level of Service A
Analysis Period (min)		15	



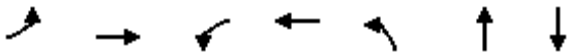
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	574	81	62	450	29	72	366	80	90	514	167
Future Volume (vph)	108	574	81	62	450	29	72	366	80	90	514	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	20.0		0.0	50.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt		0.981			0.991			0.973			0.971	
Flt Protected	0.950			0.950			0.950				0.994	
Satd. Flow (prot)	1807	3515	0	1825	3544	0	1825	1816	0	0	1806	0
Flt Permitted	0.403			0.279			0.310				0.822	
Satd. Flow (perm)	763	3515	0	535	3544	0	595	1816	0	0	1493	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			6			17			22	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		274.0			328.8			111.6			76.6	
Travel Time (s)		20.6			24.7			8.4			5.7	
Confl. Peds. (#/hr)	4		4	4		4	4		8	8		4
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	1%	5%	0%	2%	0%	0%	3%	0%	2%	3%	0%
Bus Blockages (#/hr)	0	0	1	0	0	1	0	0	1	0	0	1
Adj. Flow (vph)	110	586	83	63	459	30	73	373	82	92	524	170
Shared Lane Traffic (%)												
Lane Group Flow (vph)	110	669	0	63	489	0	73	455	0	0	786	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane								Yes				
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	34.0	34.0		34.0	34.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		26.0	26.0		26.0	26.0	
Total Split (s)	40.0	40.0		40.0	40.0		70.0	70.0		70.0	70.0	
Total Split (%)	36.4%	36.4%		36.4%	36.4%		63.6%	63.6%		63.6%	63.6%	
Maximum Green (s)	34.0	34.0		34.0	34.0		64.0	64.0		64.0	64.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	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	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		Min	Min		Min	Min	
Walk Time (s)	12.0	12.0		12.0	12.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	34.4	34.4		34.4	34.4		54.8	54.8			54.8	
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.54	0.54			0.54	
v/c Ratio	0.43	0.56		0.35	0.41		0.23	0.46			0.96	
Control Delay	35.4	30.4		35.8	28.2		13.5	14.8			45.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	35.4	30.4		35.8	28.2		13.5	14.8			45.5	
LOS	D	C		D	C		B	B			D	
Approach Delay		31.1			29.1			14.7			45.5	
Approach LOS		C			C			B			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 101.3			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 31.7		Intersection LOS: C	
Intersection Capacity Utilization 143.2%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 2: Tiffin St & Innisfil St

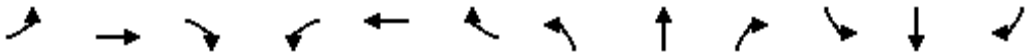




Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	110	669	63	489	73	455	786
v/c Ratio	0.43	0.56	0.35	0.41	0.23	0.46	0.96
Control Delay	35.4	30.4	35.8	28.2	13.5	14.8	45.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.4	30.4	35.8	28.2	13.5	14.8	45.5
Queue Length 50th (m)	18.3	60.2	10.1	41.8	7.0	49.1	135.8
Queue Length 95th (m)	36.9	81.6	23.9	58.6	15.2	71.3	#225.0
Internal Link Dist (m)		250.0		304.8		87.6	52.6
Turn Bay Length (m)	20.0		20.0		50.0		
Base Capacity (vph)	258	1202	181	1207	380	1166	961
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.56	0.35	0.41	0.19	0.39	0.82

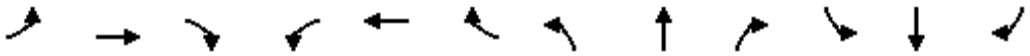
Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	574	81	62	450	29	72	366	80	90	514	167
Future Volume (vph)	108	574	81	62	450	29	72	366	80	90	514	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.98		1.00	0.99		1.00	0.97			0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1800	3517		1820	3544		1823	1816			1806	
Flt Permitted	0.40	1.00		0.28	1.00		0.31	1.00			0.82	
Satd. Flow (perm)	763	3517		535	3544		595	1816			1492	
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)	110	586	83	63	459	30	73	373	82	92	524	170
RTOR Reduction (vph)	0	10	0	0	4	0	0	8	0	0	10	0
Lane Group Flow (vph)	110	659	0	63	485	0	73	447	0	0	776	0
Confl. Peds. (#/hr)	4		4	4		4	4		8	8		4
Heavy Vehicles (%)	1%	1%	5%	0%	2%	0%	0%	3%	0%	2%	3%	0%
Bus Blockages (#/hr)	0	0	1	0	0	1	0	0	1	0	0	1
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	34.4	34.4		34.4	34.4		54.8	54.8			54.8	
Effective Green, g (s)	34.4	34.4		34.4	34.4		54.8	54.8			54.8	
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.54	0.54			0.54	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	259	1195		181	1204		322	983			807	
v/s Ratio Prot		c0.19			0.14			0.25				
v/s Ratio Perm	0.14			0.12			0.12				c0.52	
v/c Ratio	0.42	0.55		0.35	0.40		0.23	0.45			0.96	
Uniform Delay, d1	25.8	27.1		25.0	25.5		12.1	14.1			22.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	5.0	1.8		5.2	1.0		0.4	0.3			22.6	
Delay (s)	30.8	29.0		30.2	26.5		12.5	14.4			44.8	
Level of Service	C	C		C	C		B	B			D	
Approach Delay (s)		29.2			27.0			14.2			44.8	
Approach LOS		C			C			B			D	

Intersection Summary			
HCM 2000 Control Delay	30.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	101.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	143.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



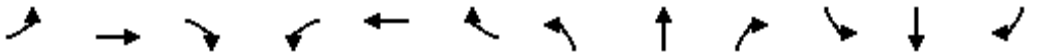
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	0	43	29	0	48	109	413	42	70	553	36
Future Volume (vph)	28	0	43	29	0	48	109	413	42	70	553	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	15.0		0.0	15.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.918			0.916			0.986			0.991	
Flt Protected		0.981			0.981		0.950			0.950		
Satd. Flow (prot)	0	1730	0	0	1692	0	1789	1891	0	1789	1818	0
Flt Permitted		0.981			0.981		0.950			0.950		
Satd. Flow (perm)	0	1730	0	0	1692	0	1789	1891	0	1789	1818	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		113.3			101.4			102.4			111.6	
Travel Time (s)		8.5			7.6			7.7			8.4	
Confl. Peds. (#/hr)			1				1					3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	0%	2%	2%	2%	2%	0%	2%	2%	5%	0%
Adj. Flow (vph)	30	0	47	32	0	52	118	449	46	76	601	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	77	0	0	84	0	118	495	0	76	640	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	0	43	29	0	48	109	413	42	70	553	36
Future Volume (Veh/h)	28	0	43	29	0	48	109	413	42	70	553	36
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	30	0	47	32	0	52	118	449	46	76	601	39
Pedestrians		3						1				
Lane Width (m)		3.7						3.7				
Walking Speed (m/s)		1.1						1.1				
Percent Blockage		0						0				
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)								301			112	
pX, platoon unblocked	0.72	0.72	0.72	0.72	0.72		0.72					
vC, conflicting volume	1512	1506	624	1509	1503	472	643			495		
vC1, stage 1 conf vol	776	776		708	708							
vC2, stage 2 conf vol	737	731		801	795							
vCu, unblocked vol	1517	1509	281	1513	1504	472	306			495		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	86	100	91	82	100	91	87			93		
cM capacity (veh/h)	209	233	546	182	205	592	898			1069		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	77	84	118	495	76	640
Volume Left	30	32	118	0	76	0
Volume Right	47	52	0	46	0	39
cSH	335	319	898	1700	1069	1700
Volume to Capacity	0.23	0.26	0.13	0.29	0.07	0.38
Queue Length 95th (m)	6.6	7.9	3.4	0.0	1.7	0.0
Control Delay (s)	18.9	20.3	9.6	0.0	8.6	0.0
Lane LOS	C	C	A		A	
Approach Delay (s)	18.9	20.3	1.9		0.9	
Approach LOS	C	C				

Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	53.2%	ICU Level of Service		A
Analysis Period (min)	15			

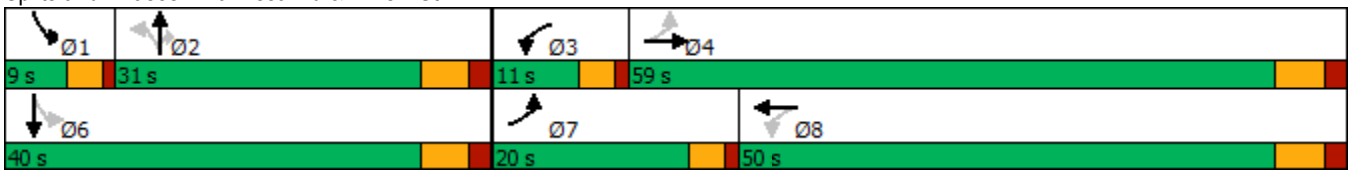


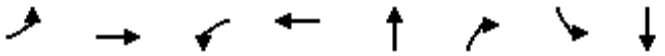
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	224	951	54	36	1065	83	30	181	40	179	204	253
Future Volume (vph)	224	951	54	36	1065	83	30	181	40	179	204	253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	50.0		0.0	0.0		15.0	50.0		20.0
Storage Lanes	1		0	1		0	0		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00			1.00			0.99	
Frt		0.992			0.989				0.850		0.917	
Flt Protected	0.950			0.950				0.993		0.950		
Satd. Flow (prot)	1825	3513	0	1772	3507	0	0	1891	1620	1807	1688	0
Flt Permitted	0.098			0.236				0.670		0.420		
Satd. Flow (perm)	188	3513	0	440	3507	0	0	1276	1620	799	1688	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			9				149		59	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		337.1			195.7			132.7			198.2	
Travel Time (s)		25.3			14.7			10.0			14.9	
Confl. Peds. (#/hr)	1		3	3		1	2					2
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	3%	2%	3%	3%	0%	0%	1%	0%	1%	4%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	2	0	0	0
Adj. Flow (vph)	226	961	55	36	1076	84	30	183	40	181	206	256
Shared Lane Traffic (%)												
Lane Group Flow (vph)	226	1016	0	36	1160	0	0	213	40	181	462	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane											Yes	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	1.00	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	44.0		7.0	44.0		24.0	24.0	24.0	5.0	24.0	
Minimum Split (s)	9.5	50.0		11.0	50.0		30.0	30.0	30.0	9.0	30.0	
Total Split (s)	20.0	59.0		11.0	50.0		31.0	31.0	31.0	9.0	40.0	
Total Split (%)	18.2%	53.6%		10.0%	45.5%		28.2%	28.2%	28.2%	8.2%	36.4%	
Maximum Green (s)	16.0	53.0		7.0	44.0		25.0	25.0	25.0	5.0	34.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		4.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	1.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.0		4.0	6.0			6.0	6.0	4.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Max		None	Max		None	None	None	None	None	
Walk Time (s)		32.0			32.0		7.0	7.0	7.0		7.0	
Flash Dont Walk (s)		12.0			12.0		11.0	11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0			0		0	0	0		0	
Act Effct Green (s)	63.6	55.1		53.5	44.5			24.4	24.4	35.4	33.4	
Actuated g/C Ratio	0.59	0.51		0.50	0.42			0.23	0.23	0.33	0.31	
v/c Ratio	0.73	0.56		0.12	0.79			0.73	0.08	0.58	0.81	
Control Delay	32.7	19.9		10.6	32.4			55.1	0.3	37.0	42.9	
Queue Delay	0.0	0.0		0.0	0.1			0.0	0.0	0.0	0.0	
Total Delay	32.7	19.9		10.6	32.5			55.1	0.3	37.0	42.9	
LOS	C	B		B	C			E	A	D	D	
Approach Delay		22.2			31.8			46.4			41.2	
Approach LOS		C			C			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 107			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 31.2		Intersection LOS: C	
Intersection Capacity Utilization 113.8%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 6: Essa Rd & Innisfil St

