

# BRADFORD HIGHLANDS TRAFFIC IMPACT STUDY UPDATE

Town of Bradford West Gwillimbury  
Official Plan Amendment, Zoning By-law Amendment & Draft Plan of Sub-Division Applications



Prepared For: ICG Golf Inc., Bayview-Wellington (Highlands) Inc. and 2523951 Ontario Inc. (the  
"Bradford Highlands Joint Venture")

September 2023



**BA Group**



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**AUTHORSHIP**

Date	Revision	Update
03/09/2021	Version 1	Initial Transportation Considerations Report
22/09/2023	Version 2	Traffic Impact Study Update

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## TABLE OF CONTENTS

FOREWORD & RESPONSE TO COMMENTS.....	1
Response to Comments .....	1
1.0 INTRODUCTION .....	5
1.1 Background Studies.....	5
1.2 Application Background – Official Plan Amendment Application.....	6
1.3 This Study .....	6
2.0 TRANSPORTATION CONTEXT .....	10
2.1 Existing Area Road Network .....	10
2.2 Planned Area Road Network.....	10
2.3 Existing Area Transit Network .....	12
2.4 Future Transportation Context.....	12
3.0 PROPOSED DEVELOPMENT .....	17
3.1 Conceptual Development Plan .....	17
3.2 Proposed Road Network.....	17
4.0 TRANSPORTATION DEMAND MANAGEMENT.....	21
4.1 TDM Plan Objectives .....	21
4.2 Travel Mode Characteristics.....	21
4.3 Proposed TDM Plan.....	22
5.0 TRAFFIC VOLUMES FORECAST.....	23
5.1 Traffic Analysis Scenarios and Design Periods.....	23
5.2 Existing Traffic Volumes .....	23
5.3 Future Non-Site Traffic Volumes Projection.....	26
5.4 Future Background Traffic Volumes.....	26
5.5 Site Traffic .....	31
5.6 Future Total Traffic Volumes .....	33
6.0 TRAFFIC OPERATIONS ANALYSIS .....	39
6.1 Methodology .....	39
6.2 Input and Calibration Parameters.....	39
6.3 Study Area Intersections .....	40
6.4 Capacity Analysis Summary .....	41
7.0 TURNING LANE WARRANT .....	59
7.1 Left Turn Lanes .....	59
7.2 Right Turn Lanes .....	59
8.0 INTERSECTION CONTROLS ASSESSMENT .....	60
8.1 Signal Warrants.....	60
8.2 All-Way Stop Control Warrants .....	62
9.0 PARKING CONSIDERATIONS .....	65
10.0 BRADFORD FUNCTIONAL TRAFFIC STUDY CHECKLIST.....	66
11.0 SUMMARY AND CONCLUSIONS .....	70



## TABLE OF APPENDICES

Appendix A: Existing Turning Movement Counts
Appendix B: Synchro Analysis Worksheets
Appendix C: Sidra Analysis Results
Appendix D: Signal Timing Plans
Appendix E: Left Turn Warrants
Appendix F: Signal Warrant Analysis
Appendix G: All-Way Stop Control Warrants
Appendix H: On-Street Parking Allocation Plan
Appendix I: Pedestrian Circulation Plan

## LIST OF TABLES

Table 1	Planned Road Improvements.....	11
Table 2	Summary of Recommended Road Widths in Conceptual Development Plan .....	17
Table 3	Existing Area Travel Mode Split.....	21
Table 4	Proposed TDM Implementation Plan.....	22
Table 5	Existing Turning Movement Count Summary .....	24
Table 6	Corridor Growth Rates.....	26
Table 7	Area Background Developments.....	27
Table 8	ITE Trip Generation Manual, 11th Edition – LUC 210 Data Plot Summary .....	31
Table 9	Residential Site Trip Generation.....	32
Table 10	Residential Site Traffic Distribution.....	33
Table 11	Line 6 / Simcoe Road Traffic Analysis Summary (2026 Horizon) .....	41
Table 12	Line 6 / Simcoe Road Traffic Analysis Summary (2031 Horizon) .....	42
Table 13	Line 6 / Simcoe Road Traffic Analysis Summary (2036 Horizon) .....	43
Table 14	Line 6 / Melbourne Drive & Inverness Way Traffic Analysis Summary (2026 Horizon).....	44
Table 15	Line 6 / Melbourne Drive & Inverness Way Traffic Analysis Summary (2031 Horizon).....	45
Table 16	Line 6 / Melbourne Drive & Inverness Way Traffic Analysis Summary (2036 Horizon).....	46
Table 17	Line 6 / West Park Avenue Traffic Analysis Summary (2026 Horizon) .....	46
Table 18	Line 6 / West Park Avenue Traffic Analysis Summary (2031 Horizon) .....	47
Table 19	Line 6 / West Park Avenue Traffic Analysis Summary (2036 Horizon) .....	48
Table 20	Unsignalized Intersection Analysis Summary (2026 Horizon) .....	49
Table 21	Unsignalized Intersection Analysis Summary (2031 Horizon) .....	51
Table 22	Unsignalized Intersection Analysis Summary (2036 Horizon) .....	53
Table 23	Line 6 / Line 10 Sideroad Traffic Analysis Summary (2026 Horizon) .....	55
Table 24	Line 6 / Line 10 Sideroad Traffic Analysis Summary (2031 Horizon) .....	55
Table 25	Line 6 / Line 10 Sideroad Traffic Analysis Summary (2036 Horizon) .....	56
Table 26	Proposed Development Primary Access Analysis Summary .....	57
Table 27	Proposed Development Internal Intersections Analysis Summary .....	58
Table 28	Signal Warrant Analysis Summary .....	61
Table 29	All-Way Stop Control Warrant Analysis – Collector Road.....	62
Table 30	All-Way Stop Control Warrant Analysis – Local Road .....	63
Table 31	Projected Internal Two-Way Site Traffic Volumes .....	66



## LIST OF FIGURES

Figure 1: Site Location.....	8
Figure 2: Site Context.....	9
Figure 3: Existing Lane Configuration .....	13
Figure 4A: Future Lane Configuration .....	14
Figure 4B: Future Lane Configuration & Traffic Control – Internal Site.....	15
Figure 5: Area Transit Network .....	16
Figure 6: Proposed Site Concept Plan .....	19
Figure 7: Proposed Intersections Control.....	20
Figure 8: Existing Traffic Volumes .....	25
Figure 9: Future Background (2026) Traffic Volumes .....	28
Figure 10: Future Background (2031) Traffic Volumes .....	29
Figure 11: Future Background (2036) Traffic Volumes .....	30
Figure 12A: Site Traffic Volumes .....	34
Figure 12B: Internal Site Traffic Volumes.....	35
Figure 13: Future Total (2026) Traffic Volumes .....	36
Figure 14: Future Total (2031) Traffic Volumes .....	37
Figure 15: Future Total (2036) Traffic Volumes .....	38



## FOREWORD & RESPONSE TO COMMENTS

BA Group submitted a Traffic Impact Study entitled *Bradford Highlands Traffic Impact Study – Transportation Considerations*, dated September 2021, in support of a residential subdivision development project located at the Bradford Highlands Golf Club in the Town of Bradford West Gwillimbury. An Official Plan Amendment (OPA) application was made to the Town of Bradford West Gwillimbury to facilitate the development.

BA Group is retained by the client – the Bradford Highlands Joint Venture – to provide an update to the aforementioned Traffic Impact Study given updates to the development proposal and to address comments provided by the Town of Bradford West Gwillimbury and the general public in response to the OPA application. A concurrent Zoning By-law Amendment (ZBA) and Draft Plan of Sub-Division (DPOS) application is now being made to the Town of Bradford West Gwillimbury along with the OPA application to facilitate the development.

The updated Traffic Impact Study contained herein is based upon the report submitted in September 2021, updated where appropriate to reflect changes to the development programme. At this time, the development considers in the order of 998 residential units. In addition, several elements of the application have been updated, and assessed as part of this report, to reflect an ongoing dialogue with the Town of Bradford West Gwillimbury and ongoing public consultation.

### Response to Comments

This section contains the comments provided by the Town of Bradford West Gwillimbury and the general public, and the responses to these comments.

### Community Services Department Comments, January 23, 2023

#### Comment #1

*Would like to review any road network submission with traffic flow, mitigation and control measures? i.e. innovative street design and sizing.*

#### Response to Comment #1

A complete review of the proposed development's traffic impacts and control measures are provided in the provided transportation study.

#### Comment #2

*Concern with connect of Street "G" with bend in Brownlee Lane at tangent.*

#### Response to Comment #2

There is no longer connection to Street G with Brownlee Lane as of the August 8<sup>th</sup>, 2023 Development Plan.

#### Comment #3

*Concern with Lack of connection with South end of Brownlee to Street "A".*

#### Response to Comment #3

Street A is the primary access to the proposed development and provide a strong connection between Line 6 and 5<sup>th</sup> Line within the immediate area road network. A connection with the south end of Brownlee Drive to Street A would further increase infiltration traffic through Brownlee Drive.



#### **Comment #4**

*Concern with Street "A" as a continuous collector from Line 6 to Line 5. Promoting cut through traffic from north of Line 6 to Line 5.*

#### **Response to Comment #4**

The purpose of Street A is to act as a continuous collector from Line 6 to Line 5 to offer ease of access for the proposed development's residents to both major arterial roads with minimal delays.

#### **Comment #5**

*Concern with additional access and egress on to Line 6 (Street "A") loading on Line 6.*

#### **Response to Comment #5**

Traffic volume forecasting and analysis that access the access and egress on to Line 6 are provided within the following transportation study. The intersection is expected to operate within acceptable metrics. Results can be found within **Section 6.4** of this updated transportation study.

### **Engineering Services Comments, April 22, 2022**

#### **Comment #1**

*The Applicant will be required to prepare a Traffic Impact Study that analyzes the development impacts on the surrounding road network including nearby signalized intersections and major intersections, and to determine if the existing intersections surrounding the development can support the proposed development. Traffic volumes should be projected 10 years following the approximate completion date of the development.*

#### **Response to Comment #1**

Noted. Traffic volumes have been projected for the 10-year horizon beyond the approximate built-out of the proposed development. The traffic operations analysis results for the area road network have been completed for the future 10-year horizon beyond the approximate built-out of the proposed development. This transportation study has been updated to reflect this scenario.

#### **Comment #2**

*Functional Internal Traffic Study must be prepared for review prior to approval of the Draft Plan, to properly evaluate the proposed internal road network with regard to substantiation of proposed right-of-way widths, etc. and should be approved. This study would also provide information on estimated AADT for road segments, warrants for all way stops, and traffic signals on internal intersections, a summary and analysis of on-street and off-street parking, description of opportunities for traffic calming, etc. The study should also comment on daylighting triangle dimensions for the varying hierarchy of intersections. Town of BWG Council requires the Plan to provide a 0.5 parking per lot ratio.*

#### **Response to Comment #2**

Noted. A transportation study including all the aforementioned requirements within **Comment #2** has been appended to this document.





**Comment #3**

*A complete guideline for the completion of this study can be found in Appendix C of the DCM.*

**Response to Comment #3**

Noted.

**Comment #4**

*This study shall have regard for the requirement of the Official Plan and/or the Functional Servicing Report for the applicable Community Planning Area.*

**Response to Comment #4**

Noted.

**Development Engineering Comments, November 4<sup>th</sup>, 2022**

**Comment #1**

*A Traffic Impact Study is required to assess the proposed development’s traffic impact on the surrounding road network, including the site accesses at Line 5, Line 6, and adjacent developments, nearby signalized and unsignalized intersections and major intersections in all directions along those roads, and provide commentary regarding any potential road network improvements required from this proposal.*

*Town of BWG requires the report to assess the existing traffic conditions within the said road network and assesses the future conditions applying a minimum of 2% compound growth rate to a future horizon of 10 years after anticipated completion date of the development. Furthermore, this study must assess and comment on safety of all proposed accesses.*

*The town is in the process of finalizing a new Transportation Master Plan and through consultation with the Town your findings will need to be introduced to the model for review.*

**Response to Comment #1**

Noted. An updated Traffic Impact study has been appended to this document. An additional scenario which includes a projected 10-year horizon was also included within the analysis scenarios.

**City of Bradford West Gwillimbury Special Council – Public Planning Meeting, May 31<sup>st</sup>, 2022**

**Comment #1**

*Mr. Glover expressed concerns regarding the loss of greenspace, the rush to develop the former golf course, the mixed dwellings and how they will fit into the existing community, the environmental impacts, water table and traffic. He would like to see other opportunities as to what could be done with the land.*

**Response to Comment #1**

The assessment thoroughly evaluated traffic impacts across all intersections within the study area. Traffic operations are anticipated to function acceptably at all intersections. Mitigation measures are unnecessary for the majority of intersections; with the exception of a recommendation for a cycle length extension at thee Line 6 and Simcoe Road intersection to minimize delays across the corridors.



**Comment #2**

*The Murphy's noted that they agree with everyone who has spoken and are opposed to the development of the golf course lands. They are expressed concerns with the loss of greenspace, safety issues due to traffic and traffic flow due to the opening up of the cul-de-sac.*

**Response to Comment #2**

No traffic flow issues are expected on Brownlee Drive as a connection to the cul-de-sac is no longer provided.

**Comment #3**

*Mr. and Mrs. Rick expressed concerns regarding lack of well water, increased traffic, no urban planning for the entire development, outdated wildlife assessments, and loss of greenspace.*

**Response to Comment #3**

The assessment thoroughly evaluated traffic impacts across all intersections within the study area. Traffic operations are anticipated to function acceptably at all intersections. Mitigation measures are unnecessary for the majority of intersections; with the exception of a recommendation for a cycle length extension at thee Line 6 and Simcoe Road intersection to minimize delays across the corridors.

**Comment #4**

*Mr. Visser expressed concerns with the loss of greenspace and mature trees and traffic impacts.*

**Response to Comment #4**

The assessment thoroughly evaluated traffic impacts across all intersections within the study area. Traffic operations are anticipated to function acceptably at all intersections. Mitigation measures are unnecessary for the majority of intersections; with the exception of a recommendation for a cycle length extension at thee Line 6 and Simcoe Road intersection to minimize delays across the corridors.

**Comment #5**

*Ms. Kind expressed her opposition to the development and concerns regarding the flow of traffic and congestion, the decrease of property value and effect on well water.*

**Response to Comment #5**

The assessment thoroughly evaluated traffic impacts across all intersections within the study area. Traffic operations are anticipated to function acceptably at all intersections. Mitigation measures are unnecessary for the majority of intersections; with the exception of a recommendation for a cycle length extension at thee Line 6 and Simcoe Road intersection to minimize delays across the corridors.



## 1.0 INTRODUCTION

BA Group is retained by the Bradford Highlands Joint Venture to provide transportation advisory services in relation to an Official Plan Amendment (OPA), Zoning By-law Amendment (ZBA) and Draft Plan of Sub-Division (DPOS) applications being made to the Town of Bradford West Gwillimbury for a proposed residential development (herein referred to as “the site”).

The site is currently occupied by Bradford Highlands Golf Club and two (2) single-detached residential lots located on the properties municipally known as 23 Brownlee Drive, 2820 and 2848 Line 5. The site is an irregular shape that is predominantly bordered by existing residential development. It is generally bounded by Line 6 to the north, 5th Line to the south, Brownlee Drive to the west and Inverness Way to the east. The site location is illustrated in **Figure 1**. The site context and study area are further illustrated in **Figure 2**.

### 1.1 Background Studies

The various technical studies considered in this report are set out below.

#### 1.1.1 Town of Bradford West Gwillimbury Official Plan

The Town of Bradford West Gwillimbury Official Plan henceforth referred to as (“the Official Plan”) was created to outline the anticipated population and employment growth that will occur within the Town of Bradford West Gwillimbury. The report illustrated three primary areas of development potential including, Bradford Urban Area, Highway 400 Employment Lands and Bond Head Area. Based on the three areas, an anticipated growth was projected for the 2031 horizon year.

#### 1.1.2 2011 Development Charges Update – Transportation / Roadway Network Assessment (Poulos & Chung, 2012)

The 2011 Development Charges Update – Transportation / Roadway Network Assessment (henceforth referred to as “the DC update”) was a report created by P&C in March 2012 that outlined the results of a regional TransCAD model and resulting traffic volume forecasts for the 2016, 2021, 2026 and 2031 horizon years. The model forecasts these volumes under a variety of infrastructure build-out scenarios and is reflective of predicted employment and population forecasts in the region.

The 2026 and 2031 version of this model was used to formulate the future traffic volumes outlined in this report. These particular horizon years were chosen due to the fact that it reflects both the build-out of the proposed development as well as the planned upgrades to 5th Line and 10 Sideroad (specifically the conversion to an arterial road connecting the Town to the new interchange). To BA Group’s knowledge, the P&C study represents the latest set of 2031 traffic forecasts produced for the Town.

#### 1.1.3 Environmental Study Report for New Southwest Arterial Road (LEA, 2010)

The Environmental Study Report for New Southwest Arterial Road (henceforth referred to as “the SWAR EA”) was an environmental assessment conducted by LEA in May 2010 which evaluated possible alignments for an arterial road extending from the Highway 400 / 5th Line intersection to Country Road 88 / 10 Sideroad in the Town of Bradford. The recommended alignment involves the widening of 5th Line and 10 Sideroad and realignment of Line 6 and 5th Line.

#### 1.1.4 Bradford West Gwillimbury Transportation Master Plan (WSP, 2022)

The Bradford West Gwillimbury Transportation Master Plan (henceforth referred to as the “BWGTMP”), dated July 2022, was completed by WSP in collaboration with the Township in 2022. The TMP sets out the transportation infrastructure investments necessary to accommodate forecast employment and population growth in the Town to the year 2031. The following findings contained in the BWGTMP, most relevant to the proposed development and study area include:



- Recommended future transit network and service parameters;
- Proposed pedestrian and cycling network and opportunities;
- Proposed road network improvements by 2031, which include the following within the study area:
  - Monitor to determine the need for widening of Line 6 between 10 Sideroad and Simcoe Road
  - Monitor to determine the need for widening of 10 Sideroad between 5<sup>th</sup> Line and Line 6.
  - Monitor to determine the need for improvement / signalization at:
    - Simcoe / Canal
    - Line 5 / 10 Sideroad
    - Line 6 / 10 Sideroad
  - Signal Optimization at Line 6 / Melbourne Drive & Inverness Way
  - Add southbound right turn lane at Line 6 / Simcoe Road

This study takes into account the road widening of 10 Sideroad between 5<sup>th</sup> Line and Line 6 and the installation of a roundabout at Line 6 / 10 Sideroad as part of the SWAR project, as well as the signal optimization at Line 6 / Melbourne Drive & Inverness way. For all other areas, this study has maintained the present conditions in lieu of incorporating the remaining recommendations from the BWGTMP. Despite this conservative approach, all intersections in the study area continue to function acceptably after accounting for site-related impacts. If improvements such as road widening and signalization were to be implemented within the study area, theoretical capacity and network performance would consequently increase. Thus, the need for such improvements should continue to be monitored in accordance with the conclusions of the BWGTMP.

### 1.1.5 County of Simcoe Transportation Master Plan (Arcadis IBI Group, 2023)

The County of Simcoe Transportation Master Plan (henceforth referred to as the “STMP”), updated by Arcadis IBI Group in June 2023, sets out the transportation infrastructure needs and priorities that will be required to accommodate growth in the County of Simcoe up to 2051. The STMP outlines various network improvements within and in the vicinity of the Town of Bradford West Gwillimbury, including the construction of the Bond Head Bypass and road widening for County Roads 4 and 88. The STMP also outlines recommended jurisdiction transfers of 5<sup>th</sup> Line between Highway 400 and 10 Sideroad and 10 Sideroad between 8<sup>th</sup> Line and 5<sup>th</sup> Line from the Town of Bradford West Gwillimbury to the County of Simcoe.

## 1.2 Application Background – Official Plan Amendment Application

BA Group originally prepared a report entitled *Bradford Highlands Traffic Impact Study – Transportation Considerations*, dated September 2021 that was submitted to the Town of Bradford West Gwillimbury as part of the initial OPA application for the site in 2021. The September 2021 report included a detailed study of the transportation implications of the original application made in 2021 which considered, at that time, development of a total of 864 residential dwelling units, consisting of a variety of housing types.

Since then, formal comments have been received from the Town of Bradford West Gwillimbury and the general public which have resulted in an evolution of the development plan.

## 1.3 This Study

A concurrent Official Plan Amendment, Zoning By-law Amendment and Draft Plan of Sub-Division application is now being submitted as part of the on-going approvals process to facilitate the current development proposal, the implementation of the proposed street network and area street network improvements.

As part of the OPA/ZBA/DPOS application, BA Group has undertaken a review of all required transportation related aspects of the proposed development plan. The following study scope has been reviewed as part of this report.

- A description of the existing and planned transportation context of the site including vehicle and transit accessibility.