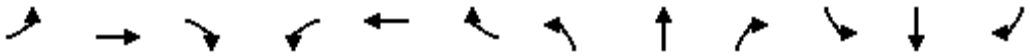




Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	226	1016	36	1160	213	40	181	462
v/c Ratio	0.73	0.56	0.12	0.79	0.73	0.08	0.58	0.81
Control Delay	32.7	19.9	10.6	32.4	55.1	0.3	37.0	42.9
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	32.7	19.9	10.6	32.5	55.1	0.3	37.0	42.9
Queue Length 50th (m)	25.0	78.8	2.9	108.4	42.7	0.0	28.9	81.0
Queue Length 95th (m)	50.6	100.6	7.0	142.3	#76.1	0.0	46.9	#132.7
Internal Link Dist (m)		313.1		171.7	108.7			174.2
Turn Bay Length (m)	50.0		50.0			15.0	50.0	
Base Capacity (vph)	356	1813	307	1462	298	492	311	577
Starvation Cap Reductn	0	0	0	14	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.56	0.12	0.80	0.71	0.08	0.58	0.80

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	224	951	54	36	1065	83	30	181	40	179	204	253
Future Volume (vph)	224	951	54	36	1065	83	30	181	40	179	204	253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0			6.0	6.0	4.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.99			1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00	0.95	1.00	
Satd. Flow (prot)	1825	3512		1772	3507			1891	1620	1807	1688	
Flt Permitted	0.10	1.00		0.24	1.00			0.67	1.00	0.42	1.00	
Satd. Flow (perm)	188	3512		439	3507			1276	1620	799	1688	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	226	961	55	36	1076	84	30	183	40	181	206	256
RTOR Reduction (vph)	0	3	0	0	5	0	0	0	31	0	41	0
Lane Group Flow (vph)	226	1013	0	36	1155	0	0	213	9	181	421	0
Confl. Peds. (#/hr)	1		3	3		1	2					2
Heavy Vehicles (%)	0%	3%	2%	3%	3%	0%	0%	1%	0%	1%	4%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	2	0	0	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	63.2	55.1		50.2	46.1			24.4	24.4	33.4	33.4	
Effective Green, g (s)	63.2	55.1		50.2	46.1			24.4	24.4	33.4	33.4	
Actuated g/C Ratio	0.58	0.51		0.46	0.42			0.22	0.22	0.31	0.31	
Clearance Time (s)	4.0	6.0		4.0	6.0			6.0	6.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	306	1781		253	1488			286	363	292	519	
v/s Ratio Prot	c0.09	0.29		0.01	0.33					0.03	c0.25	
v/s Ratio Perm	c0.34			0.06				0.17	0.01	0.16		
v/c Ratio	0.74	0.57		0.14	0.78			0.74	0.02	0.62	0.81	
Uniform Delay, d1	22.7	18.5		16.3	26.8			39.2	32.8	32.8	34.7	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	9.0	1.3		0.3	4.0			10.1	0.0	3.9	9.4	
Delay (s)	31.7	19.8		16.6	30.9			49.3	32.9	36.6	44.1	
Level of Service	C	B		B	C			D	C	D	D	
Approach Delay (s)		22.0			30.4			46.7			42.0	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	30.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	108.6	Sum of lost time (s)	20.0
Intersection Capacity Utilization	113.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

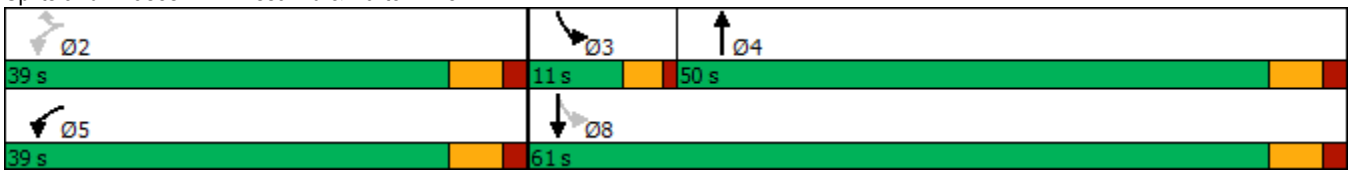


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	493	301	604	380	240	589
Future Volume (vph)	493	301	604	380	240	589
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	35.0		0.0	50.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Ped Bike Factor		0.97	0.99		1.00	
Frt		0.850	0.942			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1772	1585	3347	0	1738	3579
Flt Permitted	0.950				0.161	
Satd. Flow (perm)	1772	1542	3347	0	294	3579
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		184	177			
Link Speed (k/h)	48		48			48
Link Distance (m)	133.2		195.7			152.1
Travel Time (s)	10.0		14.7			11.4
Confl. Peds. (#/hr)		9		7	7	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	3%	2%	1%	5%	2%
Adj. Flow (vph)	508	310	623	392	247	607
Shared Lane Traffic (%)						
Lane Group Flow (vph)	508	310	1015	0	247	607
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	6.1	6.1	30.5		6.1	30.5
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	6.1	1.8		6.1	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Turn Type	pm+pt	Perm	NA		pm+pt	NA
Protected Phases	5		4		3	8
Permitted Phases	2	2			8	
Detector Phase	5	2	4		3	8
Switch Phase						
Minimum Initial (s)	15.0	15.0	44.0		7.0	44.0
Minimum Split (s)	23.0	23.0	50.0		11.0	50.0
Total Split (s)	39.0	39.0	50.0		11.0	61.0
Total Split (%)	39.0%	39.0%	50.0%		11.0%	61.0%
Maximum Green (s)	33.0	33.0	44.0		7.0	55.0
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.0	2.0	2.0		1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		4.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)	7.0	7.0	33.0			33.0
Flash Dont Walk (s)	10.0	10.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	30.6	30.6	44.1		57.1	55.1
Actuated g/C Ratio	0.31	0.31	0.45		0.58	0.56
v/c Ratio	0.92	0.51	0.63		0.90	0.30
Control Delay	55.6	13.9	19.1		49.4	12.1
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	55.6	13.9	19.1		49.4	12.1
LOS	E	B	B		D	B
Approach Delay	39.8		19.1			22.9
Approach LOS	D		B			C

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 97.7			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 26.6		Intersection LOS: C	
Intersection Capacity Utilization 90.6%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 7: Essa Rd & Burton Ave





Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	508	310	1015	247	607
v/c Ratio	0.92	0.51	0.63	0.90	0.30
Control Delay	55.6	13.9	19.1	49.4	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	55.6	13.9	19.1	49.4	12.1
Queue Length 50th (m)	91.8	17.7	65.1	22.5	31.6
Queue Length 95th (m)	#147.9	42.1	86.3	#57.1	42.2
Internal Link Dist (m)	109.2		171.7		128.1
Turn Bay Length (m)		35.0		50.0	
Base Capacity (vph)	599	643	1607	275	2018
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.85	0.48	0.63	0.90	0.30

Intersection Summary

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



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	493	301	604	380	240	589
Future Volume (vph)	493	301	604	380	240	589
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		4.0	6.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frpb, ped/bikes	1.00	0.97	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.94		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1772	1542	3348		1738	3579
Flt Permitted	0.95	1.00	1.00		0.16	1.00
Satd. Flow (perm)	1772	1542	3348		295	3579
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	508	310	623	392	247	607
RTOR Reduction (vph)	0	126	97	0	0	0
Lane Group Flow (vph)	508	184	918	0	247	607
Confl. Peds. (#/hr)		9		7	7	
Heavy Vehicles (%)	3%	3%	2%	1%	5%	2%
Turn Type	pm+pt	Perm	NA		pm+pt	NA
Protected Phases	5		4		3	8
Permitted Phases	2	2			8	
Actuated Green, G (s)	30.6	30.6	44.1		55.1	55.1
Effective Green, g (s)	30.6	30.6	44.1		55.1	55.1
Actuated g/C Ratio	0.31	0.31	0.45		0.56	0.56
Clearance Time (s)	6.0	6.0	6.0		4.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	554	482	1511		269	2018
v/s Ratio Prot	c0.29		0.27		c0.07	0.17
v/s Ratio Perm		0.12			c0.45	
v/c Ratio	0.92	0.38	0.61		0.92	0.30
Uniform Delay, d1	32.3	26.2	20.3		15.1	11.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	20.0	0.5	1.8		33.6	0.4
Delay (s)	52.3	26.7	22.1		48.8	11.6
Level of Service	D	C	C		D	B
Approach Delay (s)	42.6		22.1			22.3
Approach LOS	D		C			C

Intersection Summary			
HCM 2000 Control Delay	28.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	97.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	90.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø8
Lane Configurations							
Traffic Volume (vph)	8	458	826	10	216	848	
Future Volume (vph)	8	458	826	10	216	848	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (m)	0.0	0.0		0.0	15.0		
Storage Lanes	1	0		0	1		
Taper Length (m)	2.5				2.5		
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95	
Ped Bike Factor	0.98		1.00		1.00		
Frt	0.867		0.998				
Flt Protected	0.999				0.950		
Satd. Flow (prot)	1635	0	3571	0	1807	3515	
Flt Permitted	0.999				0.274		
Satd. Flow (perm)	1635	0	3571	0	520	3515	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)	244		2				
Link Speed (k/h)	48		48			48	
Link Distance (m)	165.5		69.2			124.5	
Travel Time (s)	12.4		5.2			9.3	
Confl. Peds. (#/hr)		2		9	9		
Confl. Bikes (#/hr)		2		5			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	
Heavy Vehicles (%)	0%	0%	2%	0%	1%	3%	
Bus Blockages (#/hr)	0	0	0	0	0	4	
Adj. Flow (vph)	8	472	852	10	223	874	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	480	0	862	0	223	874	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Right	Left	Left	
Median Width(m)	3.7		3.7			3.7	
Link Offset(m)	0.0		0.0			0.0	
Crosswalk Width(m)	1.6		1.6			1.6	
Two way Left Turn Lane							
Headway Factor	0.99	0.99	0.99	0.99	0.99	1.00	
Turning Speed (k/h)	24	14		14	24		
Number of Detectors	1		2		1	2	
Detector Template	Left		Thru		Left	Thru	
Leading Detector (m)	6.1		30.5		6.1	30.5	
Trailing Detector (m)	0.0		0.0		0.0	0.0	
Detector 1 Position(m)	0.0		0.0		0.0	0.0	
Detector 1 Size(m)	6.1		1.8		6.1	1.8	
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)	0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0		0.0		0.0	0.0	
Detector 2 Position(m)			28.7			28.7	
Detector 2 Size(m)			1.8			1.8	
Detector 2 Type			Cl+Ex			Cl+Ex	



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø8
Detector 2 Channel							
Detector 2 Extend (s)			0.0			0.0	
Turn Type	pm+pt		NA		pm+pt	NA	
Protected Phases	3		2		1	6	8
Permitted Phases	8				6		
Detector Phase	3		2		1	6	
Switch Phase							
Minimum Initial (s)	10.0		80.0		7.0	80.0	10.0
Minimum Split (s)	27.0		86.0		11.0	86.0	27.0
Total Split (s)	33.0		86.0		11.0	97.0	33.0
Total Split (%)	25.4%		66.2%		8.5%	74.6%	25%
Maximum Green (s)	27.0		80.0		7.0	91.0	27.0
Yellow Time (s)	4.0		4.0		3.0	4.0	4.0
All-Red Time (s)	2.0		2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0	
Total Lost Time (s)	6.0		6.0		4.0	6.0	
Lead/Lag			Lag		Lead		
Lead-Lag Optimize?			Yes		Yes		
Vehicle Extension (s)	3.0		3.0		3.0	3.0	3.0
Recall Mode	None		Max		None	Max	None
Walk Time (s)	10.0		65.0			65.0	10.0
Flash Dont Walk (s)	11.0		15.0			15.0	11.0
Pedestrian Calls (#/hr)	0		0			0	0
Act Effct Green (s)	24.1		80.1		93.1	91.1	
Actuated g/C Ratio	0.19		0.63		0.73	0.72	
v/c Ratio	0.95		0.38		0.49	0.35	
Control Delay	53.9		12.4		9.6	7.6	
Queue Delay	0.0		0.0		0.0	0.9	
Total Delay	53.9		12.4		9.6	8.5	
LOS	D		B		A	A	
Approach Delay	53.9		12.4			8.7	
Approach LOS	D		B			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 127.2			
Natural Cycle: 125			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 18.9		Intersection LOS: B	
Intersection Capacity Utilization 121.0%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 8: Essa Rd & Gowan St





Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	480	862	223	874
v/c Ratio	0.95	0.38	0.49	0.35
Control Delay	53.9	12.4	9.6	7.6
Queue Delay	0.0	0.0	0.0	0.9
Total Delay	53.9	12.4	9.6	8.5
Queue Length 50th (m)	64.0	55.4	16.7	42.6
Queue Length 95th (m)	#126.6	68.2	25.2	52.4
Internal Link Dist (m)	141.5	45.2		100.5
Turn Bay Length (m)			15.0	
Base Capacity (vph)	539	2249	451	2518
Starvation Cap Reductn	0	0	0	1276
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.89	0.38	0.49	0.70

Intersection Summary

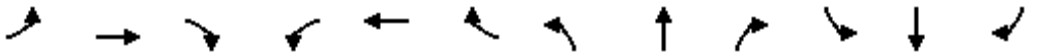
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	8	458	826	10	216	848
Future Volume (vph)	8	458	826	10	216	848
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0		4.0	6.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frpb, ped/bikes	0.98		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.87		1.00		1.00	1.00
Flt Protected	1.00		1.00		0.95	1.00
Satd. Flow (prot)	1635		3572		1806	3515
Flt Permitted	1.00		1.00		0.27	1.00
Satd. Flow (perm)	1635		3572		522	3515
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	8	472	852	10	223	874
RTOR Reduction (vph)	198	0	1	0	0	0
Lane Group Flow (vph)	282	0	861	0	223	874
Confl. Peds. (#/hr)		2		9	9	
Confl. Bikes (#/hr)		2		5		
Heavy Vehicles (%)	0%	0%	2%	0%	1%	3%
Bus Blockages (#/hr)	0	0	0	0	0	4
Turn Type	pm+pt		NA		pm+pt	NA
Protected Phases	3		2		1	6
Permitted Phases	8				6	
Actuated Green, G (s)	24.1		80.1		91.1	91.1
Effective Green, g (s)	24.1		80.1		91.1	91.1
Actuated g/C Ratio	0.19		0.63		0.72	0.72
Clearance Time (s)	6.0		6.0		4.0	6.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	309		2249		444	2517
v/s Ratio Prot	c0.17		0.24		c0.03	0.25
v/s Ratio Perm					c0.33	
v/c Ratio	0.91		0.38		0.50	0.35
Uniform Delay, d1	50.5		11.5		7.0	6.8
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	29.8		0.5		0.9	0.4
Delay (s)	80.3		12.0		7.9	7.2
Level of Service	F		B		A	A
Approach Delay (s)	80.3		12.0			7.3
Approach LOS	F		B			A

Intersection Summary			
HCM 2000 Control Delay	23.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	127.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	121.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



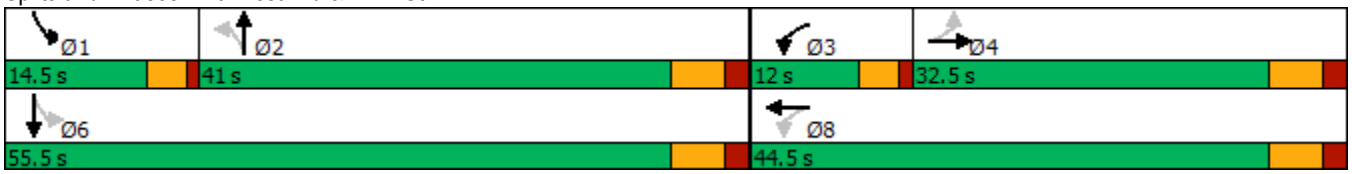
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	570	138	192	336	120	140	852	261	224	831	83
Future Volume (vph)	70	570	138	192	336	120	140	852	261	224	831	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	20.0		0.0	50.0		0.0	25.0		30.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.971			0.960			0.965			0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	3454	0	1706	3358	0	1825	3481	0	1825	3523	0
Flt Permitted	0.483			0.155			0.303			0.103		
Satd. Flow (perm)	899	3454	0	278	3358	0	582	3481	0	198	3523	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29			59			44			15	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		328.8			105.3			124.5			69.7	
Travel Time (s)		24.7			7.9			9.3			5.2	
Confl. Peds. (#/hr)	4		1	1		4	4		7	7		4
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
Heavy Vehicles (%)	3%	1%	8%	7%	1%	12%	0%	1%	0%	0%	2%	2%
Adj. Flow (vph)	72	588	142	198	346	124	144	878	269	231	857	86
Shared Lane Traffic (%)												
Lane Group Flow (vph)	72	730	0	198	470	0	144	1147	0	231	943	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

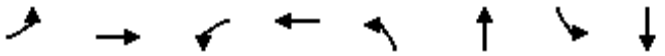
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		3	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		34.0	34.0		5.0	34.0	
Minimum Split (s)	31.0	31.0		11.0	31.0		40.0	40.0		9.5	40.0	
Total Split (s)	32.5	32.5		12.0	44.5		41.0	41.0		14.5	55.5	
Total Split (%)	32.5%	32.5%		12.0%	44.5%		41.0%	41.0%		14.5%	55.5%	
Maximum Green (s)	26.5	26.5		8.0	38.5		35.0	35.0		10.5	49.5	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		4.0	6.0		6.0	6.0		4.0	6.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		None	Max		None	None		None	None	
Walk Time (s)	10.0	10.0			10.0		22.0	22.0			22.0	
Flash Dont Walk (s)	15.0	15.0			15.0		12.0	12.0			12.0	
Pedestrian Calls (#/hr)	0	0			0		0	0			0	
Act Effct Green (s)	26.5	26.5		40.5	38.5		34.8	34.8		51.3	49.3	
Actuated g/C Ratio	0.27	0.27		0.41	0.39		0.35	0.35		0.51	0.49	
v/c Ratio	0.30	0.78		0.87	0.35		0.71	0.92		0.85	0.54	
Control Delay	33.6	39.3		58.6	19.8		49.9	43.4		48.8	18.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	35.5		0.0	0.0	
Total Delay	33.6	39.3		58.6	19.8		49.9	79.0		48.8	18.5	
LOS	C	D		E	B		D	E		D	B	
Approach Delay		38.8			31.3			75.7			24.5	
Approach LOS		D			C			E			C	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 99.8
Natural Cycle: 95
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 45.4 Intersection LOS: D
Intersection Capacity Utilization 106.5% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 9: Essa Rd & Tiffin St





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	72	730	198	470	144	1147	231	943
v/c Ratio	0.30	0.78	0.87	0.35	0.71	0.92	0.85	0.54
Control Delay	33.6	39.3	58.6	19.8	49.9	43.4	48.8	18.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	35.5	0.0	0.0
Total Delay	33.6	39.3	58.6	19.8	49.9	79.0	48.8	18.5
Queue Length 50th (m)	11.2	66.4	25.3	29.0	23.8	107.5	27.0	62.5
Queue Length 95th (m)	23.6	87.6	#58.5	41.5	#54.4	#148.6	#67.2	80.0
Internal Link Dist (m)		304.8		81.3		100.5		45.7
Turn Bay Length (m)	20.0		20.0		50.0		25.0	
Base Capacity (vph)	239	938	227	1332	204	1249	272	1755
Starvation Cap Reductn	0	0	0	0	0	182	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.78	0.87	0.35	0.71	1.07	0.85	0.54

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	570	138	192	336	120	140	852	261	224	831	83
Future Volume (vph)	70	570	138	192	336	120	140	852	261	224	831	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		4.0	6.0		6.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.96		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1767	3453		1706	3359		1823	3480		1825	3525	
Flt Permitted	0.48	1.00		0.15	1.00		0.30	1.00		0.10	1.00	
Satd. Flow (perm)	898	3453		278	3359		582	3480		198	3525	
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)	72	588	142	198	346	124	144	878	269	231	857	86
RTOR Reduction (vph)	0	21	0	0	36	0	0	29	0	0	8	0
Lane Group Flow (vph)	72	709	0	198	434	0	144	1118	0	231	935	0
Confl. Peds. (#/hr)	4		1	1		4	4		7	7		4
Heavy Vehicles (%)	3%	1%	8%	7%	1%	12%	0%	1%	0%	0%	2%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	26.5	26.5		38.5	38.5		34.8	34.8		49.3	49.3	
Effective Green, g (s)	26.5	26.5		38.5	38.5		34.8	34.8		49.3	49.3	
Actuated g/C Ratio	0.27	0.27		0.39	0.39		0.35	0.35		0.49	0.49	
Clearance Time (s)	6.0	6.0		4.0	6.0		6.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	238	916		221	1295		202	1213		268	1741	
v/s Ratio Prot		0.21		c0.07	0.13			c0.32		c0.09	0.27	
v/s Ratio Perm	0.08			c0.27			0.25			0.33		
v/c Ratio	0.30	0.77		0.90	0.33		0.71	0.92		0.86	0.54	
Uniform Delay, d1	29.3	33.9		23.7	21.6		28.2	31.2		24.1	17.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.2	6.3		33.6	0.7		11.3	11.5		23.6	0.3	
Delay (s)	32.5	40.2		57.3	22.3		39.4	42.7		47.7	17.7	
Level of Service	C	D		E	C		D	D		D	B	
Approach Delay (s)		39.5			32.7			42.3			23.6	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	34.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	99.8	Sum of lost time (s)	20.0
Intersection Capacity Utilization	106.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	33	23	518	46	32	621
Future Volume (vph)	33	23	518	46	32	621
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	15.0	
Storage Lanes	1	0		0	1	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.945		0.989			
Flt Protected	0.971				0.950	
Satd. Flow (prot)	1728	0	1863	0	1789	1883
Flt Permitted	0.971				0.950	
Satd. Flow (perm)	1728	0	1863	0	1789	1883
Link Speed (k/h)	48		48			48
Link Distance (m)	32.4		198.2			102.4
Travel Time (s)	2.4		14.9			7.7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	25	563	50	35	675
Shared Lane Traffic (%)						
Lane Group Flow (vph)	61	0	613	0	35	675
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane			Yes			Yes
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

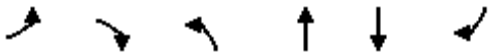
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	42.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	33	23	518	46	32	621
Future Volume (Veh/h)	33	23	518	46	32	621
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	36	25	563	50	35	675
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			198			214
pX, platoon unblocked	0.87	0.87			0.87	
vC, conflicting volume	1333	588			613	
vC1, stage 1 conf vol	588					
vC2, stage 2 conf vol	745					
vCu, unblocked vol	1308	450			479	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	95			96	
cM capacity (veh/h)	370	529			941	

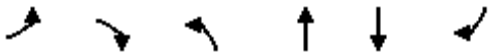
Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	61	613	35	675
Volume Left	36	0	35	0
Volume Right	25	50	0	0
cSH	422	1700	941	1700
Volume to Capacity	0.14	0.36	0.04	0.40
Queue Length 95th (m)	3.8	0.0	0.9	0.0
Control Delay (s)	15.0	0.0	9.0	0.0
Lane LOS	B		A	
Approach Delay (s)	15.0	0.0	0.4	
Approach LOS	B			

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	42.7%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	14	61	88	822	844	18
Future Volume (vph)	14	61	88	822	844	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Frt	0.890				0.997	
Flt Protected	0.991			0.995		
Satd. Flow (prot)	1661	0	0	3561	3568	0
Flt Permitted	0.991			0.995		
Satd. Flow (perm)	1661	0	0	3561	3568	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	65.0			152.1	69.2	
Travel Time (s)	4.9			11.4	5.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	66	96	893	917	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	81	0	0	989	937	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 63.7%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	61	88	822	844	18
Future Volume (Veh/h)	14	61	88	822	844	18
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	66	96	893	917	20
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				152	69	
pX, platoon unblocked	0.93	0.91	0.91			
vC, conflicting volume	1566	468	937			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1012	206	723			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	91	88			
cM capacity (veh/h)	193	725	793			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	81	394	595	611	326
Volume Left	15	96	0	0	0
Volume Right	66	0	0	0	20
cSH	481	793	1700	1700	1700
Volume to Capacity	0.17	0.12	0.35	0.36	0.19
Queue Length 95th (m)	4.6	3.1	0.0	0.0	0.0
Control Delay (s)	14.0	3.6	0.0	0.0	0.0
Lane LOS	B	A			
Approach Delay (s)	14.0	1.4		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	112	106	0	76	67
Future Volume (vph)	0	112	106	0	76	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.937	
Flt Protected				0.950	0.974	
Satd. Flow (prot)	1629	0	0	1789	1719	0
Flt Permitted				0.950	0.974	
Satd. Flow (perm)	1629	0	0	1789	1719	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	101.4			58.2	35.6	
Travel Time (s)	7.6			4.4	2.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	122	115	0	83	73
Shared Lane Traffic (%)						
Lane Group Flow (vph)	122	0	0	115	156	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 27.5%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	112	106	0	76	67
Future Volume (Veh/h)	0	112	106	0	76	67
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	122	115	0	83	73
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			122		291	61
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			122		291	61
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			92		87	93
cM capacity (veh/h)			1465		645	1004