- An overview of the proposed development programme.
- A review of the on-street parking supply for proposed development.
- A proposed Transportation Demand Management (TDM) framework geared towards reducing travel through single occupancy vehicles and promoting more environmentally friendly modes of travel.
- An assessment of existing traffic volumes on the area road system surrounding the proposed development.
- A comprehensive review of traffic changes that may occur due to corridor traffic growth along the major roads.
- An assessment of the trip generation characteristics of the proposed development.
- A review of weekday peak traffic operations under existing and future conditions and an assessment of the operation impacts of the proposed development at the following intersections:
  - Line 6 / Simcoe Road;
  - Line 6 / Melbourne Drive & Inverness Way;
  - Line 6 / West Park Avenue;
  - Line 6 / 10 Sideroad;
  - Line 6 / Brownlee Drive;
  - Line 6 / Adams Street;
  - Simcoe Road / Canal Road;
  - 5<sup>th</sup> Line / Canal Road;
  - 5<sup>th</sup> Line / 10 Sideroad;
  - Line 6 / Street A; and
  - 5<sup>th</sup> Line / Street A.
- A review of weekday peak traffic operations at proposed internal site intersections:
  - Street A / Street B
  - Street B / Street F & Street L
  - Street A / Street S & Street C
  - Street C / Street L
  - Street A / Street L
  - Street A / Street Q

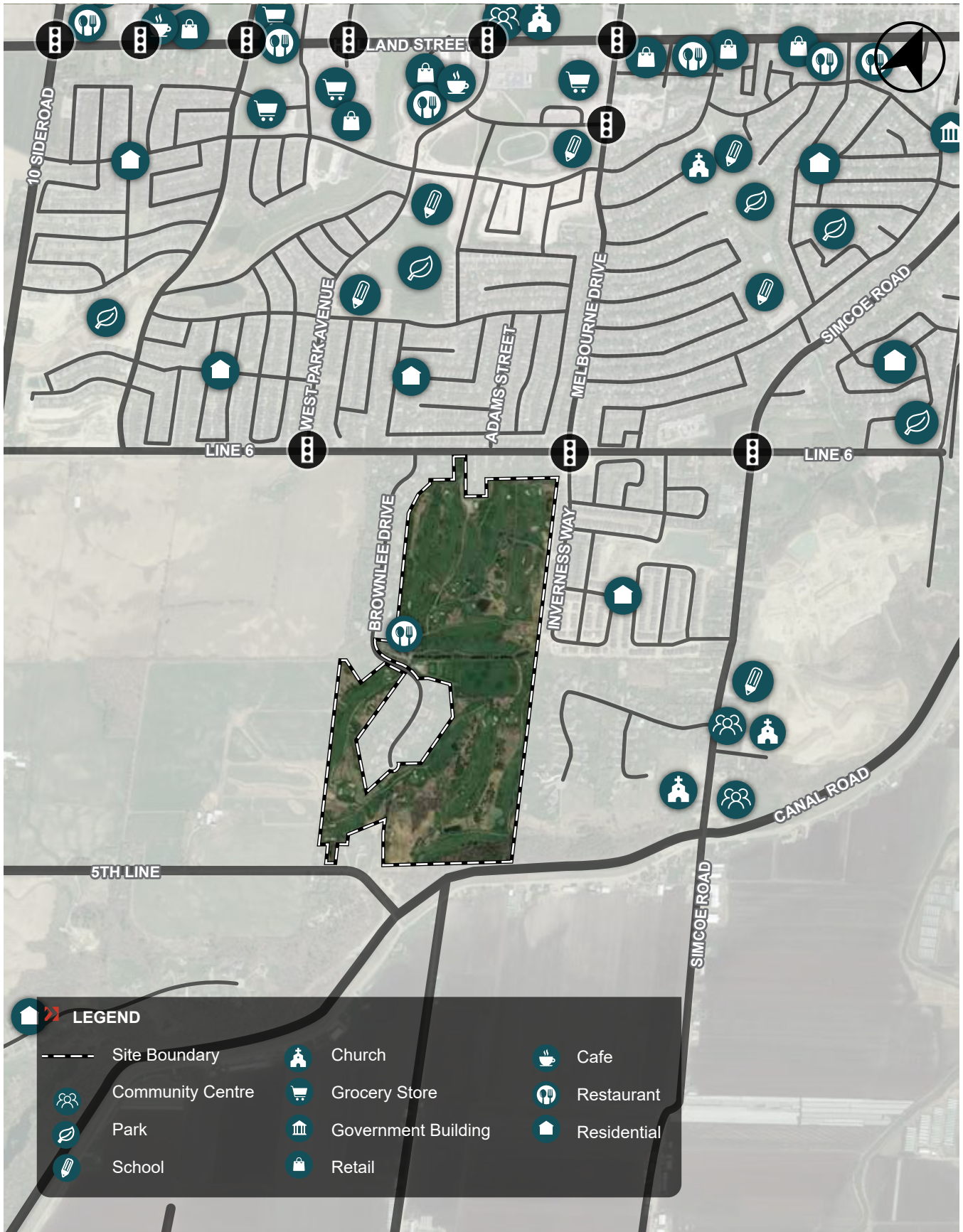
This Traffic Impact Study also provides an update to the original transportation study (September 2021) and documents the responses to the Town of Bradford West Gwillimbury and general public comments.





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**FIGURE 1 SITE LOCATION**



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FIGURE 2 SITE CONTEXT

## 2.0 TRANSPORTATION CONTEXT

### 2.1 Existing Area Road Network

The existing road network and lane configuration within the study area is shown in **Figure 3**. A brief description of the area road network is provided in the following.

**Line 6** is an east-west major arterial road between Simcoe Road and 10 Sideroad and a collector road beyond the extent under the jurisdiction of the Town of Bradford West Gwillimbury. The road is a three-lane cross section with a single lane in each direction and a centre left turn median. Within the vicinity of the site, sidewalks exist on both sides of the road to encourage pedestrian activities. The posted speed limit is 50 km/h within the vicinity of the site.

**5th Line** is an east-west major arterial road west of 10 Sideroad and a collector road east of 10 Sideroad under the jurisdiction of the Town of Bradford West Gwillimbury. The road is a two-lane cross section with ditches and operates with the posted speed limit of 80 km/h within the vicinity of the site. The road provides connection to the recently constructed Highway 400 interchange.

**10 Sideroad** is a north-south major arterial road north of 5th Line and a collector road south of 5th Line under the jurisdiction of the Town of Bradford West Gwillimbury. The road is a two-lane cross section with ditches. The posted speed limit is 60 km/h within the vicinity of the site.

**Simcoe Road** is a north-south major arterial road north of Line 6 and a collector road south of Line 6 under the jurisdiction of the Town of Bradford West Gwillimbury. The road is a two-lane cross section with ditches and operates with the posted speed limit of 50 km/h within the vicinity of the site.

**Melbourne Drive** is a north-south minor arterial road that extends between 8th Line in the north and Line 6 in the south under the jurisdiction of the Town of Bradford West Gwillimbury. South of Line 6, it continues as a local road called Inverness Way, which provides access to the residential subdivision adjacent to the site. The road is a two-lane cross section with auxiliary left turn lanes at signalized intersections. Sidewalks are provided on both sides of the road to encourage pedestrian activities. The posted speed limit is 40 km/h. It provides access to the area residential subdivision on the north side of Line 6.

**Canal Road** is a north-south collector road under the jurisdiction of the Town of Bradford West Gwillimbury. The road is a two-lane cross section with ditches and operates with the posted speed limit of 50 km/h within the vicinity of the site.

**Brownlee Drive** is a north-south local road that extends between Line 6 in the north and cul-de-sac terminus in the south under the jurisdiction of the Town of Bradford West Gwillimbury. The road is a two-lane cross section with ditches and operates with the posted speed limit of 40 km/h.

### 2.2 Planned Area Road Network

Significant road improvements are expected to occur within the site vicinity and are anticipated to be completed prior to the development of the site as part of the South West Arterial Road (SWAR) project. The following infrastructure improvements planned by the Town of Bradford West Gwillimbury for the area street network are summarized in **Table 1**.

As of 2023, construction is underway on SWAR improvements, with full completion scheduled for 2024.





Table 1 Planned Road Improvements

Planned Road Improvements	Completion
10 Sideroad widening from 2 to 4 lanes from Simcoe County Road 88 to 5th Line	2023-2024
5th Line widening from 2 to 4 lanes from 10 Sideroad to Coffey Road	2023-2024
Realignment of Line 6 to form a roundabout intersection with 10 Sideroad	2023-2024
Realignment of 5th Line and 10 Sideroad to join continuously and form a T-intersection with 5th Line under STOP controlled	2023-2024

The area street network improvements planned by the Town of Bradford West Gwillimbury are illustrated in **Figure 4A**.



## 2.3 Existing Area Transit Network

### 2.3.1 GO Services

The Barrie GO Rail line provides a key transit link between Toronto and the vicinity of the site in the Town of Bradford West Gwillimbury. GO regional bus services provide connections along Yonge Street to Newmarket and Aurora to the south.

The Bradford GO station is an important transit hub on the Barrie Line, located approximately 3.5 kilometres to the northeast of the site at Bridge Street and Holland Street. This station is an important interchange point for GO Rail, regional bus services as well as Simcoe County LINX Transit and Bradford West Gwillimbury Transit bus services.

The close proximity of GO Services at Bradford station provides an opportunity for transit connections between the site and the wider GTA.

### 2.3.2 Local Transit Services

The subject site is served by the following bus route operated by Bradford West Gwillimbury Transit. It provides connection to both local and regional public transit system.

**Route 2 (Around-Town)** has two bus services; Route 2A and Route 2B. Route 2A service runs in a clockwise direction around Town originating from the Bradford West Gwillimbury Leisure Centre during weekdays and Saturday. Route 2B service runs in a counter-clockwise direction around Town originating from the Bradford West Gwillimbury Leisure Centre during weekdays only. The Route 2 provides 5 to 10 frequencies during the day. Service is available on weekdays from 6:00 a.m. to 7:00 p.m. and on Saturday from 9:00 a.m. to 5:00 p.m. The closest existing transit stop to the site is located at Line 6 / Adams Street.

**Figure 5** illustrates the Bradford West Gwillimbury Transit system map for Bradford West Gwillimbury in relation to the site location.

## 2.4 Future Transportation Context

### 2.4.1 GO Services

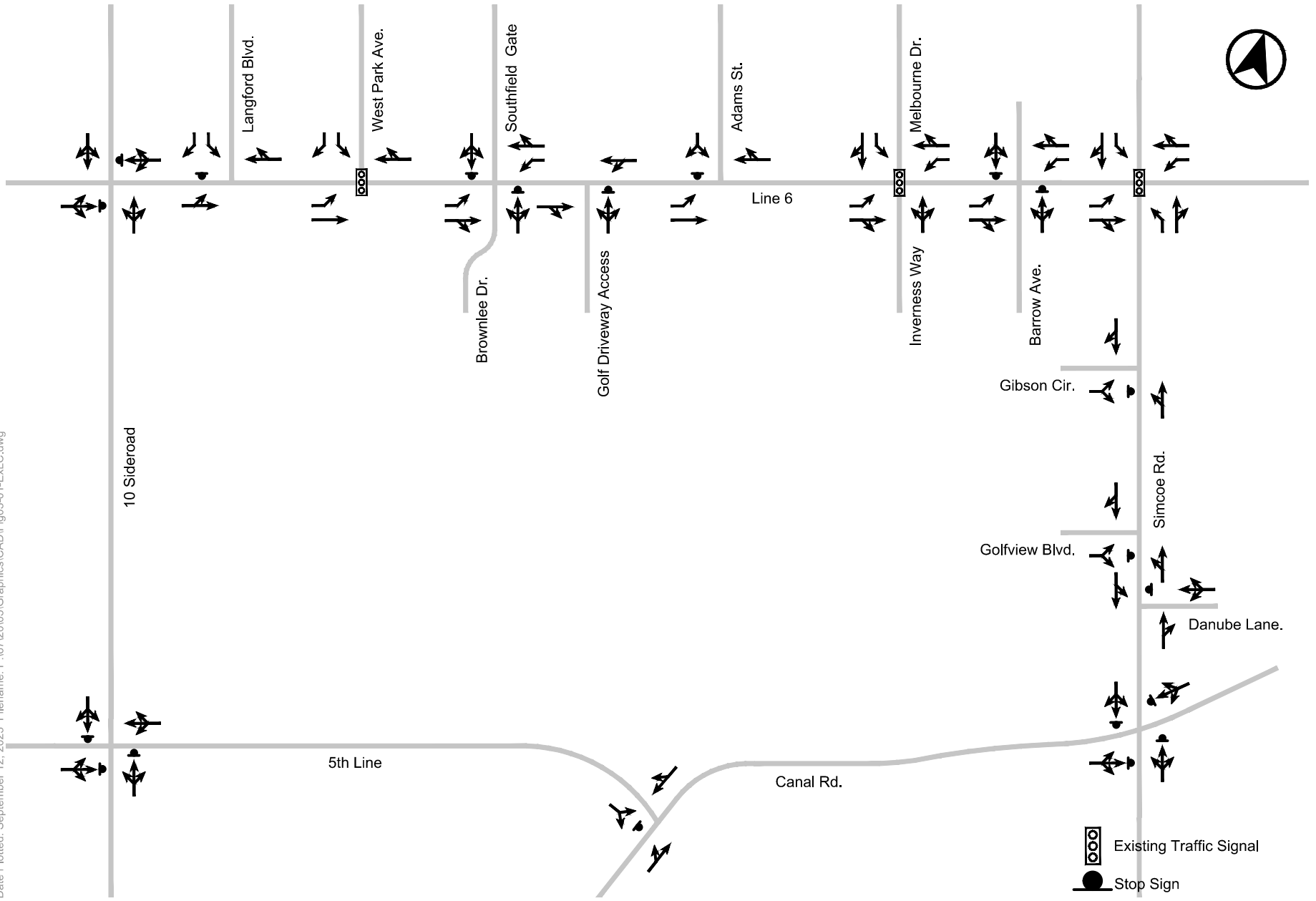
As part of Metrolinx's GO Expansion program, the Regional Express Rail (RER) is a planned program to increase the frequency of train service by adding all-day, two-way five existing GO Train corridors across the Greater Toronto area. As per the RER Full Business Case (2018) The Barrie Line's proposed train frequencies are as follows:

- AM peak hour 15-minute service or better from Allandale Waterfront GO to Union Station
- All-day 30-minute or better service between Allandale Waterfront GO and Union Station.

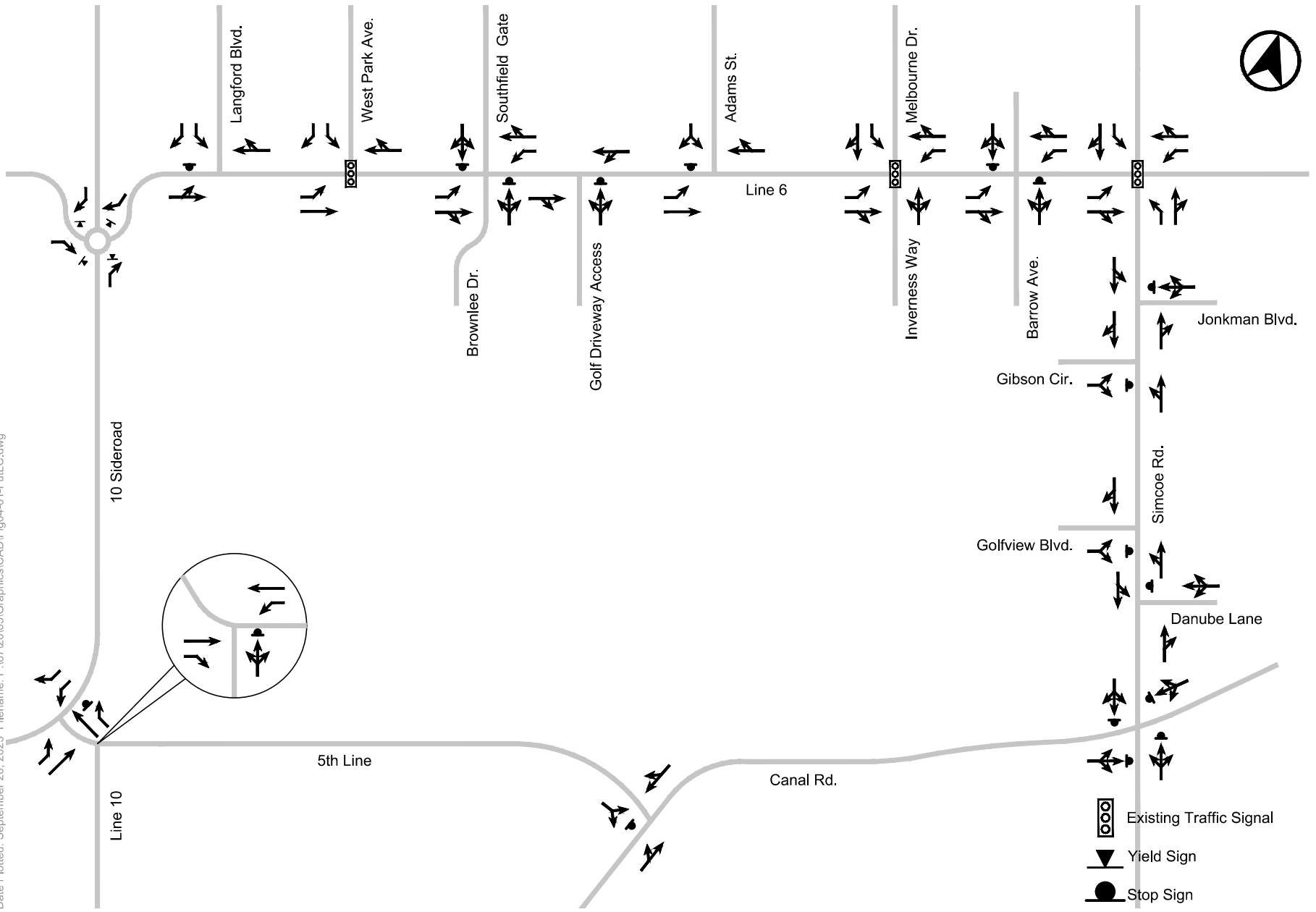
It was later announced by Metrolinx that through the GO Expansion program, 15-minute, two-way all day GO train service will extend past Aurora GO station to the Bradford GO Station.



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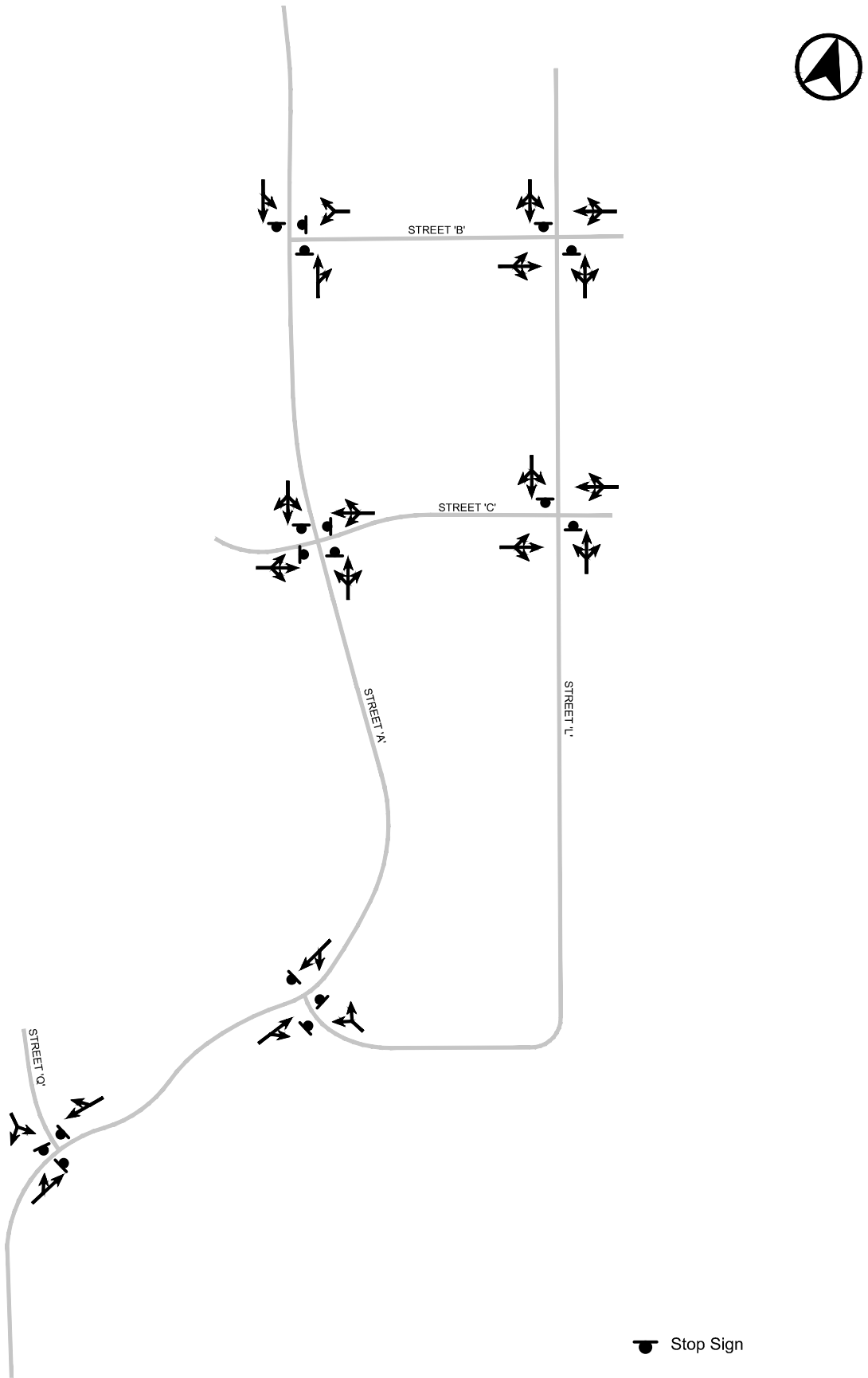