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	122	115	156
Volume Left	0	115	83
Volume Right	122	0	73
cSH	1700	1465	774
Volume to Capacity	0.07	0.08	0.20
Queue Length 95th (m)	0.0	1.9	5.7
Control Delay (s)	0.0	7.7	10.8
Lane LOS		A	B
Approach Delay (s)	0.0	7.7	10.8
Approach LOS			B

Intersection Summary			
Average Delay	6.5		
Intersection Capacity Utilization	27.5%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix F

TTS

datamanagementgroup

Hello Dhaval Harpal

TTS Cross Tabulation

Cross Tabulation Query Form - Trip - 2016 v1.1

Filter Variables

Planning district of desti… | 2006 GTA zone of origin | (Optional) Table Attribute

Group Attributes

Row Grouping | (8502,8525-8527) | Table Grouping

Grouping file: Choose File No file chosen

Filter Selection +

☑ Trip purpose of origin | In

H,

And

☑ Start time of trip | In

600-900

And

☑ Primary travel mode of trip | In

D, P, M, T,

Add Delete

Output

◉ Comma-delimited table ○ Column format Expansion Factor On | Click to Select Load | Load

Execute Query Select All Save As

```
Thu Jun 24 2021 15:47:53 GMT-0400 (Eastern Daylight Time) - Run Time: 3038ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of destination - pd_dest
Column: 2006 GTA zone of origin - gta06_orig

RowG:
ColG:(8502,8525-8527)
TblG:

Filters:
(Trip purpose of origin - purp_orig In H,
and
Start time of trip - start_time In 600-900
and
Primary travel mode of trip - mode_prime In D, P, M, T, )

Trip 2016
Table:

,1
PD 6 of Toronto,14
PD 10 of Toronto,24
PD 13 of Toronto,43
King,23
Vaughan,283
Mississauga,31
Barrie,2032
Innisfil,104
Bradford-West Gwillimbury,113
New Tecumseth,54
Essa,30
```

Instructions

Group attributes on the output by:

- Entering the values of ea group

Example

- (1) (4-6,8) (9-14)
- Group 1: 1
- Group 2: 4,5,6,8
- Group 3: 9,10,11,12,13,1

Open current page in new tab

2006 GTA Zone of Origin

Code	Description
1 - 625	Toronto
1001 - 1334	Durham
2001 - 2877	York
3001 - 3879	Peel
4001 - 4197	Halton
5001 - 5253	Hamilton
6001 - 6366	Niagara
7001 - 7576	Waterloo
8001 - 8207	Guelph
8301 - 8380	Wellington
8401 - 8405	Orangeville
8411 - 8417	Dufferin
8501 - 8532	Barrie

```
Springwater,77
Muskoka,50
Grey,8
Midland,35
Orillia,83
```

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Instructions

Group attributes on the output by:

- Entering the values of ea group

Example

- (1) (4-6,8) (9-14)
- Group 1: 1
- Group 2: 4,5,6,8
- Group 3: 9,10,11,12,13,1

Open current page in new tab

2006 GTA Zone of Origin

Code	Description
1 - 625	Toronto
1001 - 1334	Durham
2001 - 2877	York
3001 - 3879	Peel
4001 - 4197	Halton
5001 - 5253	Hamilton
6001 - 6366	Niagara
7001 - 7576	Waterloo
8001 - 8207	Guelph
8301 - 8380	Wellington
8401 - 8405	Orangeville
8411 - 8417	Dufferin
8501 - 8532	Barrie

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Hello Dhaval Harpal

Database Index DMG TTS CCP Contact Logout

TTS Cross Tabulation

Cross Tabulation Query Form - Trip - 2016 v1.1

Filter Variables

Planning district of origin | 2006 GTA zone of desti… | (Optional) Table Attribute

Group Attributes

Row Grouping | (8502,8525-8527) | Table Grouping

Grouping file: Choose File No file chosen

Filter Selection +

Filter survey records by selection criteria:
1 Select a data field
2 Enter codes to be included in the extraction.
3 Use '-' to specify a range and ',' to separate codes.
4 Do not use '()' to separate codes.
5 The default operator for selecting values in a specific filter is IN but the operator NOT IN is available to exclude values from the filter.
6 The default operator for connecting multiple filters is AND but the OR operator is also available
7 If a combination of ANDs and ORs is used the checkboxes can be used to act as brackets (see manual for more details) and the bracketed filters

☑ Trip purpose of destination | In
H,

And

☑ Start time of trip | In
1600-1900

And

☑ Primary travel mode of trip | In
D, P, M, T,

Add Delete

Output

◉ Comma-delimited table ○ Column format Expansion Factor On Click to Select Load Load

Execute Query Select All Save As

```
Thu Jun 24 2021 15:52:53 GMT-0400 (Eastern Daylight Time) - Run Time: 2781ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of origin - pd_orig
Column: 2006 GTA zone of destination - gta06_dest

RowG:
ColG:(8502,8525-8527)
TblG:

Filters:
(Trip purpose of destination - purp_dest In H,
and
Start time of trip - start_time In 1600-1900
and
Primary travel mode of trip - mode_prime In D, P, M, T, )

Trip 2016
Table:

,1
PD 1 of Toronto,28
PD 10 of Toronto,55
PD 13 of Toronto,43
```

Filter Tutorial Here about the c

Open current page in new tab

Start Time of Trip

Code	Description
400 - 2800	Total range - 4:00 a.m survey day to 3:39 a. next day

```
King,23
Vaughan,220
Mississauga,118
Halton Hills,13
City of Guelph,26
Barrie,2193
Innisfil,84
Bradford-West Gwillimbury,46
Essa,20
Springwater,67
Perth,24
Midland,64
Oro-Medonte,11
Orillia,147
```

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Filter Tutorial Here about the c

Open current page in new tab

Start Time of Trip

Code	Description
400 - 2800	Total range - 4:00 a.m survey day to 3:39 a. next day

TTS

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of destination - pd_dest

Column: 2006 GTA zone of origin - gta06_orig

RowG:

ColG:(8502,8525-8527)

TblG:

Filters:

(Trip purpose of origin - purp_orig In H,

and

Start time of trip - start_time In 600-900

and

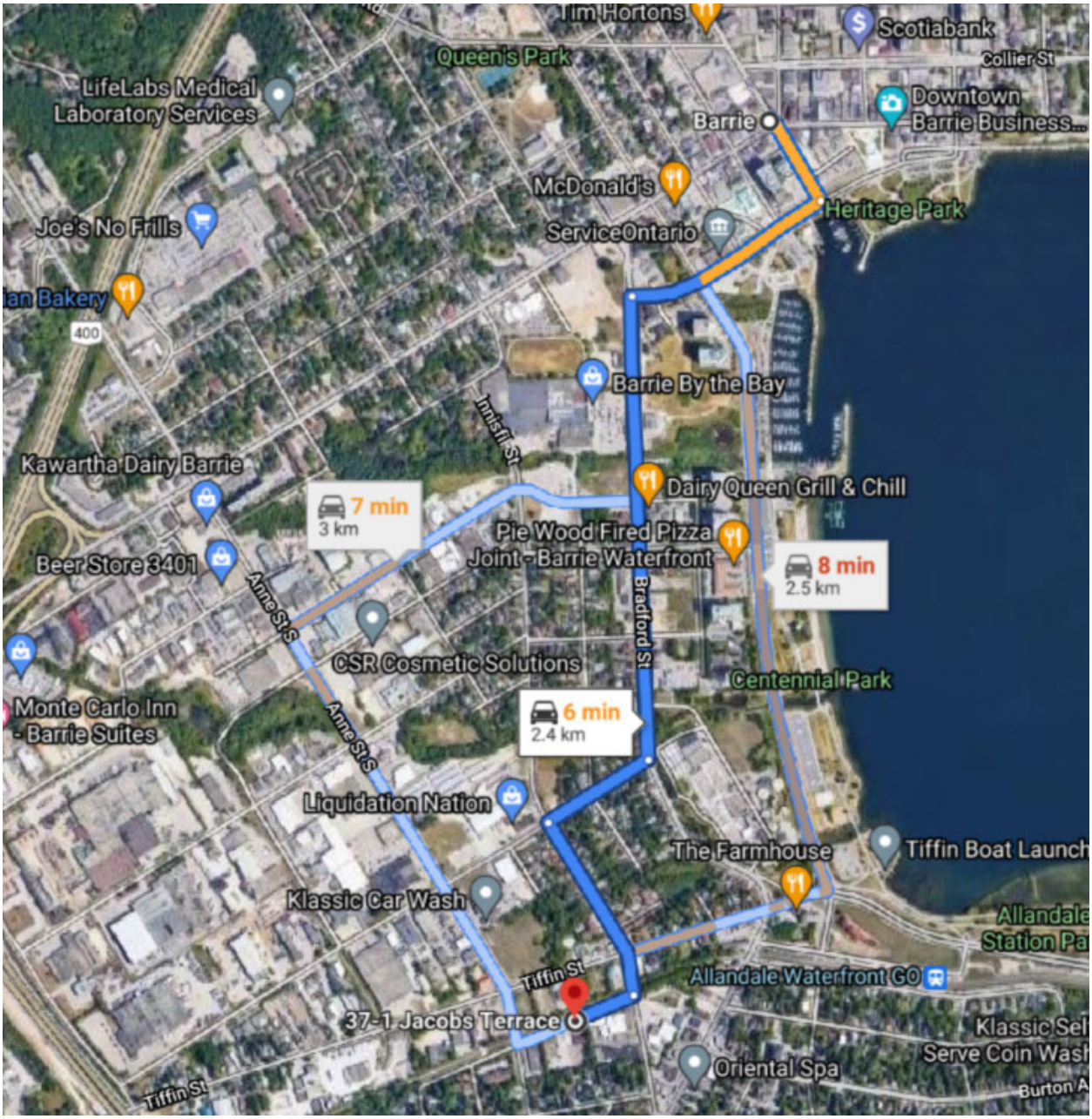
Primary travel mode of trip - mode_prime In D, P, M, T,)

Trip 2016

Table:

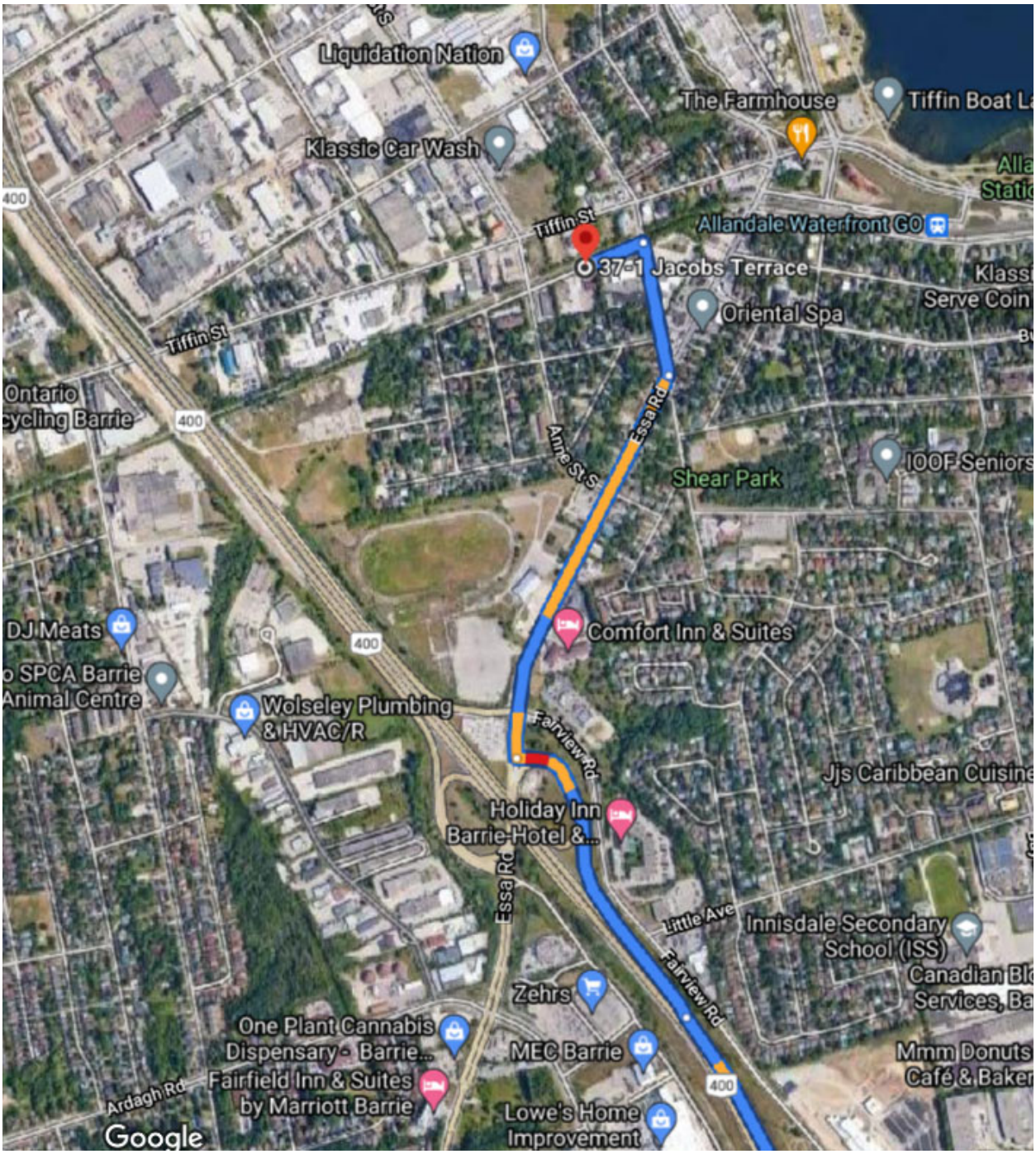
		East BURTON/ESSA	West essa	East tiffin	west tiffin	N-ANNE	S-ANNE	N-INNISFIL
,1								
PD 6 of Toronto	14		1					
PD 10 of Toron	24		1					
PD 13 of Toron	43		1					
King	23		1					
Vaughan	283		1					
Mississauga	31		1					
			0					
Innisfil	104	1						
Bradford-West	113		1					
New Tecumsetl	54				1			
Essa	30				1			
Springwater	77				1			
Muskoka	50					1		
Grey	8				1			
Midland	35							1
Orillia	83							1
Total	972	104	531	0	169	50	0	118
		11%	55%	0%	17%	5%	0%	12%

Barrie


Tim Hortons
Scotiabank
Collier St
Queen's Park
LifeLabs Medical Laboratory Services
Downtown Barrie Business...
Barrie
McDonald's
Heritage Park
Joe's No Frills
ServiceOntario
400
Barrie By the Bay
Innisfil St
Kawartha Dairy Barrie
Dairy Queen Grill & Chill
7 min
3 km
Pie Wood Fired Pizza Joint - Barrie Waterfront
8 min
2.5 km
Beer Store 3401
Anne St S
Bradford St
CSR Cosmetic Solutions
Centennial Park
Monte Carlo Inn - Barrie Suites
6 min
2.4 km
Liquidation Nation
The Farmhouse
Tiffin Boat Launch
Klassic Car Wash
Allandale Station Pa
Tiffin St
Allandale Waterfront GO
37-1 Jacobs Terrace
Klassic Sel
Serve Coin Wash
Oriental Spa
Tiffin St
Burton A

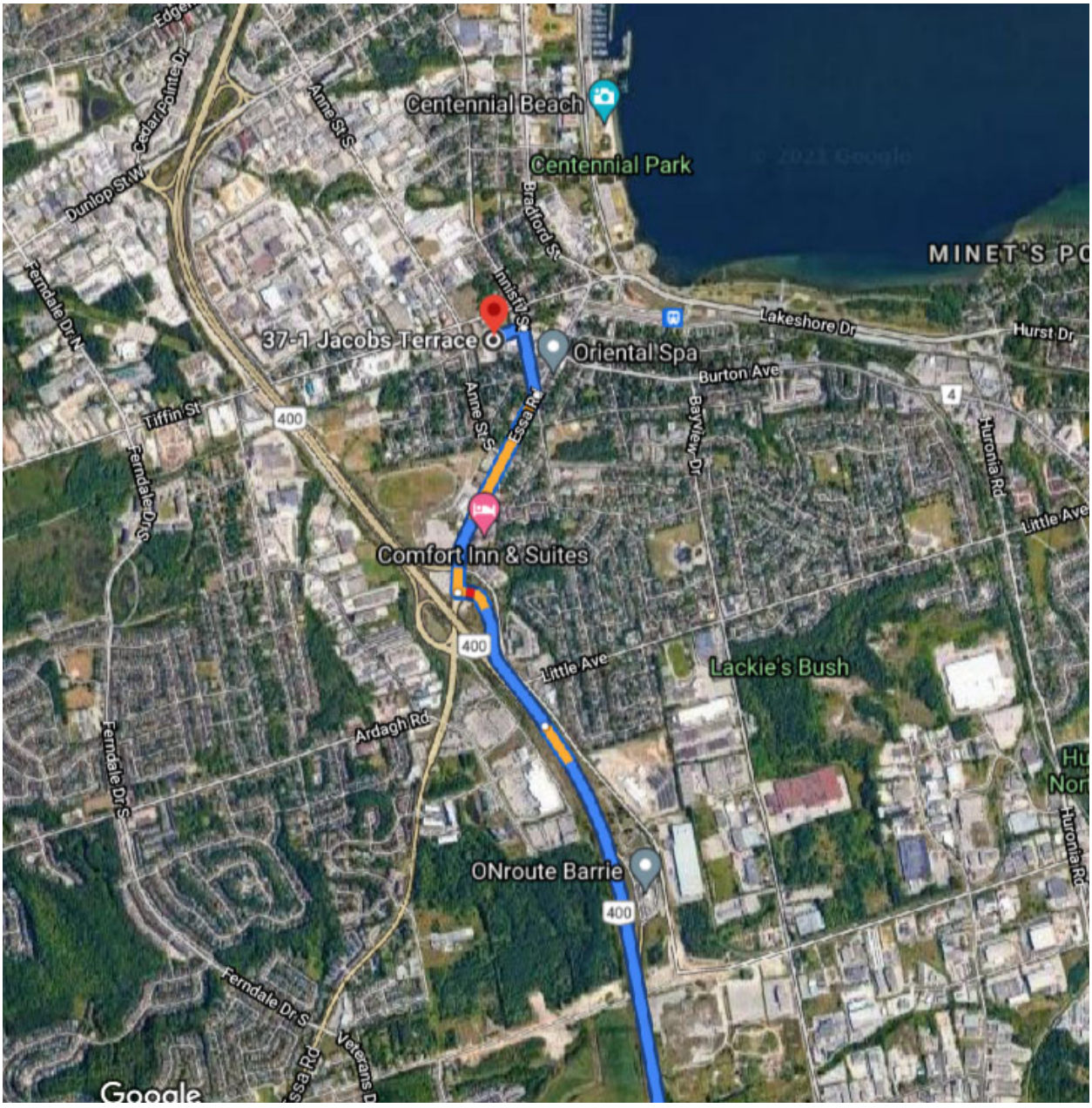
`

King


Liquidation Nation
The Farmhouse
Tiffin Boat La
Klassic Car Wash
Allandale Waterfront GO
Tiffin St
37-1 Jacobs Terrace
Oriental Spa
Tiffin St
Ontario
cycling Barrie
400
Anne St S
Essa Rd
IOOF Seniors
Shear Park
DJ Meats
Comfort Inn & Suites
SPCA Barrie
Animal Centre
Wolseley Plumbing
& HVAC/R
Fairview Rd
Jjs Caribbean Cuisine
Holiday Inn
Barrie-Hotel &...
Essa Rd
Little Ave
Innisdale Secondary
School (ISS)
Zehrs
Fairview Rd
One Plant Cannabis
Dispensary - Barrie...
MEC Barrie
Mmm Donuts
Café & Baker
Fairfield Inn & Suites
by Marriott Barrie
Ardagh Rd
Lowe's Home
Improvement
Google

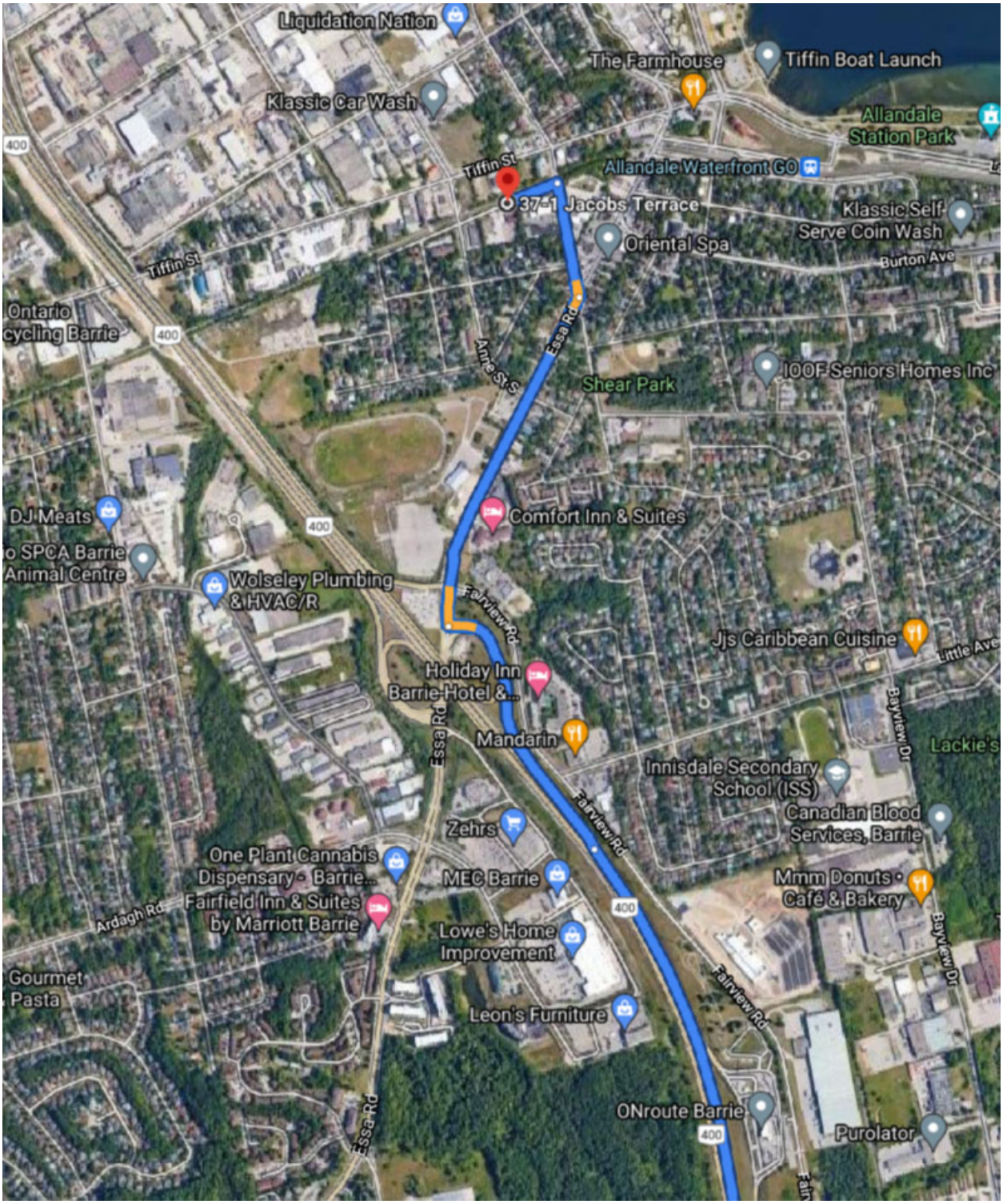
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Vaughn,Toronto