**FIGURE 3 EXISTING LANE CONFIGURATION AND TRAFFIC CONTROL**

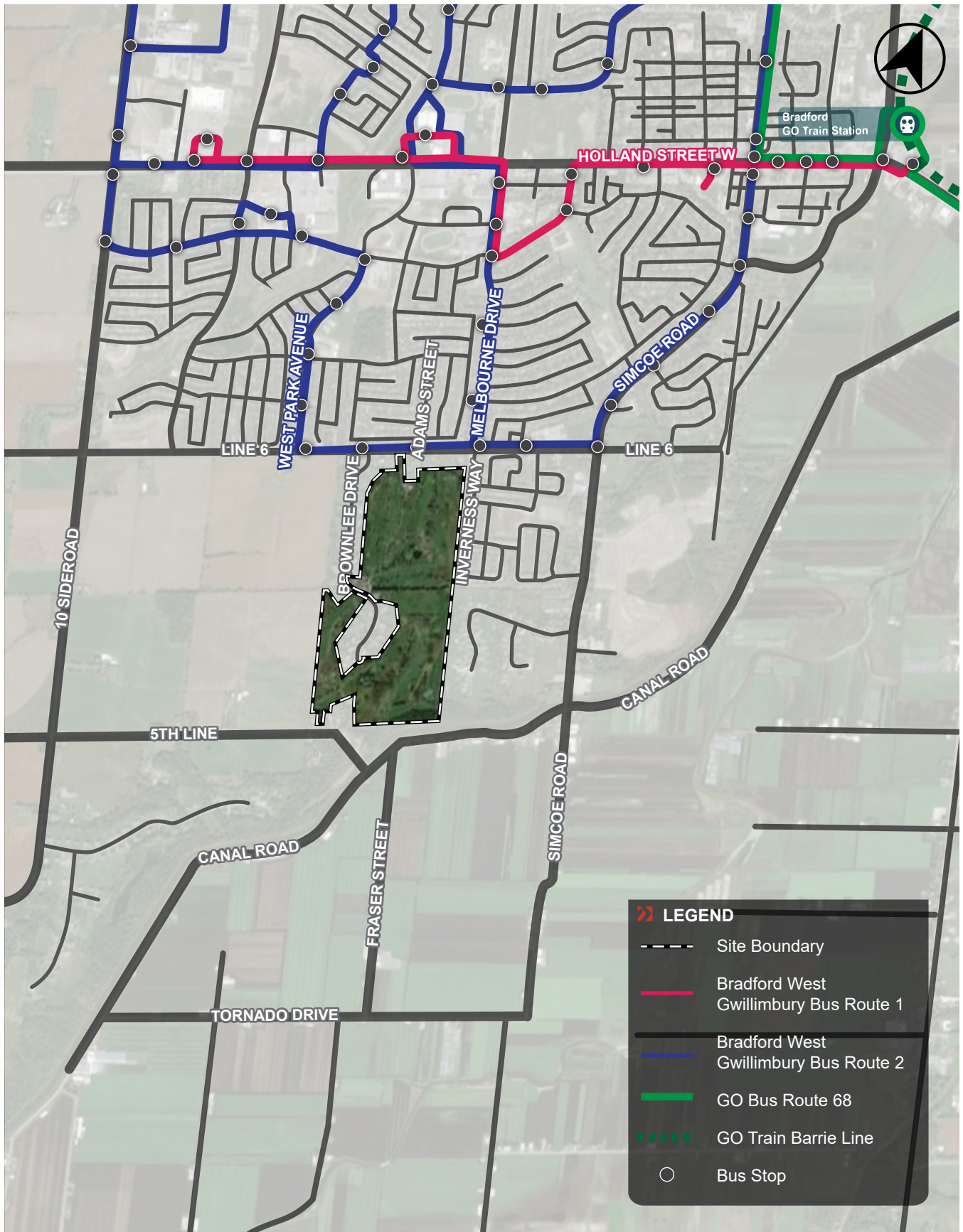


**FIGURE 4A FUTURE LANE CONFIGURATION AND TRAFFIC CONTROL**

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**FIGURE 4B FUTURE LANE CONFIGURATION & TRAFFIC CONTROL - INTERNAL SITE**



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**FIGURE 5 AREA TRANSIT NETWORK**

### 3.0 PROPOSED DEVELOPMENT

#### 3.1 Conceptual Development Plan

The proposed development consists of 998 residential units. A breakdown of the proposed development programme includes the following:

- Single-Detached Homes: 342 units
- Semi-Detached Homes: 196 units
- Street Townhouses: 334 units
- Back-to-Back Townhouses: 126 units
- **Total Residential Dwelling Units: 998 units**

Access to the site is proposed via four (4) new public street intersections with the existing road network, inclusive of the following:

- Inverness Way – 2 vehicle access points
  - Street B located approximately 95 metres south of the Inverness Way / Barrow Avenue intersection
  - Street C located approximately 175 metres south of the Inverness Way / Tupling Street intersection
- Line 6 – 1 vehicle access point
  - Street A located approximately 160 metres east of the Line 6 / Brownlee Drive intersection
- 5<sup>th</sup> Line – 1 vehicle access point
  - Street A located approximately 200 metres west of the 5<sup>th</sup> Line / Canal Road intersection

It is anticipated that none of the aforementioned vehicle access points will have restrictions. All intersections will permit all movements.

Figure 6 illustrates the conceptual development plan and the proposed access to the external road network.

#### 3.2 Proposed Road Network

The proposed development creates a new internal road network that has a hierarchy of streets. These new streets improve connectivity through and around the site for all users (including pedestrians and vehicles).

The geometry of these streets was designed in accordance with Town of Bradford West Gwillimbury Engineering Design Criteria for collector and local roads. A summary of the recommended right-of-way in the conceptual development plan is contained in Table 2.

Table 2 Summary of Recommended Road Widths in Conceptual Development Plan

Street Names	Road Classification	Right-of-Way Width (m)	Pavement Width (m)	Proposed BWG Standard Drawing Number <sup>1</sup>
Street A	Collector	26.0	14.0	B106
Street B / Street C	Local	20.0	8.5	B103
Street D to Street N	Local	18.0	8.0	B102

Notes:

1. Referenced from the BWG Engineering Design Criteria Manual, Section B3.00.

The design details of the proposed road network will be confirmed throughout the detailed design process.

### 3.2.1 Street A

Street A is a new north-south road with a 26.0 metres right-of-way (14.0 metres pavement width) proposed to extend centrally through the site between Line 6 in the north and 5<sup>th</sup> Line in the south. Street A is envisioned as a new collector road, providing primary access to / from the proposed development. It is anticipated that Street A will provide all-moves access to the proposed development. The road will intersect at Line 6 and 5<sup>th</sup> Line forming new unsignalized intersections with Street A operating under STOP-controlled. Separate private driveway access will be provided along Street A to each of the residential homes with frontage onto Street A.

### 3.2.2 Street B and Street C

Street B and Street C are new east-west roads with a 20.0 metres right-of-way (8.5 metres pavement width) proposed to extend between Inverness Way in the east and Street A in the west. Street B and Street C are envisioned as new local roads, providing secondary access to / from the proposed development. It is anticipated that Street B and Street C will provide all-moves access to the proposed development, intersecting with Inverness Way. Street B and Street C are anticipated to form new unsignalized intersection with Inverness Way and operate under STOP-controlled. Separate private driveway access will be provided along Street B or Street C to each of the residential homes with frontage onto Street B or Street C, respectively.

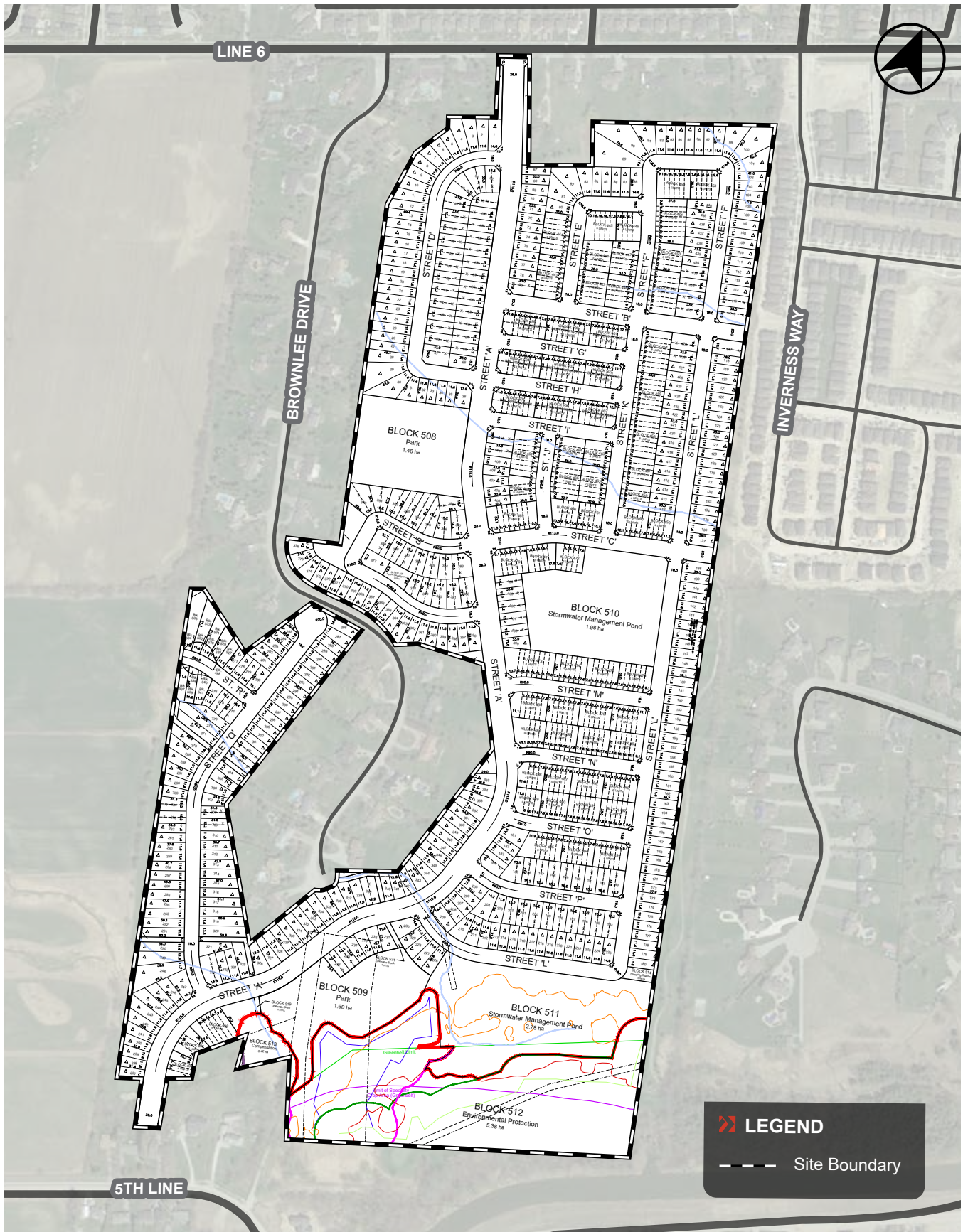
### 3.2.3 Street D to Street S

Street D to Street S are new local roads with an 18.0 metres right-of-way (8.0 metres pavement width). These new local roads will provide internal circulation throughout the site between the residential homes and will accommodate the localized traffic that is travelling to / from the site. Separate private driveway access will be provided along these new roads to each of the residential home with frontage onto its respective road.

The proposed intersection controls for the proposed road network are illustrated in **Figure 7**.

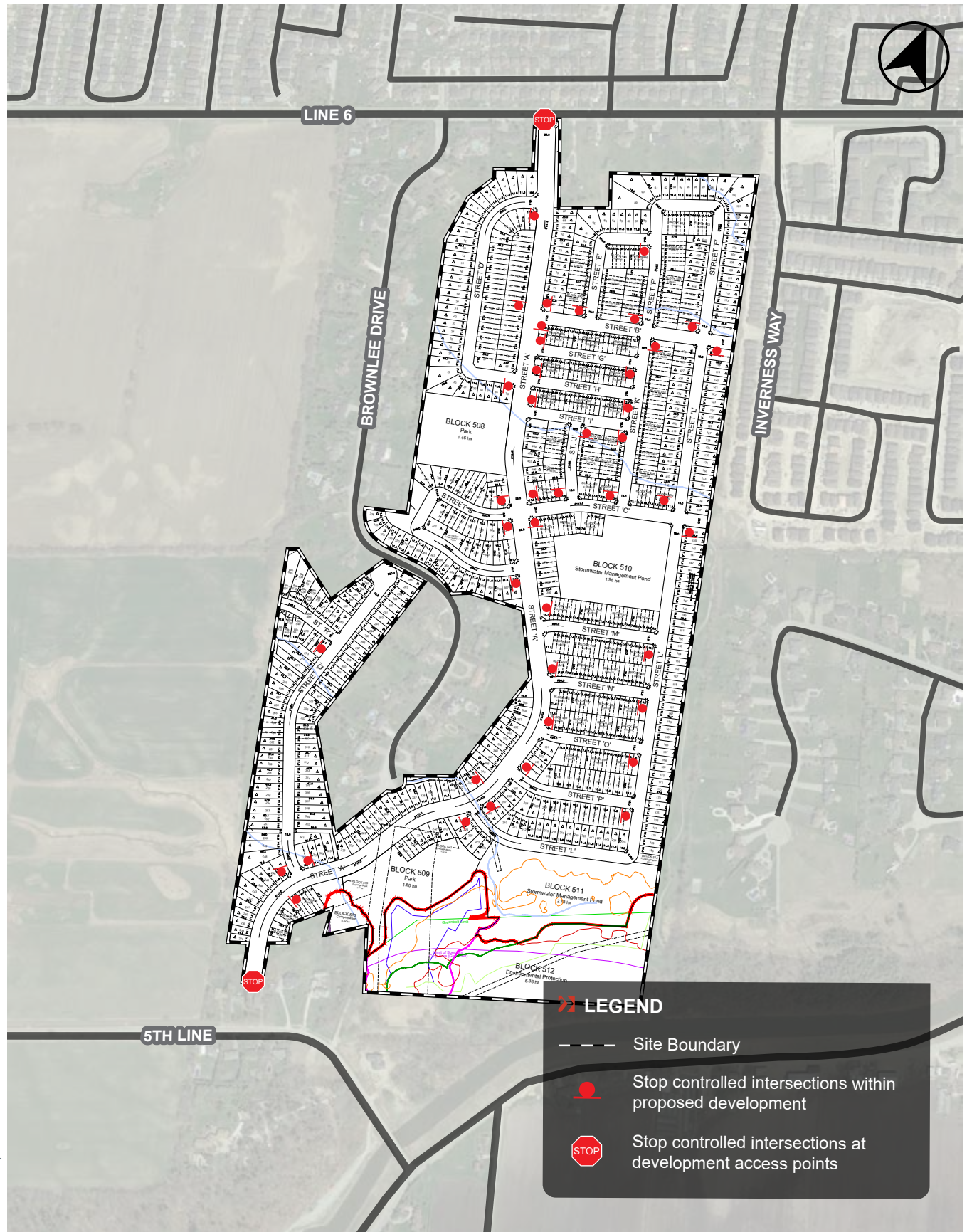






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FIGURE 6 PROPOSED SITE CONCEPT PLAN



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**FIGURE 7 PROPOSED INTERSECTION CONTROL**

## 4.0 TRANSPORTATION DEMAND MANAGEMENT

Transportation Demand Management (TDM) measures will be incorporated in all aspects of the planned development to minimize the need for automobile travel to and from the Site and to encourage and facilitate the use of non-automobile travel modes on a day-to-day basis. The following outlines the proposed physical and operational strategies that complement the site's design with the goal of encouraging a shift in the travel pattern of future residents of sustainable modes of transportation.

### 4.1 TDM Plan Objectives

The plan strives to reduce automobile use as part of the design and construction of the development, as well as after construction as an on-going strategy by supporting and promoting the use of non-auto travel modes.

The key objectives of the TDM plan are to reduce peak hour single occupant vehicles (SOV) traffic by promoting the use of more active and sustainable modes of transportation.

Generally, the TDM Plan has three primary objectives:

1. Reduce car dependence and the need for everyday SOV travel;
2. Make it easy and attractive for people to walk and cycle; and
3. Promote transit, a low-carbon alternative in comparison to car ownership and SOV travel.

### 4.2 Travel Mode Characteristics

The existing travel characteristics for the area around the site was reviewed using information provided by the 2016 Transportation Tomorrow Survey (TTS). Modal choice travel characteristics for residential land uses in the area for the peak period inbound and outbound directions are summarized in **Table 3**.

Table 3 Existing Area Travel Mode Split

Travel Mode	AM Outbound	PM Inbound
Auto Driver	66%	72%
Auto Passenger <sup>2</sup>	24%	16%
Transit	5%	5%
Walk	6%	7%
Cycle	0%	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>

Notes:

1. Reflects all home-based trips made to / from the 2016 TTS data for 2006 TTS Zones 8635 and 8637 during the weekday morning and afternoon peak hour periods.
2. Includes auto passenger, taxi passenger, and paid rideshare.

Based on the most recent TTS data, 66% to 72% of the residents living in the area regularly drive during the peak travel period, meaning a great majority of the trips made during the peak hour is via car.



### 4.3 Proposed TDM Plan

Strategies must be adopted to encourage the use of alternate sustainable travel modes, active transportation modes, and increase vehicle occupancy. The proposed TDM strategies are summarized in **Table 4**.

Table 4 Proposed TDM Implementation Plan

Proposed TDM Strategy	Responsibility	Cost Estimate	Approximate Timing
<b>Sustainable Commuting Information</b>			
Provide sustainable transportation information to new home purchasers as part of home buyers package to promote sustainable travel options	Developer to coordinate with the Town of Bradford West Gwillimbury or the County of Simcoe to obtain materials and provide them to home purchasers.	TBD	After home purchase / during construction
<b>Pedestrian Infrastructure</b>			
Provide internal sidewalks within the site to external connections and the park at the southeast corner of the site	Developer	TBD <sup>1</sup>	Construction

Notes:

1. Cost of sidewalks provided for through the Plan of Subdivision process. To be constructed as part of land development.

#### 4.3.1 Sustainable Transportation Information

The provision of information on trails, cycling and transit maps to residents encourages the use of these alternative modes by helping educate people about their options.

**Proposed Strategy:**

Marketing programs aimed at new residential unit purchasers should be implemented to ensure that new residents have comprehensive information on travel choices in the area now and in the future.

The developer proposed to coordinate with the Transportation Planning Department of the Town of Bradford West Gwillimbury and the County of Simcoe, should they elect, to issue maps and travel information provided by the County to new residents as part of a new homeowner’s package. These programs will also be made available at the sales centre for the new lots and will also be available to residents after the dwelling units are occupied.

#### 4.3.2 Pedestrian Connections

High quality pedestrian connections within the site and with pedestrian facilities outside of the site can be an important design feature in the effort to ensure viability of non-automotive modes of travel. Thus, it is critical for pedestrian and sidewalk infrastructure to enhance the pedestrian experience especially as it relates to safety and convenience. Children and elder residents should feel comfortable walking within the site.

**Proposed Strategy:**

The proposed development will provide sidewalks on at least one side of the new Streets A through to E. The sidewalks will provide connections to the planned park in the south-eastern corner of the site, in addition to the external sidewalk network along the neighbouring roads.



## 5.0 TRAFFIC VOLUMES FORECAST

### 5.1 Traffic Analysis Scenarios and Design Periods

Traffic operations analyses have been undertaken during the weekday morning and afternoon street peak hours under the following conditions:

- Existing traffic (2021) – traffic activity level under current conditions;
- Future background traffic (2026) – traffic activity level 5 years into the future which include allowances for corridor growth and background developments;
- Future total traffic (2026) – traffic activity level 5 years into the future with the site developed and projected site generated traffic added to the road network; and
- Future background and future total traffic (2031) – traffic activity level with the Highway 400 Employment Lands fully developed as part of the Official Plan.
- Future background and future total traffic (2036) – traffic activity level at the ultimate horizon year 10 years after site buildout.

### 5.2 Existing Traffic Volumes

Existing baseline traffic volumes were established at public intersections within the study area for the weekday morning and afternoon peak periods using traffic count information obtained from the Town of Bradford West Gwillimbury, from 2018 and 2019, and vehicle traffic surveys undertaken by Spectrum Traffic Data Inc. on behalf of BA Group in February 2021. A listing of the count data and sources are provided in **Table 5**.

Recognizing the existing 2021 counts were surveyed under COVID-19 pandemic circumstances, the traffic volumes along the major corridors were anticipated to be less than normal circumstances. Therefore, in order to create a representative traffic volume base, the counts completed in 2021 were factored up proportionally based on the 2018 and 2019 counts provided by the Town along the major corridors. Traffic counts at the Line 6 / Simcoe Road intersection were factored up based on the March 2019 counts, and with the added trips distributed along the network. This represents an addition of 75 and 70 two-way vehicle trips during the AM and PM peak hour periods, respectively. These adjusted traffic volumes represent the existing baseline traffic volumes (pre-COVID) and were used for the purpose of the traffic operations analyses undertaken as part of this study.

Existing, balanced baseline area traffic volumes for the weekday morning and afternoon peak hours are summarized in **Figure 8**.

Existing turning movement counts are provided in **Appendix A**.