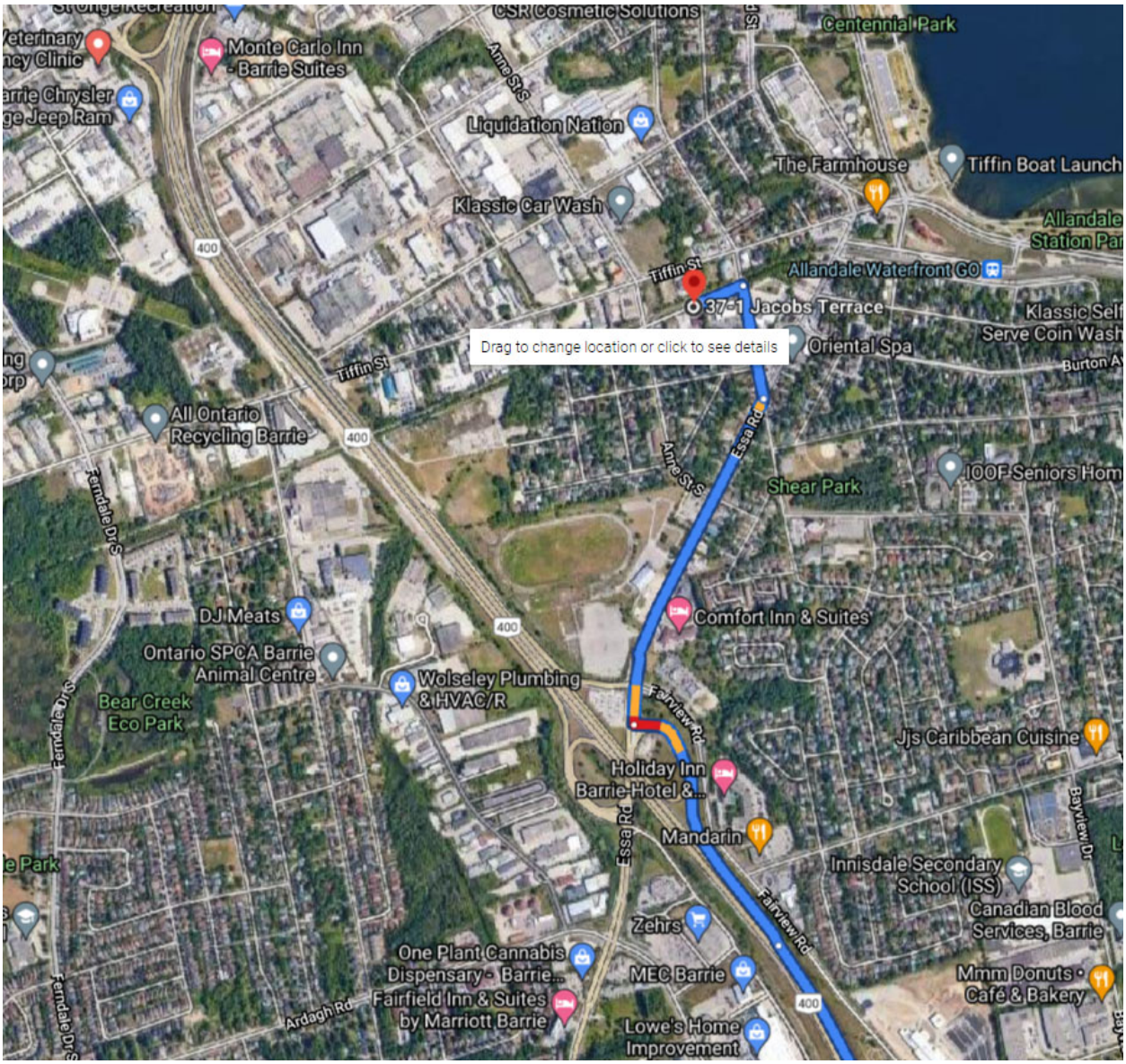
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Messisauga


Liquidation Nation
The Farmhouse
Tiffin Boat Launch
Klassic Car Wash
Allandale Station Park
400
Tiffin St
Allandale Waterfront GO
37-1 Jacobs Terrace
Klassic Self Serve Coin Wash
Oriental Spa
Burton Ave
Tiffin St
Ontario cycling Barrie
400
Anne St S
Essa Rd
IOOF Seniors Homes Inc
Shear Park
DJ Meats
Comfort Inn & Suites
400
o SPCA Barrie Animal Centre
Wolseley Plumbing & HVAC/R
Fairview Rd
Jjs Caribbean Cuisine
Little Ave
Holiday Inn Barrie Hotel &...
Essa Rd
Mandarin
Bayview Dr
Lackie's
Innisdale Secondary School (ISS)
Fairview Rd
Canadian Blood Services, Barrie
Zehrs
One Plant Cannabis Dispensary - Barrie...
MEC Barrie
Mmm Donuts - Café & Bakery
Ardagh Rd
Fairfield Inn & Suites by Marriott Barrie
400
Lowe's Home Improvement
Bayview Dr
Gourmet Pasta
Fairview Rd
Leon's Furniture
Essa Rd
ONroute Barrie
400
Purolator

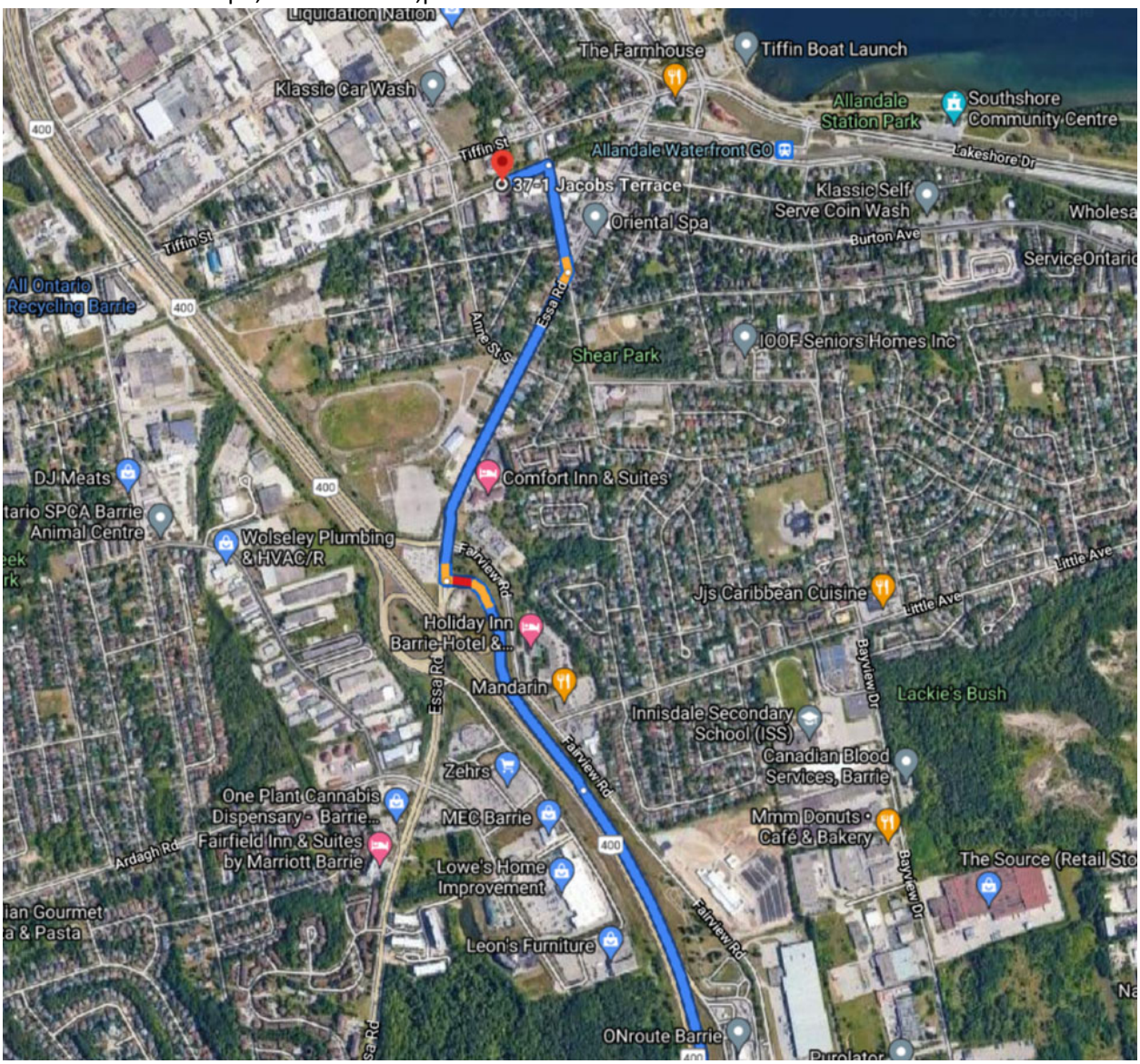
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Halton Hills



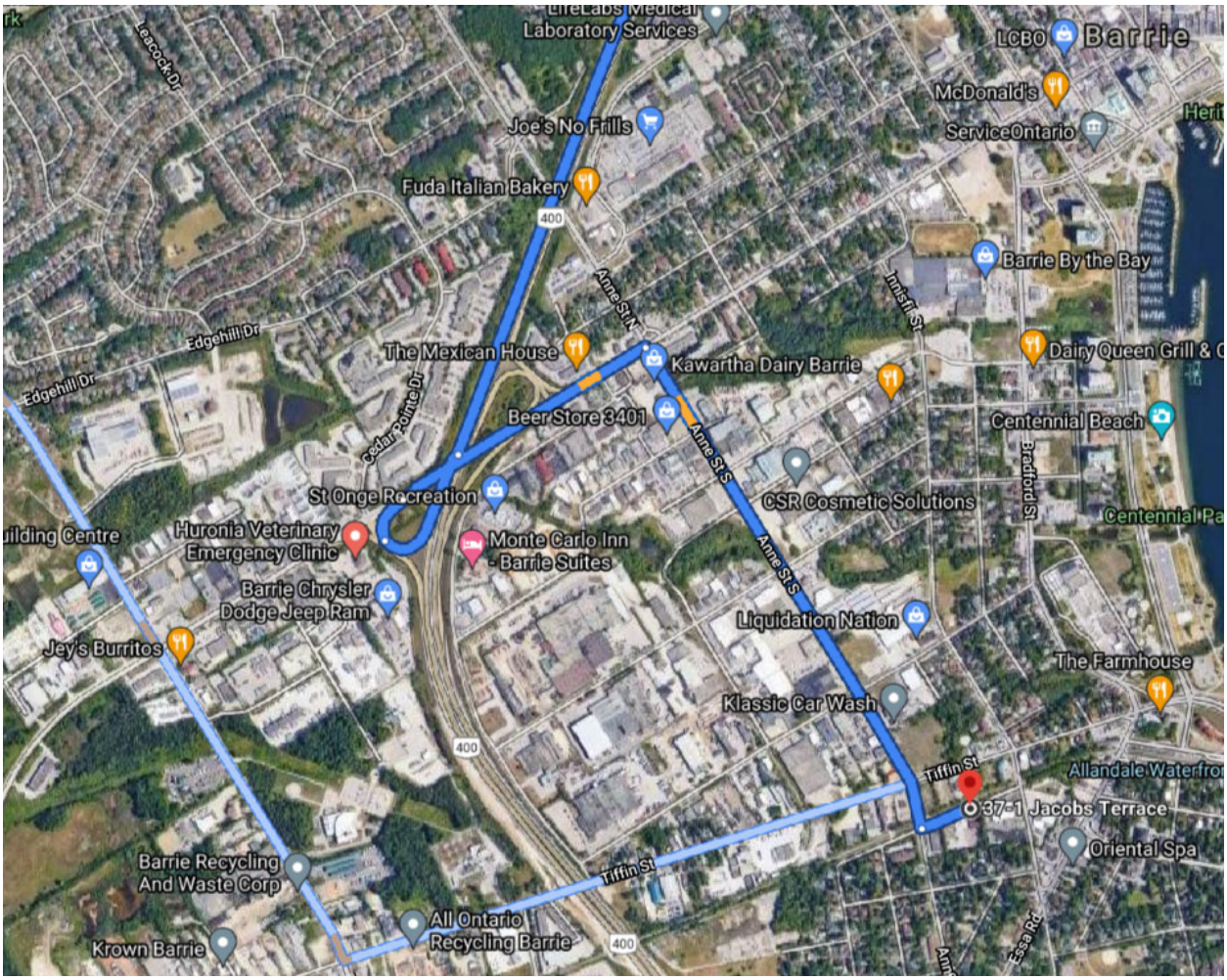
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Guelph,Bradford west,perth