Table 5 Existing Turning Movement Count Summary

	Time Periods	Date of Count	Source
10 Sideroad / Line 6	6:00 a.m. to 7:00 p.m.	Wed, Feb 10, 2021	Spectrum Traffic
	7:00 to 9:00 a.m. 4:00 to 7:00 p.m.	Wed, Jun 27, 2018	Ontario Traffic Inc.
Simcoe Road / Line 6	6:00 a.m. to 7:00 p.m.	Wed, Feb 10, 2021	Spectrum Traffic
	7:00 to 9:00 a.m. 4:00 to 7:00 p.m.	Mon, June 18, 2018	Ontario Traffic Inc.
Simcoe Road / Gibson Circle	6:00 a.m. to 7:00 p.m.	Wed, Feb 10, 2021	Spectrum Traffic
	7:00 to 9:00 a.m. 4:00 to 7:00 p.m.	Mon, June 18, 2018	Ontario Traffic Inc.
West Park Avenue / Line 6	6:00 a.m. to 7:00 p.m.	Wed, Feb 10, 2021	Spectrum Traffic
Southfield Gate / Line 6	6:00 a.m. to 7:00 p.m.	Wed, Feb 10, 2021	Spectrum Traffic
Line 6 / Golf Driveway Access	6:00 a.m. to 7:00 p.m.	Wed, Feb 10, 2021	Spectrum Traffic
Adams Street / Line 6	6:00 a.m. to 7:00 p.m.	Wed, Feb 10, 2021	Spectrum Traffic
Melbourne Drive / Line 6 / Iverness Way	6:00 a.m. to 7:00 p.m.	Wed, Feb 10, 2021	Spectrum Traffic
Barrow Avenue / Line 6	6:00 a.m. to 7:00 p.m.	Wed, Feb 10, 2021	Spectrum Traffic
Simcoe Road / Golfview Boulevard	6:00 a.m. to 7:00 p.m.	Wed, Feb 10, 2021	Spectrum Traffic
Langford Boulevard / Line 6	6:00 a.m. to 7:00 p.m.	Wed, Feb 10, 2021	Spectrum Traffic
Simcoe Road / Canal Road	6:00 a.m. to 7:00 p.m.	Wed, Feb 10, 2021	Spectrum Traffic
Canal Road / 5 <sup>th</sup> Line	6:00 a.m. to 7:00 p.m.	Wed, Feb 10, 2021	Spectrum Traffic
5 <sup>th</sup> Line / 10 Sideroad	6:00 a.m. to 7:00 p.m.	Wed, Feb 10, 2021	Spectrum Traffic



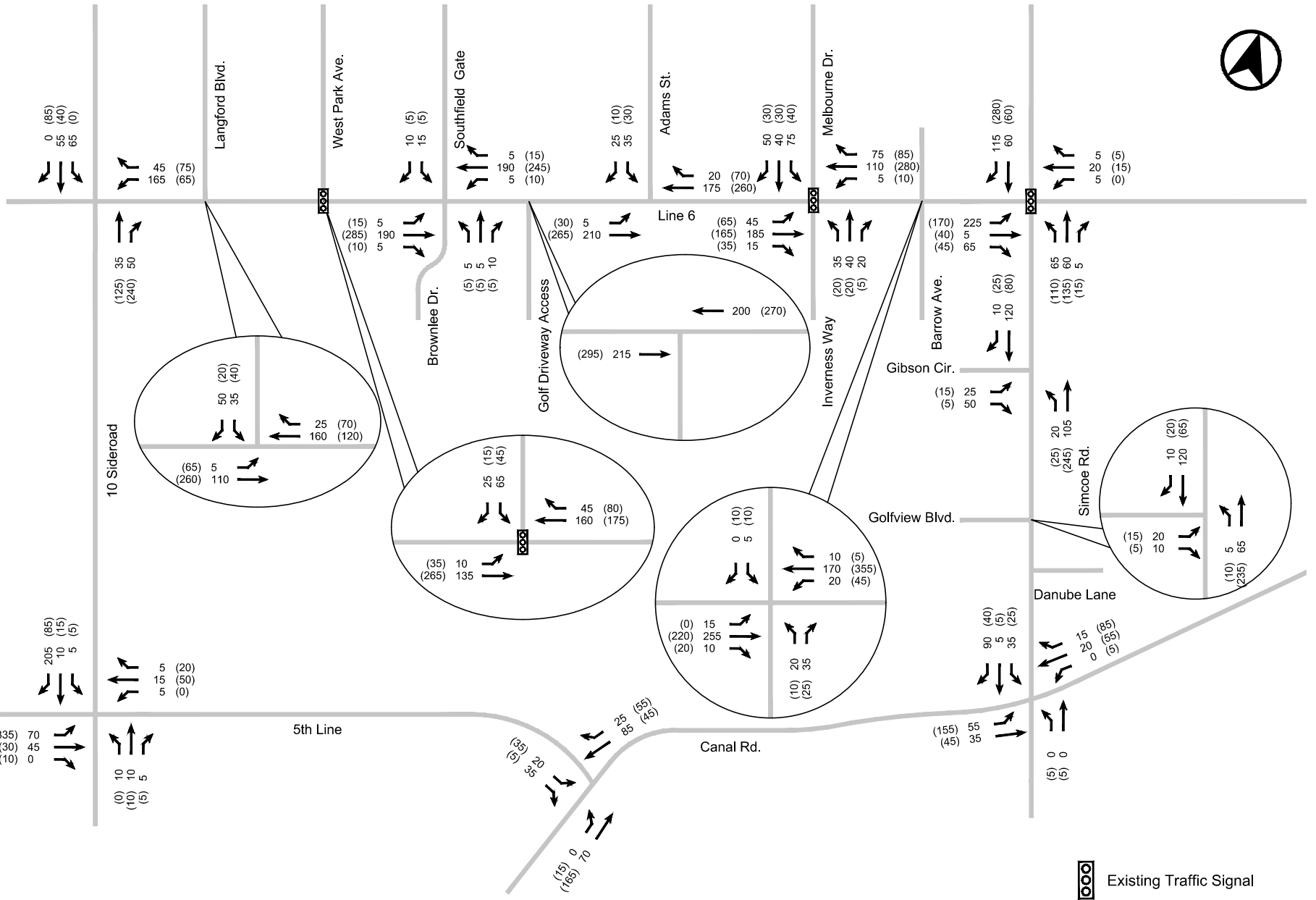


FIGURE 8 EXISTING TRAFFIC VOLUMES

### 5.3 Future Non-Site Traffic Volumes Projection

Non-site related traffic volumes due to the Highway 400 employment lands network were estimated using forecasted traffic volumes along the Line 6, Simcoe Road, and 5th Line corridors as set out in the Roadway Network Assessment conducted for the Town in March 2012. The assessment sets a 2026 and 2031 horizon years and vehicle demand forecasts assuming estimated population and employment forecasts for the Town and its surrounding areas.

Traffic volumes for the Highway 400 employment lands were generated based on the employment growth rates established in **Section 5.4**, and distributed using traffic link volume ratios at the Line 6 and 10 Sideroad intersection using the 2026 AM Peak hour South East Arterial Road (SEAR) / South West Arterial Road (SWAR) and 2031 AM Peak Hour Bradford Bypass / 10 Sideroad Interchange for the 2026 and 2031 scenarios, respectively.

### 5.4 Future Background Traffic Volumes

Traffic growth in the site vicinity has been considered based upon an evaluation of traffic volume changes related to:

- general corridor growth on the area arterial roads (i.e. Line 6, 10 Sideroad, 5th Line and Simcoe Road); and
- specific area development traffic (i.e. background development traffic)

#### 5.4.1 Corridor Growth

Traffic allowances have been made for general corridor growth on major corridors (i.e. Line 6, 10 Sideroad, 5th Line and Simcoe Road). Given that historical traffic count information was not available at the existing intersections in the vicinity of the site, the Town of Bradford West Gwillimbury’s Official Plan was reviewed to determine a suitable corridor growth rate. The calculated corridor growth rates based on the Town’s Official Plan are summarized in **Table 6**.

Table 6 Corridor Growth Rates

Street	Direction of Travel	Morning / Afternoon Peak	
		Population (2021-2036)	Employment (2021-2031)
Line 6	East / West	2%	4%
5th Line	North / South	2%	4%
Simcoe Road	North / South	2%	4%

The Town’s Official Plan notes that the employment growth is anticipated to be primarily located within the employment, commercial and residential designated lands in the Bradford Urban Area and the Highway 400 Employment Lands. A review of the Town’s Official Plan for population and employment growth establishes a rate of 2.0% and 4.0% per annum, respectively. The rates were both individually applied to the existing traffic volumes to identify the respective total vehicle growth due to population growth, and employment growth estimates. These rates were considered appropriate and to be adopted as annual vehicle growth along the major corridors for the purposes of this study. This growth was applied to the movements along Line 6, 10 Sideroad, 5th Line and Simcoe Road for a 5-year horizon to 2026 horizon year. In addition, it was applied for a 10-year horizon (2031), with the Highway 400 Employment Lands fully developed as per the Town’s Official Plan and to the ultimate 15-year horizon (2036), which represents 10 years after the buildout of the proposed site.



### 5.4.2 Site Specific Background Development Growth

Traffic allowances were made for other specific proposed developments in the area, based on a review of the Town of Bradford West Gwillimbury’s list of current development projects as of February 2021. These sites represent a total development in the order of 576 residential units and 1,415 m<sup>2</sup> GFA of day care space.

Area background developments are summarized in **Table 7** together with a description of the key development statistics for each. Traffic allowances made for each development were based upon traffic impact studies submitted to the Town of Bradford West Gwillimbury as part of the development application process, unless otherwise noted.

**Table 7 Area Background Developments**

Site Location	Development Statistics		
	Residential Units	Other GFA (m <sup>2</sup> )	Source
2619 Line 6	--	1,415 m <sup>2</sup> (day nursery)	CGE Transportation Consulting, September 2020
539-563 Simcoe Road	76	--	Paradigm Transportation Solutions, March 2019
Catchet Homes Residential Development	85	--	Paradigm Transportation Solutions, March 2019
Green Valley East Residential Subdivision	415	--	Paradigm Transportation Solutions, March 2019

### 5.4.3 Future Background Traffic Volumes

The future background traffic volumes for the weekday morning and afternoon peak hours for 2026, 2031, and 2036 are illustrated in **Figure 9**, **Figure 10**, and **Figure 11**, respectively. The volumes were developed through adding the abovementioned allowances for corridor traffic growth and the specific area background developments to base existing traffic volumes.

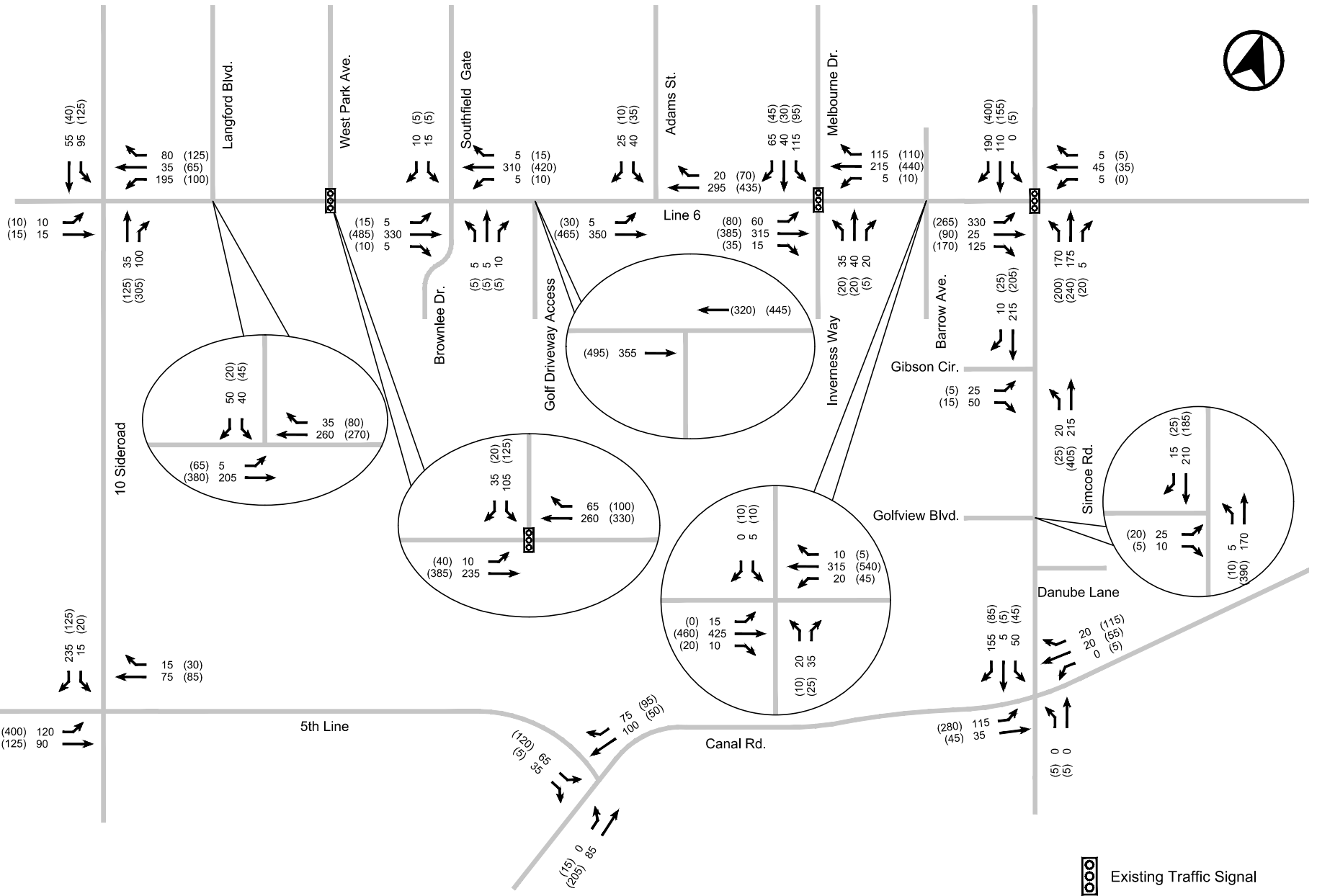


FIGURE 9 FUTURE BACKGROUND (2026) TRAFFIC VOLUMES

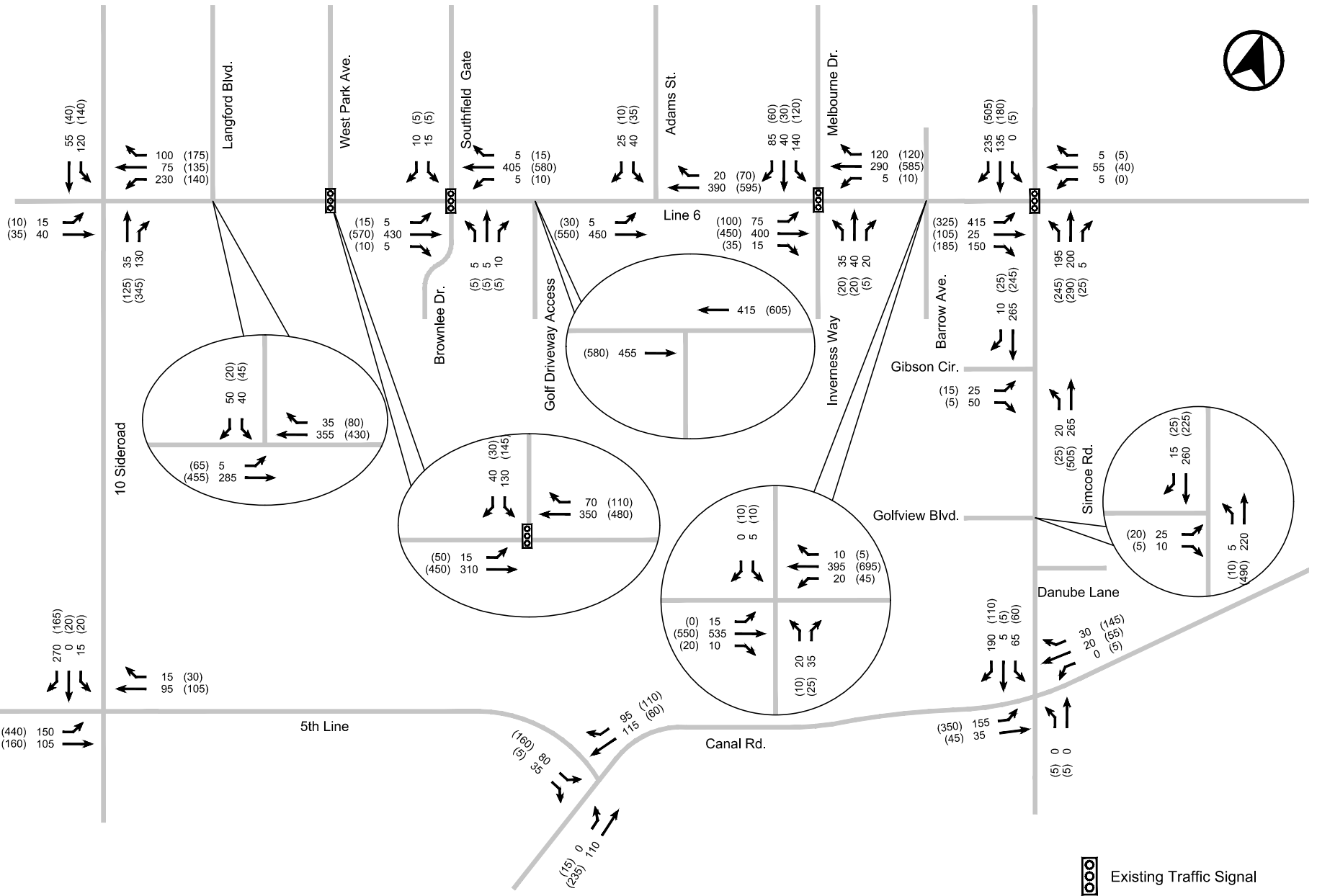


FIGURE 10 FUTURE BACKGROUND (2031) TRAFFIC VOLUMES

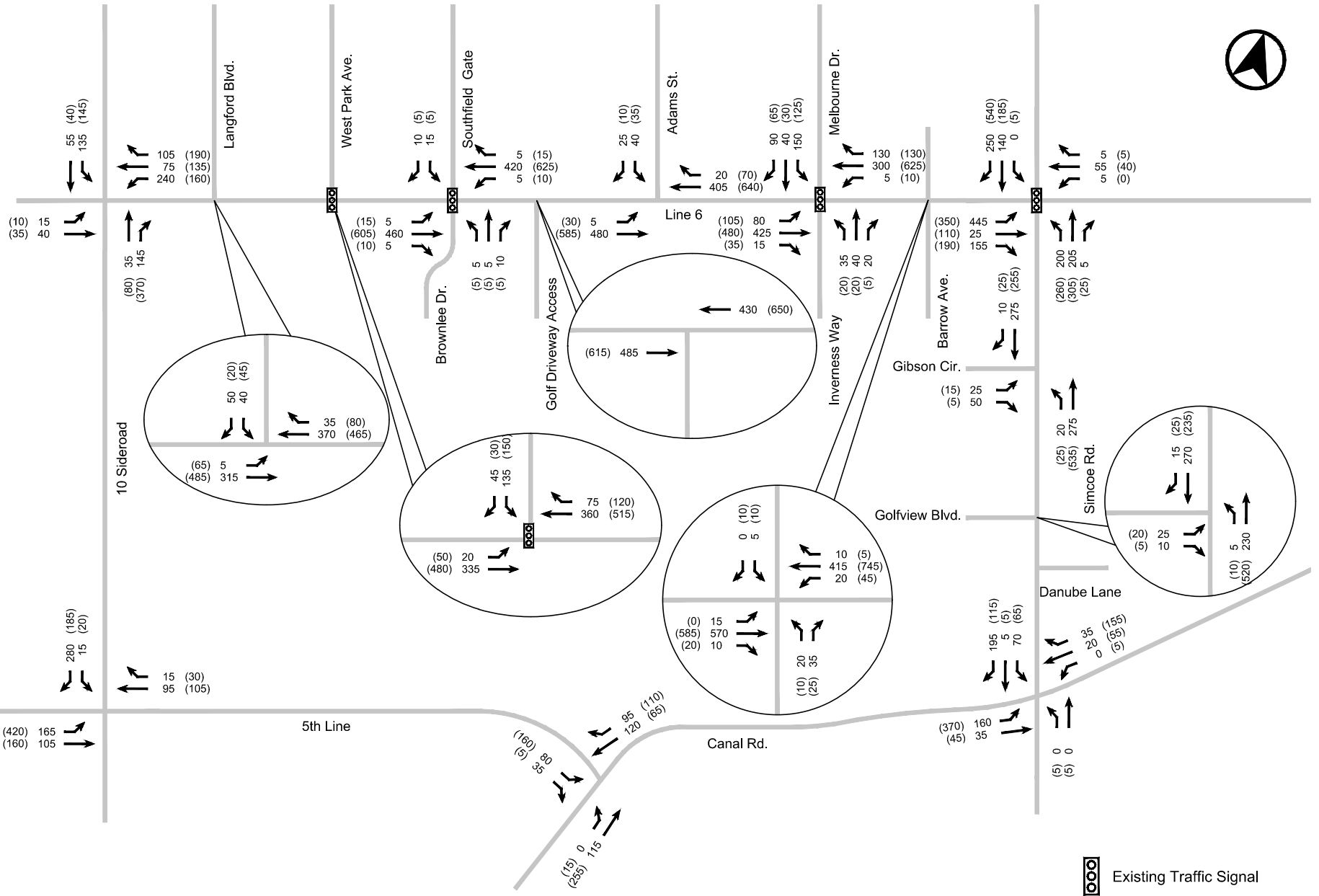


FIGURE 11 FUTURE BACKGROUND (2036) TRAFFIC VOLUMES

## 5.5 Site Traffic

### 5.5.1 Trip Generation

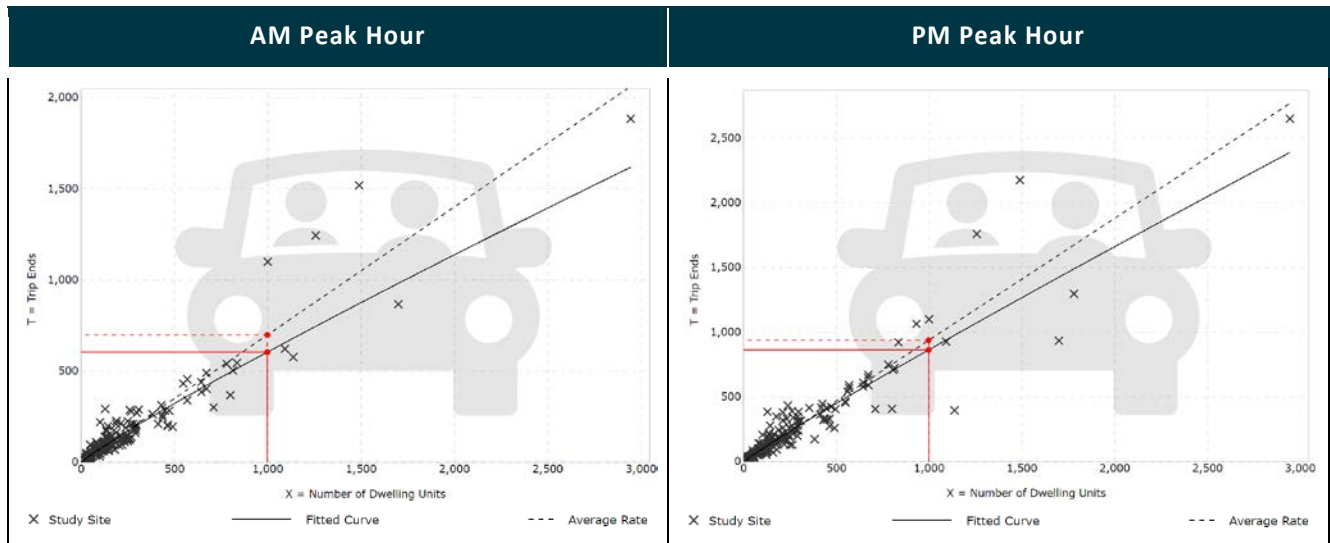
Vehicle trip generation rates adopted for the residential uses for the proposed development were based on the Institute for Transportation Engineers (ITE) Trip Generation Manual, 11th Edition. Trips generated for the proposed residential use of single-family detached units and townhouse units were based on ITE Land Use Code 210 (Single-Family Detached Housing).

The adopted trip generation rates were based on a review of the average rate and fitted curve methodologies within the ITE Trip Generation Manual. The average rate methodology is derived by assuming a linear relationship between trips generated and the number of dwelling units in sites surveyed as part of the ITE Trip Generation Manual. The fitted curve methodology assumes a nonlinear equation for the same relationship. In general, nonlinear relationships are a better representation of observed outcomes as few real-world relationships are truly linear. Nonlinear regression typically results in a higher coefficient of determination ( $R^2$ ) value than linear regression, which represents a closer fit to observed datapoints. This is particularly apparent for ranges where fewer datapoints exist, where nonlinear regression can better fit fewer available datapoints without being skewed by other ranges with a much greater number of datapoints.

In larger sites, the number of trips generated between the average rate and fitted curve methodologies can vary increasingly and is thus important to adopt rates that will neither over- nor under-estimate the number of trips generated. As there are fewer datapoints available within ITE Trip generation manual for sites with larger numbers of dwelling units, the average rate methodology is heavily dependent on datapoints obtained from surveying smaller sites. However, a methodology that more closely reflects the trips generated by surveyed sites of a similar size should be selected.

Data plots for the weekday morning and afternoon peak hours found in the ITE Trip Generation Manual for Land Use Code 210 are summarized in **Table 8**.

**Table 8** ITE Trip Generation Manual, 11th Edition – LUC 210 Data Plot Summary



For this site, the average rate methodology generates in the order of 700 and 940 two-way trips in the weekday morning and weekday afternoon peak hours, respectively. The fitted curve methodology generates in the order of 605 and 865 two-way trips in the weekday morning and weekday afternoon peak hours, respectively. For sites of approximately 1,000 dwelling units, the fitted curve equation is a better reflection of trips generated by actual sites surveyed by the ITE in both

the weekday morning and weekday afternoon peak hours. Thus, the fitted curve equation methodology was adopted for this analysis.

Trip generation forecasts using the average rate and fitted curve methodologies are summarized in **Table 9**.

**Table 9 Residential Site Trip Generation**

Land Use Code	AM Peak Hour			PM Peak Hour		
	In	Out	2-Way	In	Out	2-Way
<b>ITE Trip Generation Manual, 11<sup>th</sup> Edition – Average Rate</b>						
Land Use Code 210 (Single-Family Detached Housing)	0.18	0.52	0.70	0.59	0.35	0.94
<b>Forecast Traffic Volumes</b>	<b>180</b>	<b>520</b>	<b>700</b>	<b>590</b>	<b>350</b>	<b>940</b>
<b>ITE Trip Generation Manual, 11<sup>th</sup> Edition – Fitted Curve Equation<sup>2</sup></b>						
Land Use Code 210 (Single-Family Detached Housing)	0.16	0.45	0.61	0.55	0.32	0.87
<b>Forecast Traffic Volumes</b>	<b>155</b>	<b>450</b>	<b>605</b>	<b>545</b>	<b>320</b>	<b>865</b>
<b>Adopted Rate</b>	<b>0.16</b>	<b>0.45</b>	<b>0.61</b>	<b>0.55</b>	<b>0.32</b>	<b>0.87</b>
<b>Adopted Traffic Volumes</b>	<b>155</b>	<b>450</b>	<b>605</b>	<b>545</b>	<b>320</b>	<b>865</b>

Notes:

1. All trips are rounded to the nearest 5 trips.
2. AM:  $\ln(T) = 0.91 \ln(X) + 0.12$   
PM:  $\ln(T) = 0.94 \ln(X) + 0.27$

Based on the adopted fitted curve methodology, the proposed development is anticipated to generate approximately 605 and 865 two-way vehicle trips during the weekday morning and afternoon peak hours, respectively.

### 5.5.2 Trip Distribution and Assignment

The trip distribution pattern for the residential site traffic was established based upon a review of 2016 Transportation Tomorrow Survey (TTS) data for home-based vehicle trips to and from the study area during the weekday morning and afternoon peak periods. The distribution of inbound and outbound residential traffic adopted for the proposed development is outlined in **Table 10**.

**Table 10 Residential Site Traffic Distribution**

Link	Direction	Inbound (%)	Outbound (%)
Highway 400	North	5%	5%
	South	30%	25%
Regional Road 4 / Simcoe Road	North	0%	10%
Melbourne Drive	North	5%	10%
10 Sideroad	North	0%	5%
West Park Avenue	North	20%	10%
Regional Road 1 / Bridge Street	South / East	35%	35%
Holland Street	West	5%	0%
<b>Total</b>		<b>100%</b>	<b>100%</b>

Notes:

1. Distribution of 2016 TTS data based home-based trips to / from 2006 TTS Zones 8635 and 8637 during weekday morning and afternoon peak periods.

Internal site traffic was assigned based on the proportion of trips using the site accesses at Line 6 and 5<sup>th</sup> Line as well as the number of units located in each block. Total site generated traffic volumes assigned to the area road network and the internal site network are illustrated in **Figure 12A** and **Figure 12B**, respectively.

### 5.6 Future Total Traffic Volumes

Future total traffic volumes were established by combining the site-generated traffic with future background traffic volumes. **Figure 13**, **Figure 14**, and **Figure 15** illustrate future total traffic volumes for the weekday morning and afternoon peak hours for 2026, 2031, and 2036 horizon years, respectively.

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FIGURE 12A SITE TRAFFIC VOLUMES



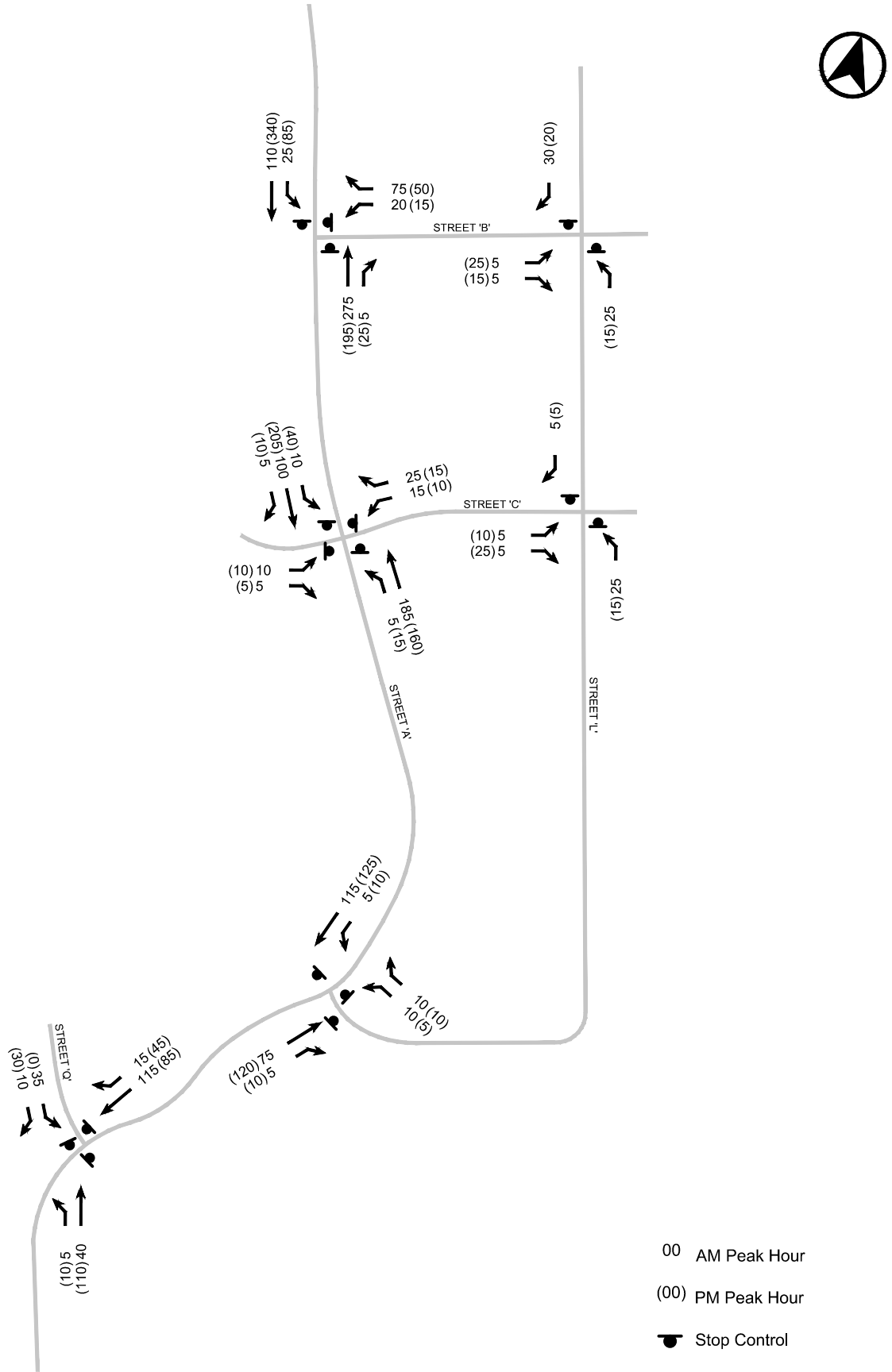


FIGURE 12B INTERNAL SITE TRAFFIC VOLUMES

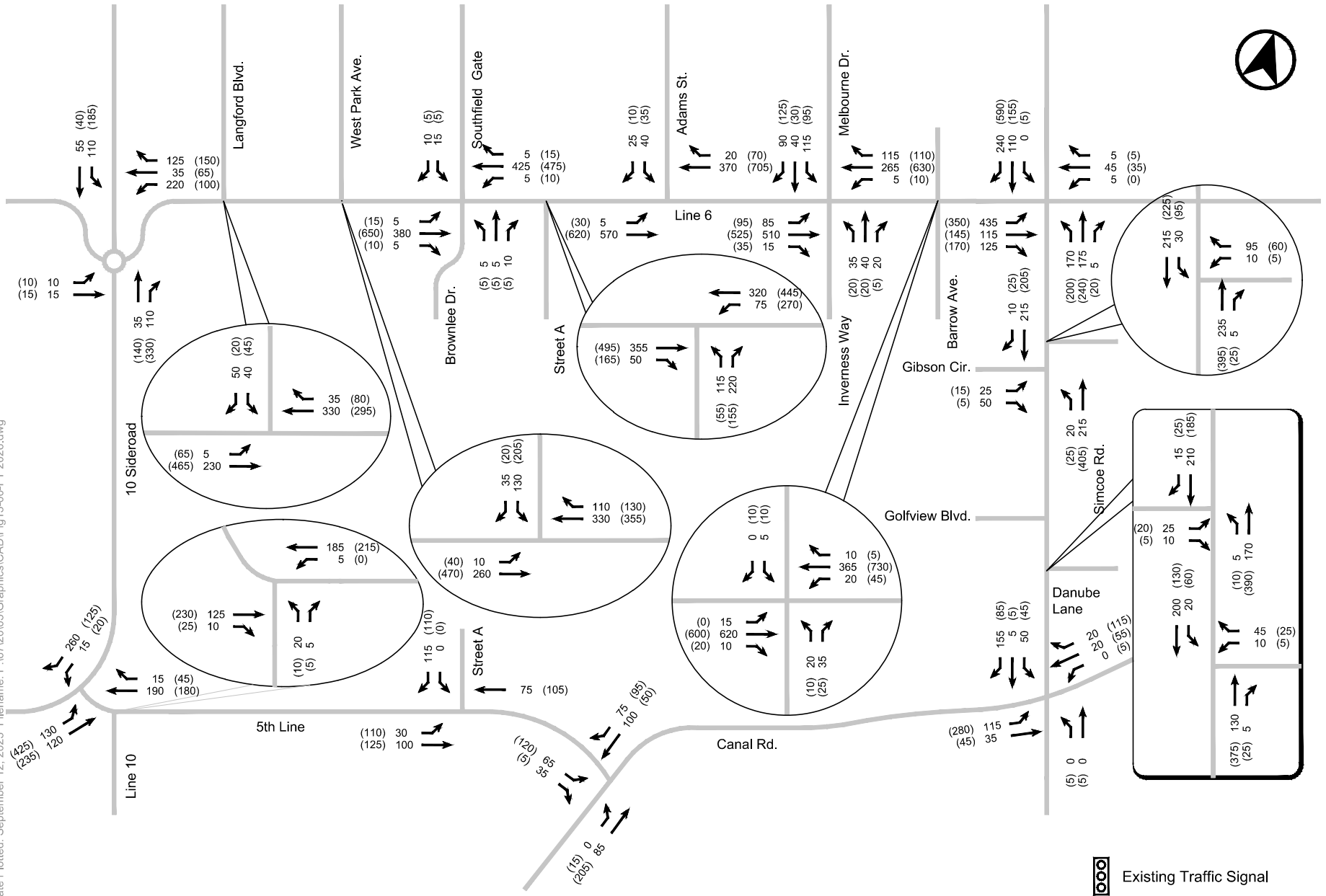


FIGURE 13 FUTURE TOTAL (2026) TRAFFIC VOLUMES

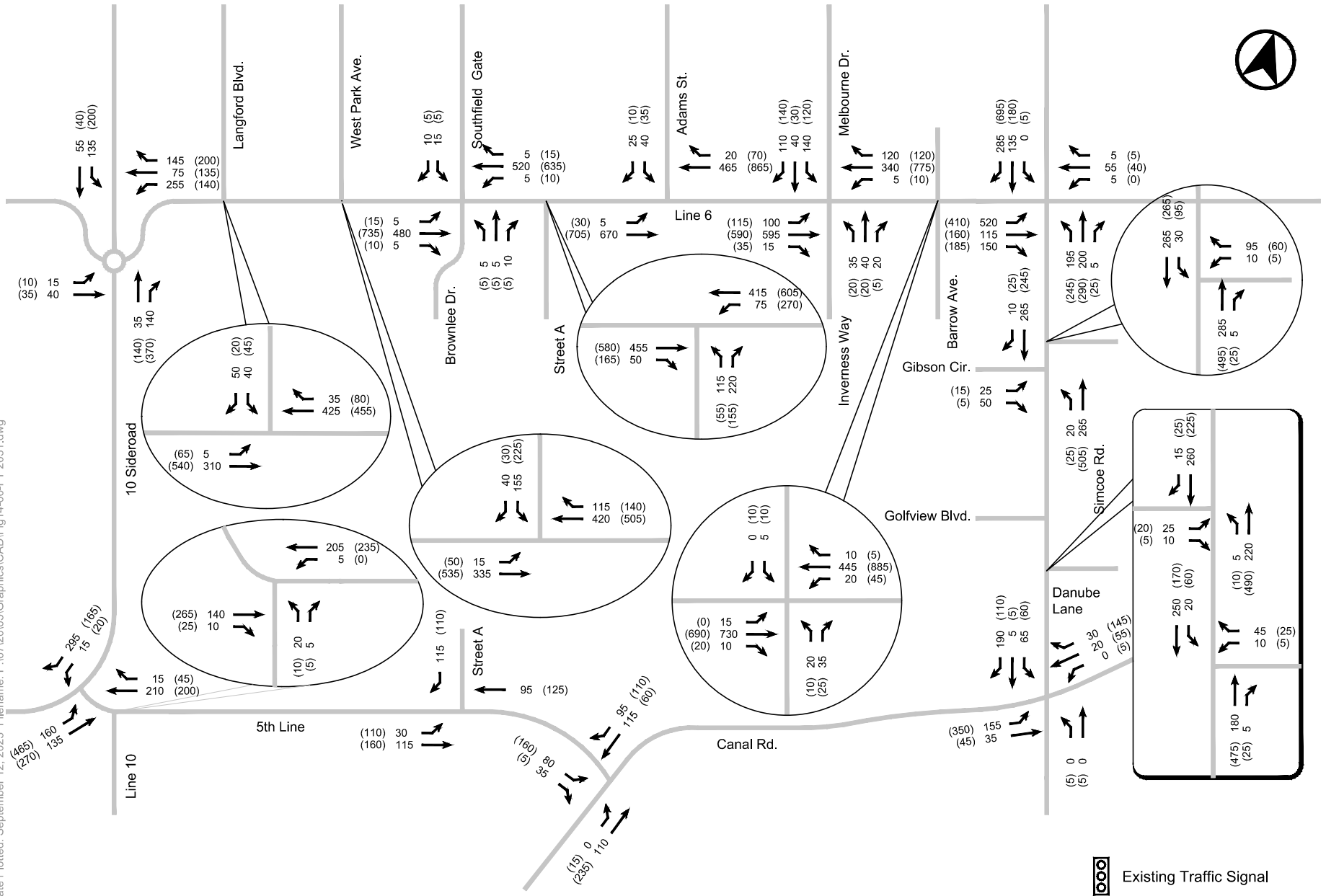


FIGURE 14 FUTURE TOTAL (2031) TRAFFIC VOLUMES

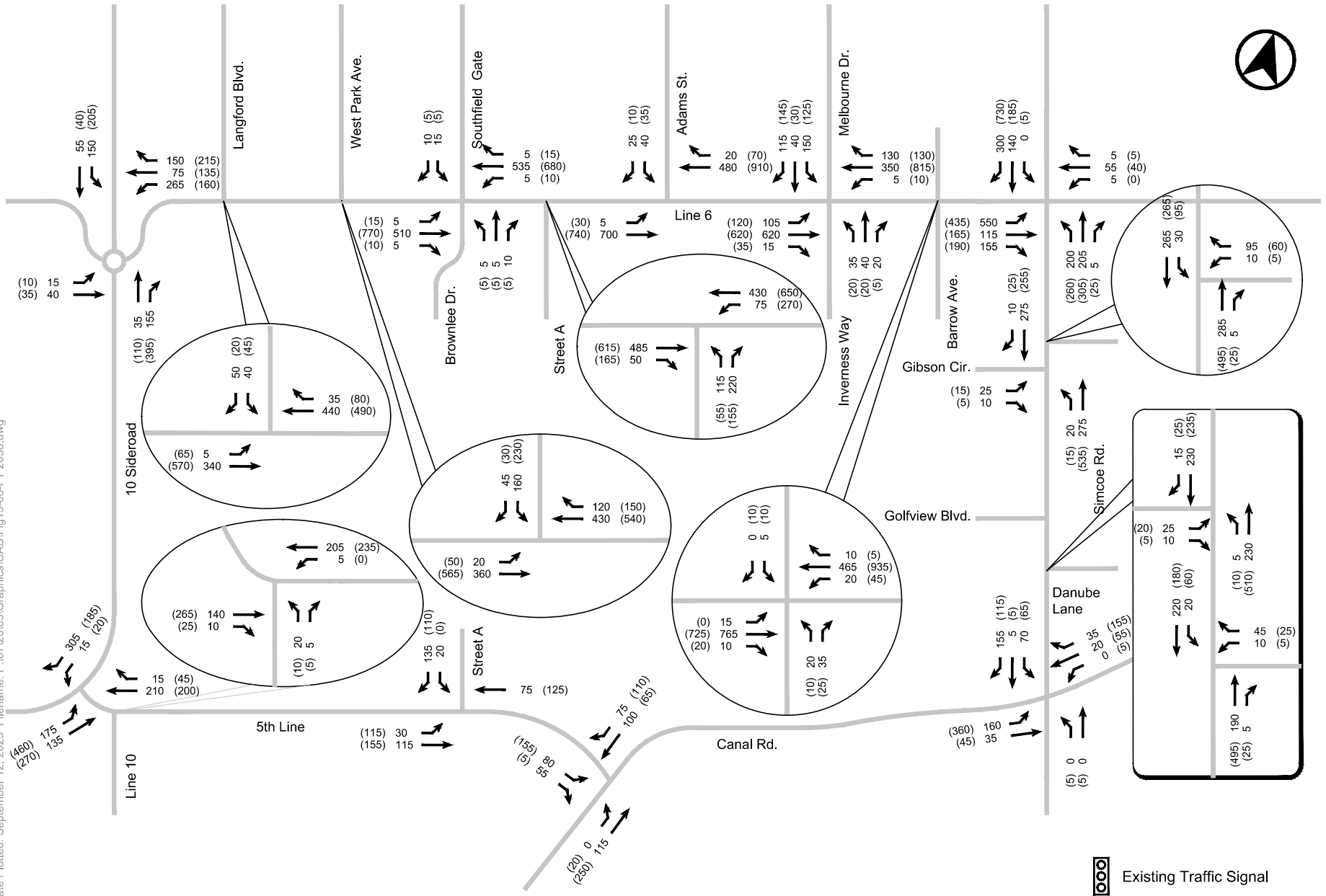


FIGURE 15 FUTURE TOTAL (2036) TRAFFIC VOLUMES

## 6.0 TRAFFIC OPERATIONS ANALYSIS

### 6.1 Methodology

#### 6.1.1 Synchro Analysis

Traffic operations analyses for signalized and unsignalized intersections have been completed using the Synchro (Version 11.0) software package in accordance with the methodologies outlined in the Highway Capacity Manual (HCM 2000).