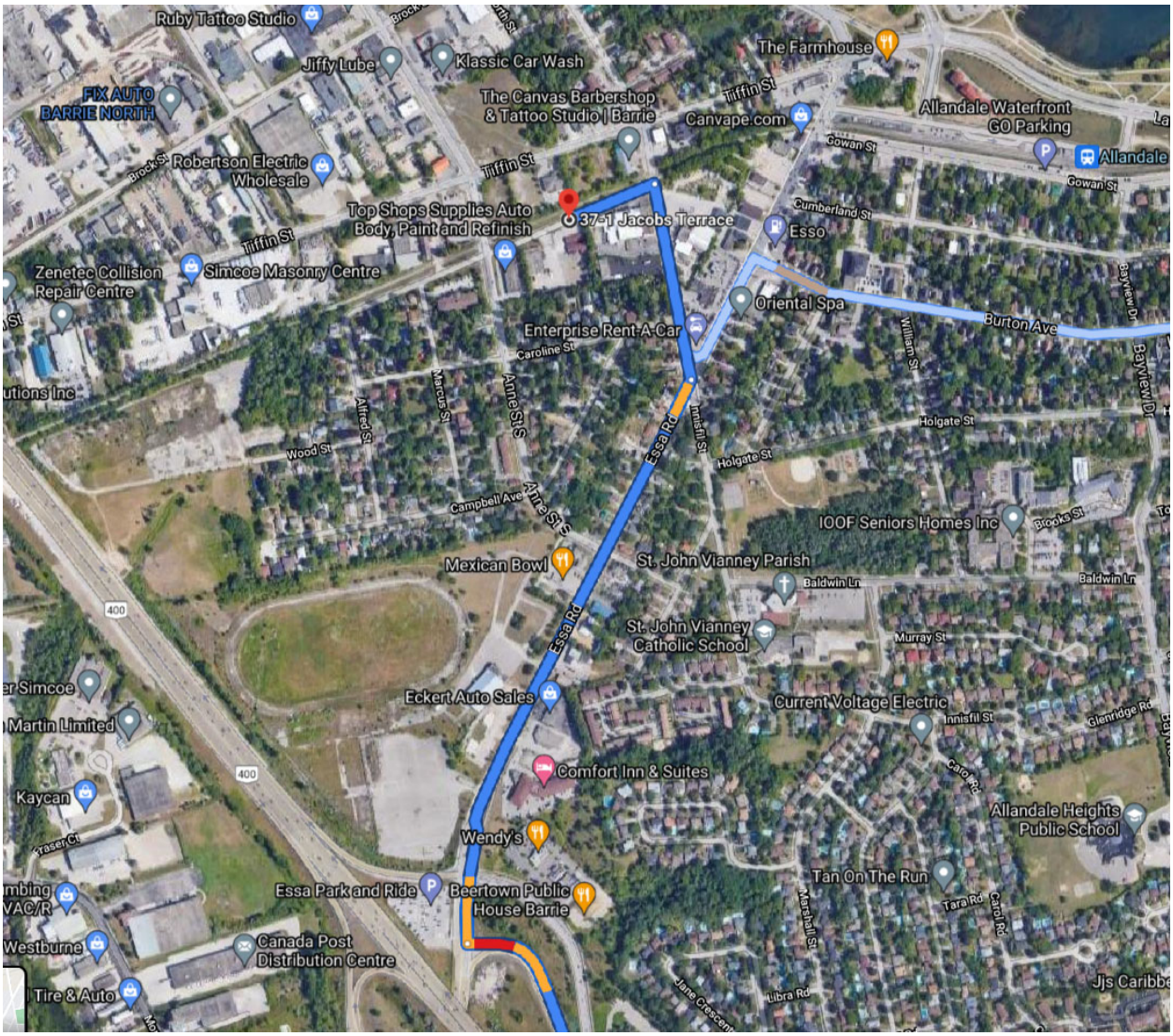
`

Midland, Oro-Medonte



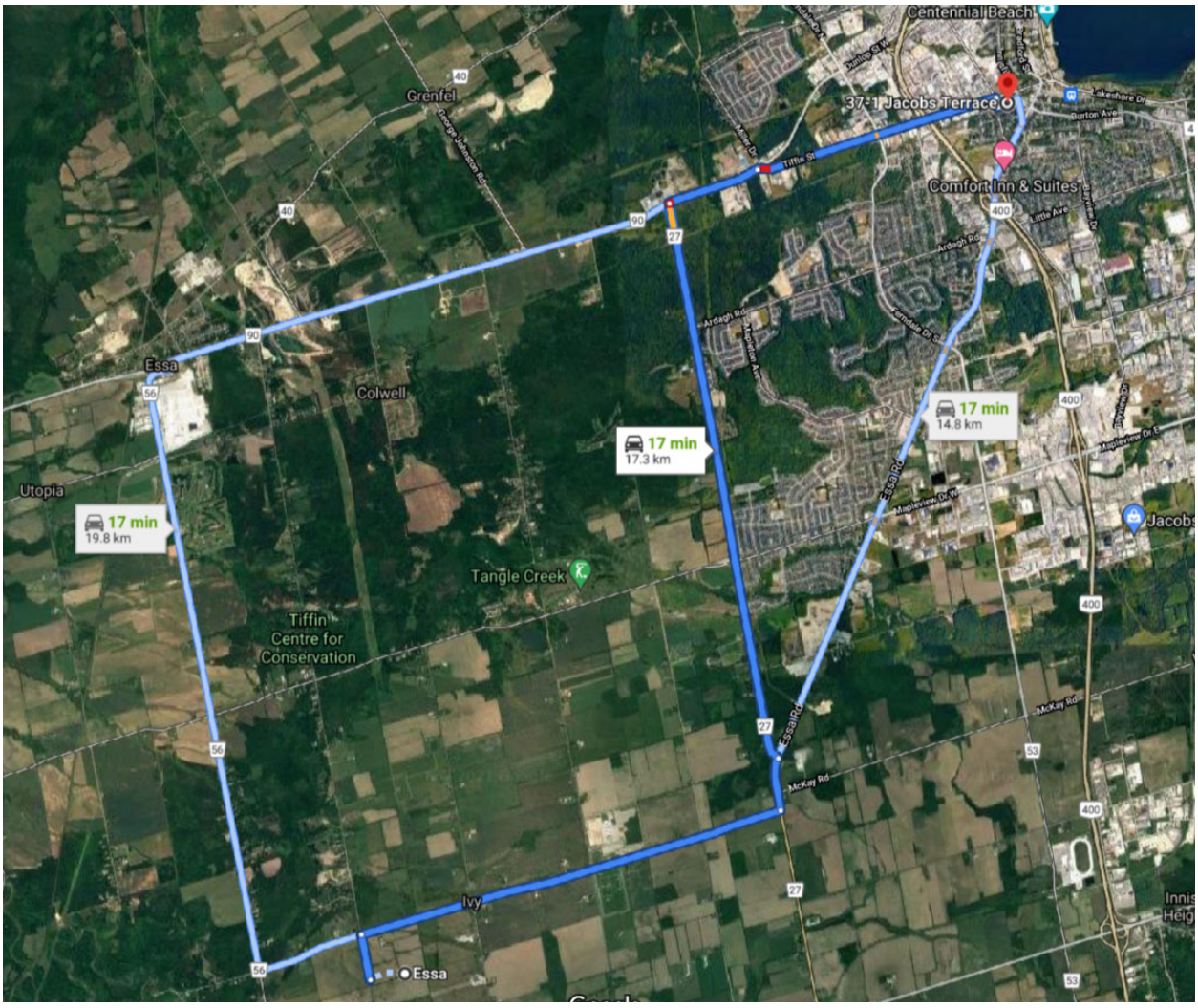
Innisfil

`


Ruby Tattoo Studio
Jiffy Lube
Klassic Car Wash
The Farmhouse
FIX AUTO BARRIE NORTH
The Canvas Barbershop & Tattoo Studio | Barrie
Canvape.com
Allandale Waterfront GO Parking
Allandale
Robertson Electric Wholesale
Tiffin St
Gowan St
Top Shops Supplies Auto Body, Paint and Refinish
37-1 Jacobs Terrace
Esso
Cumberland St
Zenetec Collision Repair Centre
Simcoe Masonry Centre
Oriental Spa
Burton Ave
Enterprise Rent-A-Car
Caroline St
Bayview Dr
William St
Marcus St
Anne St S
Alfred St
Wood St
Essa Rd
Innisfil St
Holgate St
Campbell Ave
IOOF Seniors Homes Inc
Brooks St
Mexican Bowl
St. John Vianney Parish
Baldwin Ln
400
St. John Vianney Catholic School
Murray St
Eckert Auto Sales
Current Voltage Electric
Glenridge Rd
Martin Limited
Comfort Inn & Suites
Kaycan
Allandale Heights Public School
Fraser Ct
Wendy's
Tan On The Run
Essa Park and Ride
Beertown Public House Barrie
Tara Rd
Carol Rd
Marshall St
Westburne
Canada Post Distribution Centre
Tire & Auto
Libra Rd

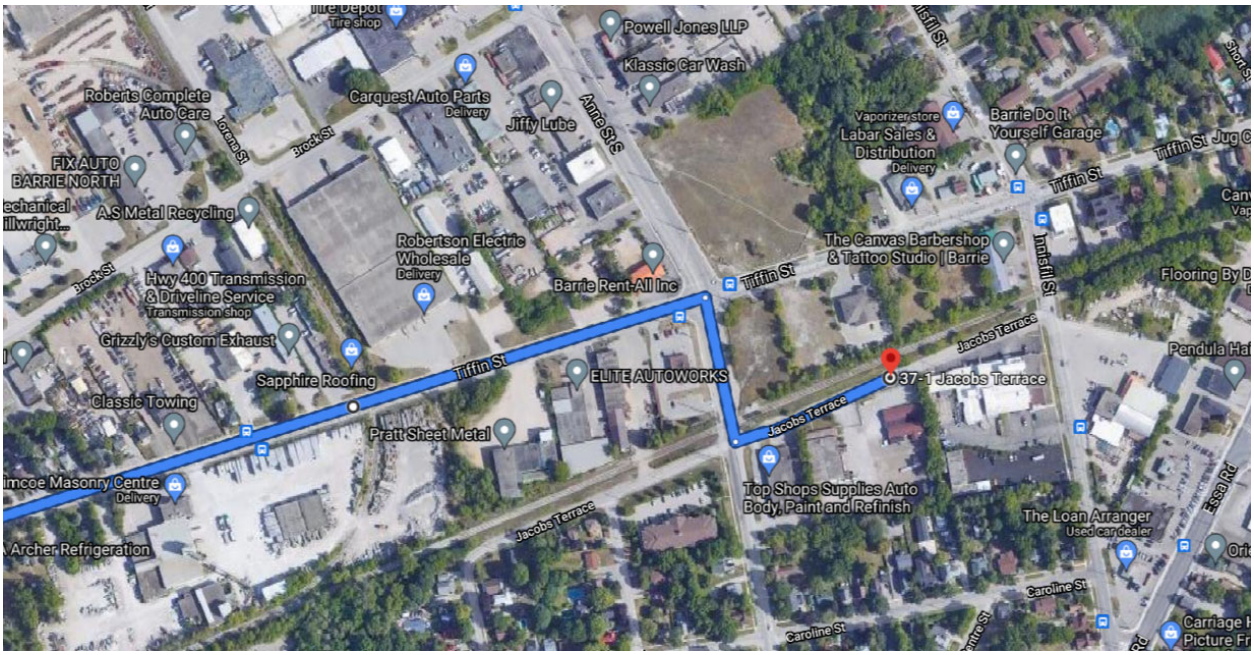
Essa

`


Centennial Beach
37-1 Jacobs Terrace, O
Comfort Inn & Suites
Grenfel
Essa
Colwell
Utopia
Tangle Creek
Tiffin Centre for Conservation
Ivy
Essa
17 min
19.8 km
17 min
17.3 km
17 min
14.8 km
Tiffin St
Ardagh Rd
Essa Rd
McKay Rd
Maplehurst Ave
Maplehurst Dr W
Lakeshore Dr
Burton Ave
Little Ave
Jacobs

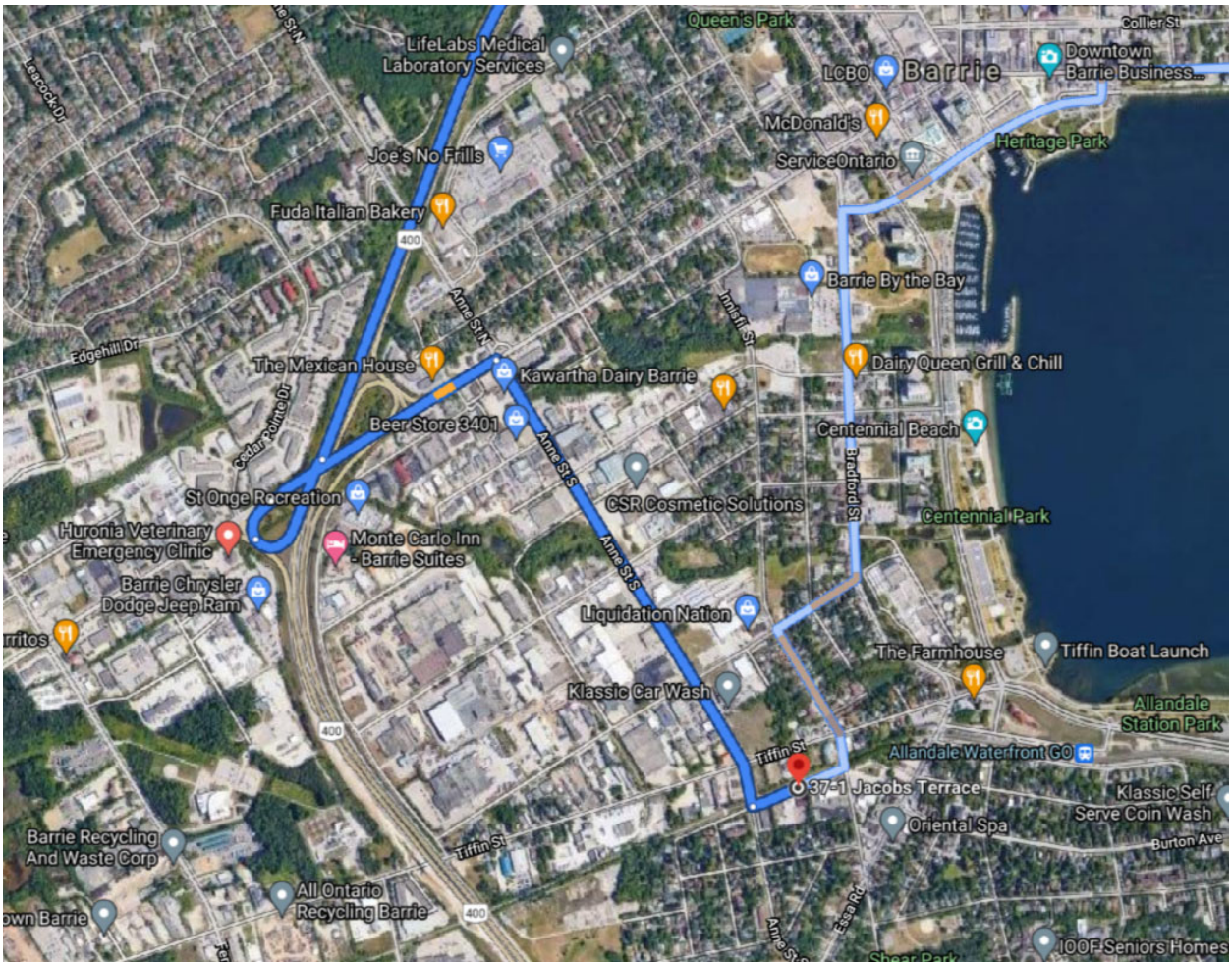
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Spring water,



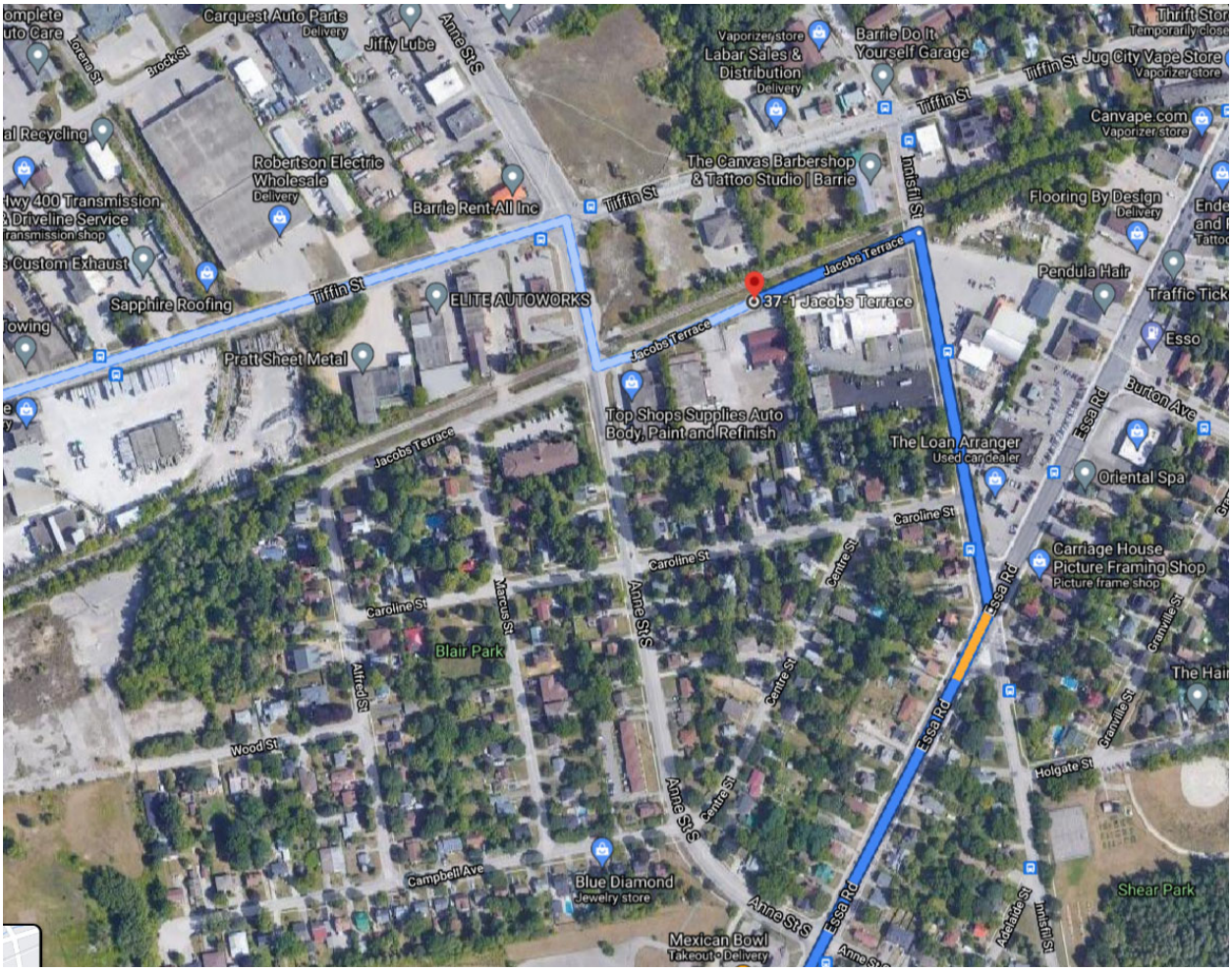
`

orilla


LifeLabs Medical Laboratory Services
Queen's Park
Collier St
Downtown Barrie Business...
LCBO
Barrie
McDonald's
ServiceOntario
Heritage Park
Joe's No Frills
Fuda Italian Bakery
400
Barrie By the Bay
Innisfil St
Anne St N
Edgehill Dr
The Mexican House
Kawartha Dairy Barrie
Dairy Queen Grill & Chill
Cedar Pointe Dr
Beer Store 3401
Centennial Beach
Anne St S
Bradford St
St Onge Recreation
CSR Cosmetic Solutions
Centennial Park
Huronia Veterinary Emergency Clinic
Monte Carlo Inn - Barrie Suites
Barrie Chrysler Dodge Jeep Ram
Liquidation Nation
The Farmhouse
Tiffin Boat Launch
Klassic Car Wash
Allandale Station Park
Tiffin St
Allandale Waterfront GO
37-1 Jacobs Terrace
Klassic Self Serve Coin Wash
Oriental Spa
Barrie Recycling And Waste Corp
Burton Ave
All Ontario Recycling Barrie
Essa Rd
IOOF Seniors Homes

`

New Tecumseth



`

AM INBOUND

Thu Jun 24 2021 16:12:53 GMT-0400 (Eastern Daylight Time) - Run Time: 23

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Primary travel mode of trip - mode_prime
Column: 2006 GTA zone of destination - gta06_dest

RowG:
ColG:(8502,8525-8527)
TblG:

Filters:
(Trip purpose of destination - purp_dest In H,
and
Start time of trip - start_time In 600-900)

Trip 2016
Table:

	1	
Auto driver	145	82.4%
Walk	31	17.6%
TOTAL	176	82.4%

AM Outbound

Thu Jun 24 2021 16:20:59 GMT-0400 (Eastern Daylight Time) - Run Time: 262

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Primary travel mode of trip - mode_prime
Column: 2006 GTA zone of origin - gta06_orig

RowG:
ColG:(8502,8525-8527)
TblG:

Filters:
(Trip purpose of origin - purp_orig In H,
and
Start time of trip - start_time In 600-900)

Trip 2016
Table:

	1	
Transit excludir	114	3.0%
Cycle	23	0.6%
Auto driver	2739	79.2%
GO rail only	38	1.0%
Auto passenge	264	7.0%
School bus	247	6.6%
Walk	345	9.2%
TOTAL	3770	
Total Transit	152	4%

modal split

PM INBOUND

Thu Jun 24 2021 16:16:34 GMT-0400 (Eastern Daylight Time) - Run Time: 2577ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Primary travel mode of trip - mode_prime

Column: 2006 GTA zone of destination - gta06_dest

RowG:

ColG:(8502,8525-8527)

TblG:

Filters:

(Trip purpose of destination - purp_dest In H,

and

Start time of trip - start_time In 1600-1900)

Trip 2016

Table:

	1	
Transit excludir	76	2.3%
Cycle	52	1.5%
Auto driver	2872	85.4%
GO rail only	38	1.1%
Auto passenge	311	9.3%
Walk	13	0.4%
TOTAL	**3362**	
Total Transit	114	3%

PM OUTBOUND

Thu Jun 24 2021 16:18:43 GMT-0400 (Eastern Daylight Time) - Run Time: 2464ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Primary travel mode of trip - mode_prime

Column: 2006 GTA zone of origin - gta06_orig

RowG:

ColG:(8502,8525-8527)

TblG:

Filters:

(Trip purpose of origin - purp_orig In H,

and

Start time of trip - start_time In 1600-1900)

Trip 2016

Table:

	1	
Auto driver	876	77.2%
Auto passenge	259	22.8%
TOTAL	**1135**	