The key performance indicator of the signalized intersection evaluation is an intersection performance index (volume to capacity, or v/c), where a v/c index of 1.00 index indicates 'at capacity' conditions,

The key performance indicator of the unsignalized intersection / driveway analyses is an average delay per vehicle (in seconds) and a level of service (LOS) designation, where LOS A (little delay) to LOS F (extended delay) range provides an understanding of relative time a motorist may have to wait to complete a turn at an intersection or driveway.

Synchro analysis worksheets are provided in **Appendix B**.

#### 6.1.2 Sidra Analysis

The Synchro 11 user guide states the following in regard to the modelling of roundabouts within the software:

*The roundabout's method has not been very well developed. There are no delay or queue outputs. The method is only applicable to single lane roundabouts with up to 1200 [vehicles per hour] vph crossing volume. The output is a range of v/c values.*

Consequently, Sidra software was used to complete the roundabout analysis. The v/c, delay and LOS definitions discussed in previous section also apply in interpreting the Sidra analysis results. Detailed Sidra analysis worksheets are attached in **Appendix C**.

### 6.2 Input and Calibration Parameters

#### Road Network Assumptions

Existing lane configurations in the area road network have been assumed in the analysis for the existing conditions assessment. Future lane configurations and improvements in the area road network have been assumed in the analysis assuming the South West Arterial Road (SWAR) has been constructed as outlined in the Environmental Study Report prepared by LEA Consulting Ltd. dated May 2010 for the future 2026, 2031, and 2036 traffic conditions. Under future total traffic conditions, site accesses are provided on Line 6, 5th Line and Inverness Way. These site accesses will operate under STOP control with full vehicle movements permitted.

The existing, future area, and future site road network lane configurations are shown in **Figure 3**, **Figure 4A**, and **Figure 4B**, respectively.

#### Signal Timing Plans

Existing traffic signal timing plans for all signalized intersections within the study area were obtained from the Town of Bradford West Gwillimbury. Analyses were undertaken using these signal timing plans for existing, future background and future total traffic conditions. Where necessary, signal timing plans were optimized in the future scenarios.

The existing traffic signal timing plans are provided in **Appendix D**.



### **Saturation Flow Rates**

A base saturation flow rate of 1,900 passenger cars per hour of green time per lane (pcphgpl) was adopted as the base assumption within the Synchro analysis. This default rate was assumed in all analysis scenarios.

### **Heavy Vehicle Assumptions**

Heavy and medium truck percentage incorporated into the analyses were based upon information obtained from observations made during existing intersection turning movement counts.

The relative proportion of heavy vehicles within the general traffic street was used as the basis for the heavy vehicle adjustment factor inputs adopted within the Synchro analysis for both existing and future scenarios.

### **Peak Hour Factors**

The peak hour factors at the area intersections were calculated based on the existing traffic volume data extracted from the traffic counts utilized in the study of the operations analysis. A peak hour factor of 0.90 was assumed for proposed driveway accesses and future intersections.

## **6.3 Study Area Intersections**

Traffic operations and net site traffic related impacts have been reviewed at the following area intersections through capacity analysis:

### **Signalized**

- Line 6 / Simcoe Road
- Line 6 / Melbourne Drive & Inverness Way
- Line 6 / West Park Avenue

### **Unsignalized**

- Line 6 / 10 Sideroad
- Line 6 / Brownlee Drive
- Line 6 / Adams Street
- Simcoe Road / Canal Road
- 5<sup>th</sup> Line / Canal Road
- 5<sup>th</sup> Line / 10 Sideroad
- Line 6 / Street A
- 5<sup>th</sup> Line / Street A



## 6.4 Capacity Analysis Summary

### 6.4.1 Signalized Intersection Analysis

#### 6.4.1.1 LINE 6 / SIMCOE ROAD

The Line 6 / Simcoe Road intersection operates under traffic signal control with cycle length of 60 seconds during both weekday morning and afternoon peak periods. A summary of the traffic analysis results for this intersection is shown in **Table 11**.

Table 11 Line 6 / Simcoe Road Traffic Analysis Summary (2026 Horizon)

Key Movement	Existing		Future Background 2026		Future Total 2026	
	v/c	LOS	v/c	LOS	v/c	LOS
EBL	0.45 (0.39)	B (B)	0.67 (0.49)	B (B)	0.88 (0.65)	C (B)
EBTR	0.06 (0.10)	B (B)	0.13 (0.24)	B (B)	0.29 (0.37)	B (B)
WBL	0.01 (0.00)	B (A)	0.01 (0.00)	B (A)	0.02 (A)	B (A)
WBTR	0.03 (0.03)	B (B)	0.07 (0.05)	B (B)	0.07 (0.05)	B (B)
NBL	0.14 (0.18)	B (A)	0.39 (0.44)	B (B)	0.39 (0.44)	B (B)
NBTR	0.10 (0.17)	B (A)	0.30 (0.37)	B (B)	0.30 (0.37)	B (B)
SBLT	0.09 (0.07)	B (A)	0.17 (0.23)	B (B)	0.17 (0.23)	B (B)
SBR	0.08 (0.19)	B (A)	0.14 (0.27)	B (B)	0.18 (0.40)	B (B)
<b>Overall</b>	<b>0.30 (0.27)</b>	<b>B (B)</b>	<b>0.53 (0.47)</b>	<b>B (B)</b>	<b>0.64 (0.55)</b>	<b>B (B)</b>

Notes:

1. XX (XX) – Weekday Morning Peak Hour (Weekday Afternoon Peak Hour)

Under existing traffic conditions, the intersection operates at an acceptable level of service during the weekday morning and afternoon peak hour periods with overall v/c ratios of 0.30 and 0.27.

Under future background traffic conditions, with allowances of specific area developments and corridor growth, the intersection begins to operate at an acceptable level of service during the weekday morning and afternoon peak hours with overall v/c ratios of 0.53 and 0.47.

With the addition of site-related traffic under the future total 2026 traffic conditions, as the proposed development is fully developed, the intersection continues to operate at an acceptable level of service during the weekday morning and afternoon peak hour periods with overall v/c ratios of 0.64 and 0.55.

Traffic analysis was conducted for a horizon year of 2031 to consider other potential background developments that may occur within the proceeding years. The existing cycle length has been proposed to operate under 80 seconds in the future 2031 AM peak hour scenario due to minimize delays and queues. A summary of the traffic analysis results, including operations at 60 second and 80 second cycle lengths for this intersection at the 2031 horizon year is shown in **Table 12**.



Table 12 Line 6 / Simcoe Road Traffic Analysis Summary (2031 Horizon)

Key Movement	Future Background 2031 (60s CL)		Future Background 2031 (80s CL)		Future Total 2031 (60s CL)		Future Total 2031 (80s CL)	
	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS
EBL	0.85 (0.61)	C (B)	0.81 (0.61)	B (B)	1.07 (0.77)	E (C)	0.89 (0.77)	E (C)
EBTR	0.15 (0.29)	B (B)	0.15 (0.29)	A (B)	0.31 (0.41)	B (B)	0.28 (0.41)	B (B)
WBL	0.02 (0.00)	B (A)	0.01 (0.00)	B (A)	0.02 (A)	B (A)	0.01 (A)	B (A)
WBTR	0.09 (0.06)	B (B)	0.08 (0.06)	B (B)	0.09 (0.06)	B (B)	0.07 (0.06)	B (B)
NBL	0.46 (0.55)	B (B)	0.44 (0.55)	B (B)	0.46 (0.55)	B (B)	0.51 (0.55)	B (B)
NBTR	0.34 (0.44)	B (B)	0.32 (0.44)	B (B)	0.34 (0.44)	B (B)	0.38 (0.44)	B (B)
SBLT	0.21 (0.27)	B (B)	0.20 (0.27)	B (B)	0.21 (0.27)	B (B)	0.23 (0.27)	B (B)
SBR	0.17 (0.34)	B (B)	0.17 (0.34)	B (B)	0.21 (0.47)	B (B)	0.21 (0.47)	B (B)
<b>Overall</b>	<b>0.66 (0.58)</b>	<b>B (B)</b>	<b>0.63 (0.58)</b>	<b>B (B)</b>	<b>0.77 (0.66)</b>	<b>C (B)</b>	<b>0.73 (0.66)</b>	<b>C (B)</b>

Notes:

1. XX (XX) – Weekday Morning Peak Hour (Weekday Afternoon Peak Hour)

#### 60 Second Cycle Length

Under future background traffic conditions, with allowances of specific area developments and corridor growth, the intersection begins to operate at an acceptable level of service during the weekday morning and afternoon peak hours with overall v/c ratios of 0.63 and 0.58.

With the addition of site-related traffic under the future total 2031 traffic conditions, as the proposed development is fully developed, the intersection continues to operate at an acceptable level of service during the weekday morning and afternoon peak hour periods with overall v/c ratios of 0.77 and 0.66. However, the eastbound left movement operates over theoretical capacity in the morning peak hour, with a v/c ratio of 1.07.

#### 80 Second Cycle Length

Under future background traffic conditions, with allowances of specific area developments and corridor growth, the intersection begins to operate at an acceptable level of service during the weekday morning and afternoon peak hours with overall v/c ratios of 0.63 and 0.58.

With the addition of site-related traffic under the future total 2031 traffic conditions, as the proposed development is fully developed, the intersection continues to operate at an acceptable level of service during the weekday morning and afternoon peak hour periods with overall v/c ratios of 0.73 and 0.66. Under an 80 second cycle length, all movements operate under theoretical capacity.

Additional analysis was conducted for an ultimate horizon year of 2036 based on a period of 10 years after full site buildout. The cycle length was assumed to operate at 80 seconds in the future 2036 AM peak hour to minimize delays and queues. An analysis under a 60 second cycle length was not completed as signal retiming would likely have occurred within 10 years of buildout, which would result in an increase in cycle length due to increasing traffic from intensification in the area. A summary of the traffic analysis results for the 2036 horizon year is shown in Table 13.



Table 13 Line 6 / Simcoe Road Traffic Analysis Summary (2036 Horizon)

Key Movement	Existing		Future Background 2036 (80s CL)		Future Total 2036 (80s CL)	
	v/c	LOS	v/c	LOS	v/c	LOS
EBL	0.45 (0.39)	B (B)	0.84 (0.66)	C (B)	0.91 (0.82)	C (C)
EBTR	0.06 (0.10)	B (B)	0.15 (0.30)	B (B)	0.28 (0.43)	B (B)
WBL	0.01 (0.00)	B (A)	0.01 (0.00)	B (A)	0.01 (0.00)	A (A)
WBTR	0.03 (0.03)	B (B)	0.08 (0.06)	B (B)	0.07 (0.06)	A (B)
NBL	0.14 (0.18)	B (A)	0.47 (0.59)	C (B)	0.55 (0.59)	C (B)
NBTR	0.10 (0.17)	B (A)	0.34 (0.47)	B (B)	0.41 (0.47)	C (B)
SBLT	0.09 (0.07)	B (A)	0.21 (0.28)	B (B)	0.25 (0.28)	B (B)
SBR	0.08 (0.19)	B (A)	0.18 (0.36)	B (B)	0.22 (0.49)	B (B)
<b>Overall</b>	<b>0.30 (0.27)</b>	<b>B (B)</b>	<b>0.66 (0.62)</b>	<b>C (B)</b>	<b>0.77 (0.70)</b>	<b>C (B)</b>

Notes:

1. XX (XX) – Weekday Morning Peak Hour (Weekday Afternoon Peak Hour)

Under future background traffic conditions, the intersection begins to operate at an acceptable level of service during the weekday morning and afternoon peak hours with overall v/c ratios of 0.66 and 0.62. With the addition of site-related traffic under the future total 2036 traffic conditions, the intersection continues to operate at an acceptable level of service during the weekday morning and afternoon peak hour periods with overall v/c ratios of 0.77 and 0.70. Under an 80 second cycle length, all movements operate under theoretical capacity.



6.4.1.2 LINE 6 / MELBOURNE DRIVE & INVERNESS WAY

The Line 6 / Melbourne Drive & Inverness Way intersection operates under traffic signal control with a minimum cycle length of 45.7 seconds during both weekday morning and afternoon peak periods. A summary of the traffic analysis results for this intersection is shown in **Table 14**.

Table 14 Line 6 / Melbourne Drive & Inverness Way Traffic Analysis Summary (2026 Horizon)

Key Movement	Existing		Future Background 2026		Future Total 2026	
	v/c	LOS	v/c	LOS	v/c	LOS
EBL	0.08 (0.11)	A (A)	0.12 (0.21)	A (A)	0.19 (0.42)	A (B)
EBTR	0.21 (0.21)	A (A)	0.35 (0.41)	A (A)	0.56 (0.55)	A (A)
WBL	0.01 (0.01)	A (A)	0.01 (0.02)	A (A)	0.01 (0.03)	A (A)
WBTR	0.17 (0.33)	A (A)	0.34 (0.54)	A (A)	0.40 (0.73)	A (B)
NBL	0.17 (0.12)	B (B)	0.17 (0.09)	B (B)	0.17 (0.10)	B (B)
NBTR	0.16 (0.09)	B (B)	0.15 (0.07)	B (B)	0.15 (0.07)	B (B)
SBL	0.38 (0.24)	B (C)	0.55 (0.43)	C (C)	0.55 (0.43)	C (C)
SBTR	0.19 (0.16)	B (B)	0.19 (0.14)	B (B)	0.21 (0.20)	B (B)
<b>Overall</b>	<b>0.25 (0.32)</b>	<b>A (A)</b>	<b>0.40 (0.52)</b>	<b>A (A)</b>	<b>0.55 (0.66)</b>	<b>B (B)</b>

Notes:

1. XX (XX) – Weekday Morning Peak Hour (Weekday Afternoon Peak Hour)

Under existing traffic conditions, the intersection operates at an acceptable level of service during the weekday morning and afternoon peak hour periods with overall v/c ratios of 0.25 and 0.32.

Under future background traffic conditions, with allowances of specific area developments and corridor growth, the intersection begins to operate at an acceptable level of service during the weekday morning and afternoon peak hours with overall v/c ratios of 0.40 and 0.52.

With the addition of site-related traffic under the future total 2026 traffic conditions, as the proposed development is fully developed, the intersection continues to operate at an acceptable level of service during the weekday morning and afternoon peak hour periods with overall v/c ratios of 0.55 and 0.66.

Traffic analysis was conducted for a horizon year of 2031 to consider other potential background developments that may occur within the proceeding years. A summary of the traffic analysis results for this intersection at the 2031 horizon year is shown in **Table 15**.

Table 15 Line 6 / Melbourne Drive & Inverness Way Traffic Analysis Summary (2031 Horizon)

Key Movement	Existing		Future Background 2031		Future Total 2031	
	v/c	LOS	v/c	LOS	v/c	LOS
EBL	0.08 (0.11)	A (A)	0.18 (0.40)	A (A)	0.27 (0.88)	A (E)
EBTR	0.21 (0.21)	A (A)	0.45 (0.48)	A (A)	0.66 (0.62)	B (A)
WBL	0.01 (0.01)	A (A)	0.01 (0.02)	A (A)	0.02 (0.03)	A (A)
WBTR	0.17 (0.33)	A (A)	0.44 (0.70)	A (B)	0.49 (0.89)	A (B)
NBL	0.17 (0.12)	B (B)	0.16 (0.09)	B (B)	0.17 (0.10)	B (B)
NBTR	0.16 (0.09)	B (B)	0.15 (0.07)	B (B)	0.15 (0.07)	B (B)
SBL	0.38 (0.24)	B (C)	0.64 (0.53)	C (C)	0.64 (0.53)	C (C)
SBTR	0.19 (0.16)	B (B)	0.20 (0.15)	B (B)	0.22 (0.37)	B (B)
<b>Overall</b>	<b>0.25 (0.32)</b>	<b>A (A)</b>	<b>0.50 (0.66)</b>	<b>B (B)</b>	<b>0.65 (0.80)</b>	<b>B (B)</b>

Notes:

1. XX (XX) – Weekday Morning Peak Hour (Weekday Afternoon Peak Hour)

Under future background traffic conditions, with allowances of specific area developments and corridor growth, the intersection begins to operate at an acceptable level of service during the weekday morning and afternoon peak hours with overall v/c ratios of 0.50 and 0.66.

With the addition of site-related traffic under the future total 2031 traffic conditions, as the proposed development is fully developed, the intersection continues to operate at an acceptable level of service during the weekday morning and afternoon peak hour periods with overall v/c ratios of 0.65 and 0.80.

Additional traffic analysis was conducted for an ultimate horizon year of 2036 based on a period of 10 years after full site buildout. The existing cycle length has been proposed to operate under 80 seconds in the future 2036 PM peak hour scenario due to minimize delays and queues. An analysis under a 60 second cycle length was not completed as signal retiming would likely have occurred within 10 years of buildout, which would result in an increase in cycle length due to increasing traffic from intensification in the area. A summary of the traffic analysis results for this intersection at the ultimate horizon year is shown in **Table 16**.



Table 16 Line 6 / Melbourne Drive & Inverness Way Traffic Analysis Summary (2036 Horizon)

Key Movement	Existing		Future Background 2036 (80s CL)		Future Total 2036 (80s CL)	
	v/c	LOS	v/c	LOS	v/c	LOS
EBL	0.08 (0.11)	A (A)	0.20 (0.38)	A (A)	0.33 (0.78)	A (C)
EBTR	0.21 (0.21)	A (A)	0.48 (0.45)	A (A)	0.74 (0.57)	B (A)
WBL	0.01 (0.01)	A (A)	0.01 (0.02)	A (A)	0.02 (0.03)	A (A)
WBTR	0.17 (0.33)	A (A)	0.46 (0.66)	A (A)	0.55 (0.82)	A (B)
NBL	0.17 (0.12)	B (B)	0.16 (0.10)	B (C)	0.14 (0.14)	B (C)
NBTR	0.16 (0.09)	B (B)	0.14 (0.07)	B (C)	0.12 (0.07)	B (C)
SBL	0.38 (0.24)	B (C)	0.67 (0.58)	C (C)	0.57 (0.60)	B (C)
SBTR	0.19 (0.16)	B (B)	0.20 (0.16)	B (C)	0.20 (0.28)	B (C)
<b>Overall</b>	<b>0.25 (0.32)</b>	<b>A (A)</b>	<b>0.53 (0.65)</b>	<b>B (B)</b>	<b>0.68 (0.78)</b>	<b>B (B)</b>

Notes:

1. XX (XX) – Weekday Morning Peak Hour (Weekday Afternoon Peak Hour)

Under future background traffic conditions, the intersection begins to operate at an acceptable level of service during the weekday morning and afternoon peak hours with overall v/c ratios of 0.53 and 0.65. With the addition of site-related traffic under the future total 2036 traffic conditions, the intersection continues to operate at an acceptable level of service during the weekday morning and afternoon peak hour periods with overall v/c ratios of 0.68 and 0.78. Under an 80 second cycle length, all movements operate under theoretical capacity.

#### 6.4.1.3 LINE 6 / WEST PARK AVENUE

The Line 6 / West Park Avenue intersection operates under traffic signal control with cycle length of 45.6 seconds during both weekday morning and afternoon peak periods. A summary of the traffic analysis results for this intersection is shown in Table 17.

Table 17 Line 6 / West Park Avenue Traffic Analysis Summary (2026 Horizon)

Key Movement	Existing		Future Background 2026		Future Total 2026	
	v/c	LOS	v/c	LOS	v/c	LOS
EBL	0.02 (0.05)	A (A)	0.02 (0.08)	A (A)	0.03 (0.14)	A (A)
EBT	0.13 (0.23)	A (A)	0.24 (0.36)	A (A)	0.35 (0.57)	A (B)
WBTR	0.18 (0.22)	A (A)	0.32 (0.41)	A (A)	0.56 (0.59)	B (B)
SBL	0.36 (0.25)	C (C)	0.42 (0.47)	C (C)	0.27 (0.42)	B (B)
SBR	0.02 (0.01)	C (C)	0.02 (0.01)	B (B)	0.02 (0.01)	B (B)
<b>Overall</b>	<b>0.21 (0.23)</b>	<b>A (A)</b>	<b>0.34 (0.42)</b>	<b>A (A)</b>	<b>0.45 (0.53)</b>	<b>B (B)</b>

Notes:

1. XX (XX) – Weekday Morning Peak Hour (Weekday Afternoon Peak Hour)



Under existing traffic conditions, the intersection operates at an acceptable level of service during the weekday morning and afternoon peak hour periods with overall v/c ratios of 0.21 and 0.23.

Under future background traffic conditions, with allowances of specific area developments and corridor growth, the intersection begins to operate at an acceptable level of service during the weekday morning and afternoon peak hours with overall v/c ratios of 0.34 and 0.42.

With the addition of site-related traffic under the future total 2026 traffic conditions, as the proposed development is fully developed, the intersection continues to operate at an acceptable level of service during the weekday morning and afternoon peak hour periods with overall v/c ratios of 0.45 and 0.53.

Traffic analysis was conducted for the horizon year of 2031 to consider other potential background developments that may occur within the proceeding years. A summary of the traffic analysis results for this intersection at the 2031 horizon year is shown in **Table 18**.

**Table 18** Line 6 / West Park Avenue Traffic Analysis Summary (2031 Horizon)

Key Movement	Existing		Future Background 2031		Future Total 2031	
	v/c	LOS	v/c	LOS	v/c	LOS
EBL	0.02 (0.05)	A (A)	0.03 (0.14)	A (A)	0.07 (0.31)	A (B)
EBT	0.13 (0.23)	A (A)	0.32 (0.43)	A (A)	0.45 (0.65)	B (B)
WBTR	0.18 (0.22)	A (A)	0.42 (0.58)	A (A)	0.68 (0.80)	B (B)
SBL	0.36 (0.25)	C (C)	0.49 (0.52)	C (C)	0.32 (0.46)	B (B)
SBR	0.02 (0.01)	C (C)	0.03 (0.02)	B (B)	0.03 (0.02)	B (B)
<b>Overall</b>	<b>0.21 (0.23)</b>	<b>A (A)</b>	<b>0.44 (0.56)</b>	<b>A (A)</b>	<b>0.54 (0.67)</b>	<b>B (B)</b>

Notes:

1. XX (XX) – Weekday Morning Peak Hour (Weekday Afternoon Peak Hour)

Under future background traffic conditions, with allowances of specific area developments and corridor growth, the intersection begins to operate at an acceptable level of service during the weekday morning and afternoon peak hours with overall v/c ratios of 0.44 and 0.56.

With the addition of site-related traffic under the future total 2031 traffic conditions, as the proposed development is fully developed, the intersection continues to operate at an acceptable level of service during the weekday morning and afternoon peak hour periods with overall v/c ratios of 0.54 and 0.67.

Additional traffic analysis was conducted for an ultimate horizon year of 2036 based on a period of 10 years after full site buildout. A summary of the traffic analysis results for this intersection at the ultimate horizon year is shown in **Table 19**.

Table 19 Line 6 / West Park Avenue Traffic Analysis Summary (2036 Horizon)

Key Movement	Existing		Future Background 2036		Future Total 2036	
	v/c	LOS	v/c	LOS	v/c	LOS
EBL	0.02 (0.05)	A (A)	0.07 (0.29)	A (B)	0.10 (0.38)	A (B)
EBT	0.13 (0.23)	A (A)	0.45 (0.59)	B (B)	0.48 (0.69)	B (B)
WBTR	0.18 (0.22)	A (A)	0.55 (0.79)	B (B)	0.70 (0.86)	B (C)
SBL	0.36 (0.25)	C (C)	0.28 (0.31)	B (B)	0.34 (0.47)	B (B)
SBR	0.02 (0.01)	C (C)	0.03 (0.02)	B (B)	0.03 (0.02)	B (B)
<b>Overall</b>	<b>0.21 (0.23)</b>	<b>A (A)</b>	<b>0.45 (0.60)</b>	<b>B (B)</b>	<b>0.56 (0.71)</b>	<b>B (B)</b>

Notes:

1. XX (XX) – Weekday Morning Peak Hour (Weekday Afternoon Peak Hour)

Under future background traffic conditions, the intersection begins to operate at an acceptable level of service during the weekday morning and afternoon peak hours with overall v/c ratios of 0.45 and 0.60. With the addition of site-related traffic under the future total 2036 traffic conditions, the intersection continues to operate at an acceptable level of service during the weekday morning and afternoon peak hour periods with overall v/c ratios of 0.56 and 0.71.



### 6.4.2 Unsignalized Intersection Analysis

**Table 20, Table 21, and Table 22** summarizes analysis results for the 2026, 2031, and 2036 horizons for the unsignalized intersections within the study area. All unsignalized intersections will operate at acceptable levels of service (LOS E or better) under future conditions.

**Table 20 Unsignalized Intersection Analysis Summary (2026 Horizon)**

Key Movement	Existing		Future Background 2026		Future Total 2026	
	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS
<b>10 Sideroad / Line 6<sup>2</sup></b>						
WBLTR	12.6 (13.5)	B (B)	-- (--)	-- (--)	-- (--)	-- (--)
SBLTR	4.3 (5.9)	A (A)	-- (--)	-- (--)	-- (--)	-- (--)
<b>Line 6 / Langford Boulevard</b>						
EBL	7.8 (7.8)	A (A)	8.1 (8.3)	A (A)	8.3 (8.3)	A (A)
SBLR	10.3 (12.8)	B (B)	12.1 (17.7)	B (C)	13.2 (20.3)	B (C)
<b>Brownlee Drive / Southfield Gate / Line 6</b>						
EBL	7.7 (7.9)	A (A)	8.0 (8.4)	A (A)	8.3 (8.6)	A (A)
WBL	7.8 (8.1)	A (A)	8.2 (8.7)	A (A)	8.4 (9.6)	A (A)
NBLTR	10.1 (11.5)	B (B)	11.4 (14.0)	B (B)	12.1 (16.2)	B (C)
SBLTR	10.2 (11.4)	B (B)	11.5 (13.7)	B (B)	12.6 (15.4)	B (C)
<b>Adams Street / Line 6</b>						
EBL	7.7 (8.1)	A (A)	8.0 (8.8)	A (A)	8.2 (10.6)	A (B)
SBLR	10.2 (11.3)	B (B)	11.5 (13.7)	B (B)	13.1 (18.5)	B (C)
<b>Barrow Avenue / Line 6</b>						
EBL	8.0 (0.0)	A (--)	8.5 (0.0)	A (--)	8.7 (0.0)	A (--)
WBL	8.0 (7.9)	A (A)	8.6 (8.7)	A (A)	9.7 (9.5)	A (A)
NBLTR	11.2 (10.9)	B (B)	13.6 (13.6)	B (B)	17.4 (16.2)	C (C)
SBLTR	14.8 (12.0)	B (B)	19.6 (15.1)	C (C)	26.9 (19.1)	D (C)
<b>Simcoe Road / Gibson Circle</b>						
EBLR	10.6 (11.2)	B (B)	12.6 (14.5)	B (B)	12.6 (14.5)	B (B)
NBLT	1.4 (0.9)	A (A)	0.9 (0.7)	A (A)	0.9 (0.7)	A (A)
<b>Golfview Boulevard / Simcoe Road</b>						
EBLR	9.7 (10.5)	A (B)	11.3 (13.3)	B (B)	11.3 (13.3)	B (B)
NBLT	0.7 (0.4)	A (A)	0.3 (0.3)	A (A)	0.3 (0.3)	A (A)

Key Movement	Existing		Future Background 2026		Future Total 2026	
	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS
<b>Canal Road / Simcoe Road</b>						
EBLTR	8.3 (9.5)	A (A)	9.4 (13.2)	A (B)	9.4 (13.2)	A (B)
WBLTR	7.5 (8.1)	A (A)	7.8 (9.1)	A (A)	7.8 (9.1)	A (A)
NBLTR	7.4 (8.1)	A (A)	7.8 (8.9)	A (A)	7.8 (8.9)	A (A)
SBLTR	7.8 (8.1)	A (A)	8.8 (9.6)	A (A)	8.8 (9.6)	A (A)
<b>5<sup>th</sup> Line / Canal Road</b>						
EBLR	9.4 (10.5)	A (B)	10.5 (12.7)	B (B)	10.5 (12.7)	B (B)
NBLT	0.0 (0.7)	A (A)	0.0 (0.6)	A (A)	0.0 (0.6)	A (A)
<b>5<sup>th</sup> Line / 10 Sideroad (North-West Intersection)</b>						
EBLTR	8.9 (12.3)	A (B)	-- (--)	-- (--)	-- (--)	-- (--)
WBLTR	7.9 (8.1)	A (A)	1.4 (2.9)	A (A)	1.4 (3.1)	A (A)
NBLTR	7.8 (8.2)	A (A)	12.0 (16.1)	B (C)	16.3 (30.4)	C (D)
SBLTR	8.4 (8.4)	A (A)	-- (--)	-- (--)	-- (--)	-- (--)
<b>5<sup>th</sup> Line / 10 Sideroad (South-East Intersection)</b>						
WBLT	-- (--)	-- (--)	0.5 (0.0)	A (--)	0.2 (0.0)	A (--)
NBLR	-- (--)	-- (--)	9.5 (9.7)	A (A)	10.4 (11.2)	B (B)
<b>Simcoe Road / Danube Lane</b>						
WBLR	-- (--)	-- (--)	9.7 (11.6)	A (B)	9.7 (11.6)	A (B)
SBT	-- (--)	-- (--)	0.8 (3.0)	A (A)	0.8 (3.0)	A (A)
<b>Simcoe Road / Jonkman Boulevard</b>						
WBLR	-- (--)	-- (--)	10.7 (12.2)	B (B)	10.7 (12.2)	B (B)
SBLT	-- (--)	-- (--)	1.2 (3.2)	A (A)	1.2 (3.2)	A (A)

Notes:

1. XX (XX) – Weekday Morning Peak Hour (Weekday Afternoon Peak Hour)
2. Future background and future total not assessed within Synchro due to the planned conversion to a roundabout by the 2026 horizon year.
3. Due to changes in road geometry in the future conditions, future NBLTR results are reported as WBLTR, and future WBLTR results are reported as SBLTR.





Table 21 Unsignalized Intersection Analysis Summary (2031 Horizon)

Key Movement	Existing		Future Background 2031		Future Total 2031	
	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS
<b>10 Sideroad / Line 6<sup>2</sup></b>						
WBLTR	12.6 (13.5)	B (B)	-- (--)	-- (--)	-- (--)	-- (--)
SBLTR	4.3 (5.9)	A (A)	-- (--)	-- (--)	-- (--)	-- (--)
<b>Line 6 / Langford Boulevard</b>						
EBL	7.8 (7.8)	A (A)	8.4 (8.8)	A (A)	8.6 (8.9)	A (A)
SBLR	10.3 (12.8)	B (B)	14.1 (25.0)	B (C)	15.6 (29.8)	C (D)
<b>Brownlee Drive / Southfield Gate / Line 6</b>						
EBL	7.7 (7.9)	A (A)	8.2 (9.0)	A (A)	8.6 (9.2)	A (A)
WBL	7.8 (8.1)	A (A)	8.6 (9.1)	A (A)	8.7 (10.2)	A (B)
NBLTR	10.1 (11.5)	B (B)	12.3 (15.8)	B (C)	13.4 (18.8)	B (C)
SBLTR	10.2 (11.4)	B (B)	12.6 (16.0)	B (C)	14.0 (18.2)	B (C)
<b>Adams Street / Line 6</b>						
EBL	7.7 (8.1)	A (A)	8.2 (9.7)	A (A)	8.5 (12.9)	A (B)
SBLR	10.2 (11.3)	B (B)	12.6 (16.0)	B (C)	14.5 (24.0)	B (C)
<b>Barrow Avenue / Line 6</b>						
EBL	8.0 (0.0)	A (--)	8.8 (0.0)	A (--)	9.0 (0.0)	A (--)
WBL	8.0 (7.9)	A (A)	9.1 (9.2)	A (A)	10.7 (10.2)	B (B)
NBLTR	11.2 (10.9)	B (B)	15.7 (15.4)	C (C)	21.5 (19.0)	C (C)
SBLTR	14.8 (12.0)	B (B)	23.5 (18.0)	C (C)	35.5 (23.5)	E (C)
<b>Simcoe Road / Gibson Circle</b>						
EBLR	10.6 (11.2)	B (B)	14.0 (16.9)	B (C)	14.0 (16.9)	B (C)
NBLT	1.4 (0.9)	A (A)	0.8 (0.6)	A (A)	0.8 (0.6)	A (A)
<b>Golfview Boulevard / Simcoe Road</b>						
EBLR	9.7 (10.5)	A (B)	12.3 (15.2)	B (C)	12.3 (15.2)	B (C)
NBLT	0.7 (0.4)	A (A)	0.3 (0.3)	A (A)	0.3 (0.3)	A (A)
<b>Canal Road / Simcoe Road</b>						
EBLTR	8.3 (9.5)	A (A)	10.3 (18.4)	B (C)	10.3 (18.4)	B (C)
WBLTR	7.5 (8.1)	A (A)	8.2 (10.2)	A (B)	8.2 (10.2)	A (B)
NBLTR	7.4 (8.1)	A (A)	8.0 (9.4)	A (A)	8.0 (9.4)	A (A)
SBLTR	7.8 (8.1)	A (A)	9.9 (11.0)	A (B)	9.9 (11.0)	A (B)



Key Movement	Existing		Future Background 2031		Future Total 2031	
	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS
<b>5<sup>th</sup> Line / Canal Road</b>						
EBLR	9.4 (10.5)	A (B)	11.2 (14.5)	B (B)	11.2 (14.5)	B (B)
NBLT	0.0 (0.7)	A (A)	0.0 (0.6)	A (A)	0.0 (0.6)	A (A)
<b>5<sup>th</sup> Line / 10 Sideroad (North-West Intersection)</b>						
EBLTR	8.9 (12.3)	A (B)	-- (--)	-- (--)	-- (--)	-- (--)
WBLTR	7.9 (8.1)	A (A)	1.3 (2.5)	A (A)	1.3 (2.7)	A (A)
NBLTR	7.8 (8.2)	A (A)	13.4 (19.8)	B (C)	19.7 (48.6)	C (E)
SBLTR	8.4 (8.4)	A (A)	-- (--)	-- (--)	-- (--)	-- (--)
<b>5<sup>th</sup> Line / 10 Sideroad (South-East Intersection)</b>						
WBLT	-- (--)	-- (--)	0.4 (0.0)	A (--)	0.2 (0.0)	A (--)
NBLR	-- (--)	-- (--)	9.7 (10.1)	A (B)	10.6 (11.7)	B (B)
<b>Simcoe Road / Danube Lane</b>						
WBLR	-- (--)	-- (--)	10.2 (12.8)	B (B)	10.2 (12.8)	B (B)
SBT	-- (--)	-- (--)	0.7 (2.7)	A (A)	0.7 (2.7)	A (A)
<b>Simcoe Road / Jonkman Boulevard</b>						
WBLR	-- (--)	-- (--)	11.3 (13.6)	B (B)	11.3 (13.6)	B (B)
SBLT	-- (--)	-- (--)	1.0 (3.2)	A (A)	1.0 (3.2)	A (A)

Notes:

1. XX (XX) – Weekday Morning Peak Hour (Weekday Afternoon Peak Hour)
2. Future background and future total not assessed within Synchro due to the planned conversion to a roundabout by the 2026 horizon year.
3. Due to changes in road geometry in the future conditions, future NBLTR results are reported as WBLTR, and future WBLTR results are reported as SBLTR.



Table 22 Unsignalized Intersection Analysis Summary (2036 Horizon)

Key Movement	Existing		Future Background 2036		Future Total 2036	
	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS
<b>10 Sideroad / Line 6<sup>2</sup></b>						
WBLTR	12.6 (13.5)	B (B)	-- (--)	-- (--)	-- (--)	-- (--)
SBLTR	4.3 (5.9)	A (A)	-- (--)	-- (--)	-- (--)	-- (--)
<b>Line 6 / Langford Boulevard</b>						
EBL	7.8 (7.8)	A (A)	8.4 (9.0)	A (A)	8.7 (9.1)	A (A)
SBLR	10.3 (12.8)	B (B)	14.6 (27.8)	B (D)	16.3 (33.6)	C (D)
<b>Brownlee Drive / Southfield Gate / Line 6</b>						
EBL	7.7 (7.9)	A (A)	8.3 (9.2)	A (A)	8.7 (9.4)	A (A)
WBL	7.8 (8.1)	A (A)	8.7 (9.4)	A (A)	8.9 (10.5)	A (B)
NBLTR	10.1 (11.5)	B (B)	12.8 (16.6)	B (C)	13.7 (19.9)	B (C)
SBLTR	10.2 (11.4)	B (B)	12.9 (16.9)	B (C)	14.3 (19.3)	B (C)
<b>Adams Street / Line 6</b>						
EBL	7.7 (8.1)	A (A)	8.3 (10.0)	A (B)	8.5 (13.6)	A (B)
SBLR	10.2 (11.3)	B (B)	12.9 (17.0)	B (C)	14.8 (26.5)	B (D)
<b>Barrow Avenue / Line 6</b>						
EBL	8.0 (0.0)	-- (--)	8.9 (0.0)	A (A)	9.2 (0.0)	A (A)
WBL	8.0 (7.9)	A (A)	9.3 (9.4)	A (A)	11.2 (10.4)	B (B)
NBLTR	11.2 (10.9)	B (B)	16.4 (16.1)	C (C)	23.3 (20.3)	C (C)
SBLTR	14.8 (12.0)	B (B)	25.0 (19.2)	C (C)	39.3 (25.4)	E (D)
<b>Simcoe Road / Gibson Circle</b>						
EBLR	10.6 (11.2)	B (B)	14.3 (17.7)	B (C)	15.8 (17.2)	C (C)
NBLT	1.4 (0.9)	A (A)	0.8 (0.6)	A (A)	0.8 (0.4)	A (A)
<b>Golfview Boulevard / Simcoe Road</b>						
EBLR	9.7 (10.5)	A (B)	12.5 (15.8)	B (C)	12.0 (15.7)	B (C)
NBLT	0.7 (0.4)	A (A)	0.3 (0.3)	A (A)	0.2 (0.3)	A (A)
<b>Canal Road / Simcoe Road</b>						
EBLTR	8.3 (9.5)	A (A)	10.5 (20.8)	B (C)	10.3 (19.8)	B (C)
WBLTR	7.5 (8.1)	A (A)	8.3 (10.6)	A (B)	8.1 (10.6)	A (B)
NBLTR	7.4 (8.1)	A (A)	8.1 (9.6)	A (A)	8.0 (9.6)	A (A)
SBLTR	7.8 (8.1)	A (A)	10.1 (11.5)	B (B)	9.6 (11.4)	A (B)



Key Movement	Existing		Future Background 2036		Future Total 2036	
	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS
<b>5<sup>th</sup> Line / Canal Road</b>						
EBLR	9.4 (10.5)	A (B)	11.3 (15.1)	B (C)	11.0 (15.1)	B (C)
NBLT	0.0 (0.7)	A (A)	0.0 (0.5)	A (A)	0.0 (0.7)	A (A)
<b>5<sup>th</sup> Line / 10 Sideroad (North-West Intersection)</b>						
EBLTR	8.9 (12.3)	A (B)	-- (--)	-- (--)	-- (--)	-- (--)
WBLTR	7.9 (8.1)	A (A)	1.3 (2.3)	A (A)	1.3 (2.5)	A (A)
NBLTR	7.8 (8.2)	A (A)	13.7 (19.4)	B (C)	20.8 (49.5)	C (E)
SBLTR	8.4 (8.4)	A (A)	-- (--)	-- (--)	-- (--)	-- (--)
<b>5<sup>th</sup> Line / 10 Sideroad (South-East Intersection)</b>						
WBLT	-- (--)	-- (--)	0.4 (0.0)	A (A)	0.2 (0.0)	A (A)
NBLR	-- (--)	-- (--)	9.7 (10.1)	A (B)	10.6 (11.7)	B (B)
<b>Simcoe Road / Danube Lane</b>						
WBLR	-- (--)	-- (--)	10.3 (13.2)	B (B)	10.2 (13.1)	B (B)
SBT	-- (--)	-- (--)	0.7 (2.7)	A (A)	0.8 (2.7)	A (A)
<b>Simcoe Road / Jonkman Boulevard</b>						
WBLR	-- (--)	-- (--)	11.3 (13.6)	B (B)	11.3 (13.6)	B (B)
SBLT	-- (--)	-- (--)	1.0 (3.2)	A (A)	1.0 (3.2)	A (A)

1. XX (XX) – Weekday Morning Peak Hour (Weekday Afternoon Peak Hour)
2. Future background and future total not assessed within Synchro due to the planned conversion to a roundabout by the 2026 horizon year.
3. Due to changes in road geometry in the future conditions, future NBLTR results are reported as WBLTR, and future WBLTR results are reported as SBLTR.

### 6.4.3 Roundabout Analysis

The Line 6 / 10 Sideroad intersection is currently constructed as an unsignalized intersection. The intersection is planned to be converted into a roundabout by the short-term horizon period of 2026. Analysis results are summarized in **Table 23**, **Table 24**, and **Table 25** for the 2026, 2031, and 2036 horizons, respectively.

**Table 23 Line 6 / Line 10 Sideroad Traffic Analysis Summary (2026 Horizon)**

Key Movement	Future Background 2026		Future Total 2026	
	v/c	LOS	v/c	LOS
NBLT	0.04 (0.12)	A [A]	0.04 (0.15)	A [A]
NBTR	0.09 (0.28)	A [A]	0.10 (0.32)	A [A]
WBLT	0.16 (0.13)	A (A)	0.18 (0.15)	A (A)
WBTR	0.10 (0.13)	A (A)	0.14 (0.15)	A (A)
SBLTR	0.15 (0.15)	A (A)	0.17 (0.21)	A (A)
EBLT	0.02 (0.01)	A (A)	0.02 (0.02)	A (A)
EBTR	0.02 (0.01)]	A (A)	0.02 (0.02)	A (A)
<b>Overall</b>	<b>0.17 (0.28)</b>	<b>A (A)</b>	<b>0.19 (0.32)</b>	<b>A (A)</b>

Notes:

1. XX (XX) – Weekday Morning Peak Hour (Weekday Afternoon Peak Hour)

**Table 24 Line 6 / Line 10 Sideroad Traffic Analysis Summary (2031 Horizon)**

Key Movement	Future Background 2031		Future Total 2031	
	v/c	LOS	v/c	LOS
NBLT	0.04 (0.13)	A (A)	0.04 (0.15)	A (A)
NBTR	0.12 (0.32)	A (A)	0.14 (0.37)	A (A)
WBLT	0.19 (0.21)	A (A)	0.21 (0.22)	A (A)
WBTR	0.16 (0.21)	A (A)	0.20 (0.22)	A (A)
SBLTR	0.19 (0.18)	A (A)	0.22 (0.25)	A (A)
EBLT	0.03 (0.03)	A (A)	0.04 (0.03)	A (A)
EBTR	0.03 (0.03)	A (A)	0.04 (0.03)	A (A)
<b>Overall</b>	<b>0.20 (0.32)</b>	<b>A (A)</b>	<b>0.22 (0.37)</b>	<b>A (A)</b>

Notes:

1. XX (XX) – Weekday Morning Peak Hour (Weekday Afternoon Peak Hour)



Table 25 Line 6 / Line 10 Sideroad Traffic Analysis Summary (2036 Horizon)

Key Movement	Future Background 2036		Future Total 2036	
	v/c	LOS	v/c	LOS
NBLT	0.04 (0.08)	A (A)	0.04 (0.12)	A (A)
NBTR	0.14 (0.35)	A (A)	0.15 (0.93)	A (A)
WBLT	0.20 (0.21)	A (A)	0.22 (0.23)	A (A)
WBTR	0.16 (0.21)	A (A)	0.20 (0.23)	A (A)
SBLTR	0.20 (0.19)	A (A)	0.24 (0.26)	A (A)
EBLT	0.04 (0.03)	A (A)	0.04 (0.03)	A (A)
EBTR	0.04 (0.03)	A (A)	0.04 (0.03)	A (A)
<b>Overall</b>	<b>0.20 (0.35)</b>	<b>A (A)</b>	<b>0.24 (0.39)</b>	<b>A (A)</b>

Notes:

1. XX (XX) – Weekday Morning Peak Hour (Weekday Afternoon Peak Hour)

In the 2026 horizon year, with the addition of site related traffic under future total conditions, the intersection continues to operate under capacity with overall v/c ratios of 0.19 and 0.32, respectively.

In the 2031 horizon year, with the addition of site related traffic under future total conditions, the intersection continues to operate under capacity with overall v/c ratios of 0.22 and 0.37, respectively.

In the 2036 horizon year, 10 years following site buildout, the intersection continues to operate under capacity with overall v/c ratios of 0.24 and 0.39, respectively.



## 6.4.4 Internal Road Network

### 6.4.4.1 PRIMARY ACCESS STREETS

Vehicle access to the proposed development will be provided along Line 6 and 5th Line at the northern and southern development limits, respectively. The driveways will operate under STOP control and will provide convenient two-way vehicle access to the proposed development. Furthermore, signal warrant analyses outlined in **Section 8.1** also demonstrate that signalization is not warranted at the site access intersection in the 2026, 2031, and 2036 horizon years. Future total analysis results of the primary site access intersections are summarized in **Table 26**.

**Table 26 Proposed Development Primary Access Analysis Summary**

Key Movement	Future Total 2026		Future Total 2031		Future Total 2036	
	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS
<b>Line 6 / Street A</b>						
WBL	8.4 (11.0)	A (B)	8.8 (11.7)	A (B)	8.9 (12.1)	A (B)
NBLR	14.9 (29.4)	B (D)	17.0 (38.9)	C (E)	17.5 (43.0)	C (E)
<b>5<sup>th</sup> Line / Street A</b>						
EBLT	1.9 (3.9)	A (A)	1.7 (3.6)	A (A)	1.7 (3.7)	A (A)
SBLR	9.2 (9.4)	A (A)	9.3 (9.5)	A (A)	9.6 (9.6)	A (A)

Notes:

1. XX (XX) – Weekday Morning Peak Hour (Weekday Afternoon Peak Hour)

Future traffic 2026, 2031 and 2036 volumes can be readily accommodated at the development's access intersections of Line 6 / Street A, and 5th Line / Street A. As both intersections operate within acceptable margins in all future total scenarios, and with minimal queuing potential, the recommended lane configurations based off of the design manual within **Table 2** should be maintained with a single lane for inbound and outbound movements.

### 6.4.4.2 KEY INTERNAL INTERSECTIONS

Six (6) internal site intersections were analyzed with generated site traffic that was distributed through the internal network based on destination and block density. All internal intersections are anticipated to operate under two-way and all-way STOP-controlled, as outlined in **Section 8.1**. All internal unsignalized intersections will operate at acceptable levels of service, at LOS B or better under future conditions. Future total analysis results of the internal unsignalized intersections are summarized in **Table 27**.



Table 27 Proposed Development Internal Intersections Analysis Summary

Key Movement	Future Total	
	Delay (s)	LOS
<b>Street A / Street B</b>		
WBLR	8.4 (8.6)	A (A)
NBTR	9.7 (9.4)	A (A)
SBTL	8.6 (12.9)	A (B)
<b>Street B / Street F &amp; Street L</b>		
EBLTR	3.6 (3.6)	A (A)
NBLTR	9.1 (9.2)	A (A)
SBTLR	8.5 (8.4)	A (A)
<b>Street A / Street S &amp; Street C</b>		
EBTLR	7.8 (8.0)	A (A)
WBTLR	8.0 (7.9)	A (A)
NBTLR	8.6 (8.7)	A (A)
SBTLR	8.2 (9.3)	A (A)
<b>Street C / Street L</b>		
EBTLR	3.6 (2.1)	A (A)
WBTLR	0.0 (0.0)	A (A)
NBTLR	8.9 (8.9)	A (A)
SBTLR	8.4 (8.3)	A (A)
<b>Street A / Street L</b>		
WBLR	7.4 (7.3)	A (A)
NBTR	7.5 (7.9)	A (A)
SBTL	8.0 (7.9)	A (A)
<b>Street A / Street Q</b>		
EBLR	7.7 (7.1)	A (A)
NBTL	7.5 (7.9)	A (A)
SBTR	8.0 (7.7)	A (A)

Notes:

1. XX (XX) – Weekday Morning Peak Hour (Weekday Afternoon Peak Hour)





## 7.0 TURNING LANE WARRANT

A turning lane warrant has been undertaken by BA Group to confirm the need for left turn and right turn lanes at the two proposed site accesses (Street A) intersecting with Line 6 and 5th Line, based on the 2026, 2031, and 2036 horizon scenarios.

Site inbound traffic at the Line 6 / Street A intersection has an estimated peak volume of 75 and 270 vehicles per hour completing a left turn from the east on Line 6 into the site and 50 and 165 vehicles completing a right turn into the site from the west on Line 6 during the morning and afternoon peak hours, respectively.

Site traffic inbound at the 5th Line / Street A intersection has an estimated peak volume of 30 and 115 vehicles per hour completing a left turn from the west on 5th Line into the site during the morning and afternoon peak hours, respectively.

### 7.1 Left Turn Lanes

Based on the foregoing, a left lane warrant analysis was undertaken to confirm a left turn lane for the 2026, 2031 and 2036 horizon scenarios as per MTO Geometric Design Standards for Ontario Highways. The left turn warrant indicates that the left turn is warranted for the weekday morning and afternoon peak hours at the Line 6 / Street A intersection. The existing road network currently contains a two-way left-turn lane (TWLTL) within the right-of-way, which functions as an auxiliary left turn. It is recommended that a minimum storage length of 10 metres be provided within the TWLTL, which can be adequately accommodated based on existing configurations.

The 5th Line / Street A street intersection will not require any auxiliary left turn lanes into the site based on the MTO turning lane warrants.

Left turn warrant sheets are attached in **Appendix E**.

### 7.2 Right Turn Lanes

BA Group has also completed a warrant analysis for right turn lanes to accommodate inbound site traffic at the Line 6 / Street A and 5th Line / Street A intersections. At its highest, the volume for inbound site traffic completing a right turn at the Line 6 / Street A intersection is in the order of 165 vehicles in the weekday afternoon peak hour. Therefore, a right turn lane is recommended for the west approach on Line 6 (EBR movement into the site) in the future to minimize delays experienced in future traffic conditions.

The 5th Line / Street A street intersection will not require any right turn lanes into the site based on the MTO turning lane warrants.



## 8.0 INTERSECTION CONTROLS ASSESSMENT

As requested by the Town of Bradford West Gwillimbury, signal warrants and all-way stop control warrants were conducted by BA Group at key access points and internal site intersections to determine the appropriate type of intersection control for the proposed development, respectively. BA Group has conducted a signal warrant analysis at the Line 6 / Street A and 5<sup>th</sup> Line / Street A intersections under all future total scenarios. In addition, BA Group has conducted all-way stop control warrants at the key internal site intersections under future total conditions.

The proposed intersection controls for both internal site intersections as well as site accesses are illustrated in **Figure 7**.

### 8.1 Signal Warrants

Signal warrant analyses were performed at the proposed site accesses at Line 6 / Street A and 5<sup>th</sup> Line / Street A based on future total 2026, 2031, and 2036 volumes in accordance with the Ontario Traffic Manual – Book 12 methodology.

At the Line 6 / Street A intersection, 8-hour counts were used to project future total 8-hour volumes which were compared to Justifications 1-3 in addition to calculated average hourly volumes (AHV) used to compare against Justification 7.

At 5<sup>th</sup> Line / Street A, 8-hour counts were not available, thus average hourly volumes (AHV) were calculated to compare against Justification 7 only. Results for the signal warrant analyses are summarized in **Table 28**.

Based on the signal warrant analyses, signalization is not warranted at the Line 6 / Street A and 5<sup>th</sup> Line / Street A intersections. As a result, a two-way STOP-controlled operation has been proposed for the purposes of this study at these intersections with Street A operated under STOP-controlled. Detailed signal warrant worksheets are provided in **Appendix F**.



Table 28 Signal Warrant Analysis Summary

Intersection	Year	Justification 1 – Minimum Vehicular Volume		Justification 2 – Delay to Cross Traffic		Justification 3 – Combination		Justification 7 – Projected Volumes			Justified ?
Line 6 / Street A	2026	1A	100%	2A	94%	1	62%	1	63%	36%	NO
		1B	62%	2B	65%	2	65%	2	50%	38%	
		Not Warranted		Not Warranted		Not Warranted		Not Warranted			
	2031	1A	100%	2A	98%	1	62%	1	73%	36%	NO
		1B	62%	2B	76%	2	76%	2	61%	38%	
		Not Warranted		Not Warranted		Not Warranted		Not Warranted			
	2036	1A	100%	2A	99%	1	62%	1	76%	36%	NO
		1B	62%	2B	76%	2	76%	2	63%	38%	
		Not Warranted		Not Warranted		Not Warranted		Not Warranted			
5 <sup>th</sup> Line / Street A	2026	1A	--	2A	--	1	--	1	18%	15%	NO
		1B	--	2B	--	2	--	2	13%	0%	
		--		--		--		Not Warranted			
	2031	1A	--	2A	--	1	--	1	20%	15%	NO
		1B	--	2B	--	2	--	2	15%	0%	
		--		--		--		Not Warranted			
	2036	1A	--	2A	--	1	--	1	20%	17%	NO
		1B	--	2B	--	2	--	2	36%	4%	
		--		--		--		Not Warranted			

## 8.2 All-Way Stop Control Warrants

All-Way Stop Control Warrant analyses were undertaken at six (6) key internal intersections. Detailed all-way stop control warrant worksheets are provided in **Appendix G**.

The warrant is based on a review of Ontario Traffic Manual (OTM) - Book 5, *All-way Stop Minimum Volume Warrant (Collector Roads and Rural Arterial Roads)* and (*Local Roads*), where:

*All-way stop control may be considered on collector roads, or rural arterial roads, where the following conditions are met:*

- *The total vehicle volume on all intersection approaches exceeds 375 vehicles per hour for each of the highest eight hours of the day; and,*
- *The combined vehicle and pedestrian volume on the minor street exceeds 150 units per hour (all vehicles plus pedestrians wishing to enter the intersection) for each of the same eight hours as the total volumes; OR the combined vehicle and pedestrian volume on the minor street exceeds 120 units per hour (all vehicles plus pedestrians wishing to enter the intersection) for each of the same eight hours as the total volume, with an average delay to all minor street traffic (vehicles and pedestrians) of greater than 30 seconds for the entire eight hour period; and,*
- *The volume split does not exceed 70/30 (that is the minor street must not be less than 30% of the total volume entering the intersection) as measured over the entire eight-hour count period. Volume on the major street is defined as vehicles only. Volume on minor street includes all vehicles plus any pedestrians wishing to cross the major roadway. For three-legged intersections, a volume split of 75/25 is permissible.*

A summary of the all-way stop control warrant analyses undertaken at key intersections along Street A (collector road) are summarized in **Table 29**.

Table 29 All-Way Stop Control Warrant Analysis – Collector Road

Condition	Volumes / Percent		% of Threshold	Condition Met	Warrant Met
<b>Street A / Street B</b>					
All Approaches Volume	570		152%	YES	NO
Minor Street Volume	Volume	90	60%	NO	
	Split	16%	-	NO	
<b>Street A / Street C &amp; Street S</b>					
All Approaches Volume	510		136%	YES	NO
Minor Street Volume	Volume	60	40%	NO	
	Split	15%	-	NO	
<b>Street A / Street L</b>					
All Approaches Volume	260		69%	NO	NO
Minor Street Volume	Volume	20	13%	NO	
	Split	7%	-	NO	



Condition	Volumes / Percent		% of Threshold	Condition Met	Warrant Met
<b>Street A / Street Q</b>					
All Approaches Volume	260		69%	NO	NO
Minor Street Volume	Volume	40	27%	NO	
	Split	15%	-	NO	

All-way stop control may be considered on local roads, where the following conditions are met:

- The total vehicle volume on all intersection approaches exceeds 200 vehicles per hour for each of the highest four hours of the day; and,
- The combined vehicle and pedestrian volume on the minor street exceeds 75 units per hour (all vehicles plus pedestrians wishing to enter the intersection) for each of the same four hours as the total volumes; and,
- The volume split does not exceed 70/30 (that is the minor street must not be less than 30% of the total volume entering the intersection) as measured over the entire four-hour count period. Volume on the major street is defined as vehicles only. Volume on minor street includes all vehicles plus any pedestrians wishing to cross the major roadway. For three-legged intersections a volume split of 75/25 is permissible.

A summary of the all-way stop control warrant analyses undertaken at key intersection along Street B and Street C (local roads) are summarized in **Table 30**.

**Table 30 All-Way Stop Control Warrant Analysis – Local Road**

Condition	Volumes / Percent		% of Threshold	Condition Met	Warrant Met
<b>Street B / Street F &amp; Street L</b>					
All Approaches Volume	70		35%	NO	NO
Minor Street Volume	Volume	30	40%	NO	
	Split	45%	-	YES	
<b>Street C / Street L</b>					
All Approaches Volume	50		25%	NO	NO
Minor Street Volume	Volume	20	27%	NO	
	Split	37%	-	YES	

The key internal intersections outlined in the above do not meet the all-way stop control warrants.

Given that the key internal intersections along Street A do not warrant an All-Way Stop Control, it is recommended that the proposed following intersections operate under an all-way stop control in the future.

- Street A / Street B
- Street A / Street C & Street S
- Street A / Street L
- Street A / Street Q



The proposed all-way stop control at these intersections will provide benefits to pedestrian activity between the park and the residential homes, as well as provide traffic calming to the site by minimizing vehicle travel speed along Street A.



## 9.0 PARKING CONSIDERATIONS

The current conceptual development plan does not illustrate any driveway locations. However, high level estimates have been made based on the Town of Bradford West Gwillimbury Engineering Design Standards.

It is anticipated that all residential lots within the site will be served by 2 off-street parking spaces (1 space in the driveway and 1 space in the garage).

BA Group has also prepared an on-street parking allocation plan based on the road network elements proposed for the respective public right-of-way and the location of driveways for the proposed lot fabric. The parking allocation plan (PP-01) is provided in **Appendix H**. Drawing PP-01 is illustrative and provided to demonstrate estimated on-street parking supply. Final supply is subject to further details related to coordination with the project team during the detail design process.

Based on the estimated on-street parking supply of 577 spaces, the site can achieve approximately 0.57 spaces per unit on-street.

## 10.0 BRADFORD FUNCTIONAL TRAFFIC STUDY CHECKLIST

The Town of Bradford West Gwillimbury’s Functional Internal Traffic Study (FITS) has Checklist has been applied to the proposal. The below checklist comprises of 29 items essential for the planning and design of a new subdivision. Each item has been assessed and details are provided below.

As requested in the FITS checklist, hourly volume estimates have been provided at key intersections of internal roads with boundary arterials.

The external existing and future road network configurations are provided within **Figure 3** and **Figure 4A** respectively. The internal road network configurations are provided within **Figure 7**. The network volumes forecasts are addressed within **Section 5.0**. Projected two-way traffic volumes on the internal streets near the boundary roads are set out in **Table 31** below.

Table 31 Projected Internal Two-Way Site Traffic Volumes

Street A Intersection of:	Two-Way Vehicles Per Hour
Line 6	505 (670)
Line 5	200 (235)

Notes:

- xx (xx) = AM (PM)

### Internal Road Classification and Right-of-Way.

Three types of roads are proposed in the draft plans: a collector road with a 26m ROW, a local road with a 20m ROW, and a local road with an 18m ROW. The characteristics of the standards are outlined in Section 3.0. The TAC Manual provides guidance on the amount of daily traffic that a local and collector street should carry. The following daily traffic thresholds were considered from the Tac Manual:

- < 1000 to 5000 veh / day for local streets; and
- 1000 to 5000 veh / day for collector streets.

The hourly traffic volumes estimated in the section above were converted to daily traffic estimates and were compared to the TAC guidelines at key points in the road network, such as the intersections with the arterial roads.

Peak hour traffic volumes outlined above were converted to daily traffic projections using the following approach which is generally accepted within the transportation industry:

$$AADT = (AM\ Peak + PM\ Peak\ Hour\ Traffic) / 2 / 9\%$$

The above equation yields an estimated daily traffic range for the internal streets at the boundary intersections of 1,900 to 5,800 vehicles per day projected from Street A, the proposed collector street within the development area. All other local streets within the development area internal to the site will have lower traffic volumes as traffic is distributed from the collector system to the individual local roads. The estimated traffic on local streets is therefore estimated to be less than 1,000 vehicles per day, consistent with TAC standards.

Based on our review, the estimated daily traffic volumes on the internal streets of the draft plan are consistent with the volume thresholds outlined in the TAC Manual. On this basis, the proposed cross sections accommodate the forecasted traffic flows and are acceptable.





### **Intersection Spacing**

The proposed intersection spacing of the local streets internal to the plan are consistent with the guidance provided by the TAC manual.

### **Horizontal Curves, Vertical Curves, Intersection Angles, and Safe Vehicle Stopping and Turning Decision Criteria**

The geometric design of the internal roads is being refined as part of the ongoing design process and will be designed to be consistent with TAC standards. More detailed designs will be designed as part of subsequent submissions.

### **Intersection Turning Lanes and Traffic Signals or Traffic Circle**

Lane configurations and intersection control were established based upon a review of the Site context and the projected future traffic demand. In this regard, the Line 6 / Street A and Line 5 / Street A intersections are proposed to operate as unsignalized intersections with stop-controlled side street approaches. Analysis of the intersections based on unsignalized configurations for the 2026, 2031, and 2036 horizon years confirms that the intersections will operate appropriately under unsignalized control. Auxiliary lane assessment for the intersections is covered within **Section 7.0**.

### **Street Elbows**

The geometric design of the internal roads is being refined as part of the ongoing design process and will be designed to be consistent with TAC standards. More detailed designs will be designed as part of subsequent submissions.

### **Rear Laneways**

Rear laneways are not proposed within this draft plan.

### **Temporary Turnarounds and Cul-de-Sacs**

A cul-de-sac is being proposed at the end of Street Q. The current property line radius for the cul-de-sac is 20 metres and it extends up to 90 metres in length, which meets the design standards outlined in the BWG Design Criteria Manual, Section B3.05.

Temporary turnarounds are not proposed within this draft plan.

### **On-Street Parking**

Street parking is generally permitted on the same side as the sidewalk on local roads. In the case of the collector, which have sidewalks on both sides, the parking has been located on best practices and engineering judgement with respect to maximizing parking along frontages, street bends, school zones, etc. A preliminary parking plan is provided in **Appendix H**.

### **Traffic Calming**

Traffic calming measures are not proposed as part of the proposed development plan.

### **Headlight Screening**

Window streets are not proposed in this development, rendering this comment non-applicable.

### **Service and Emergency Vehicle Circulation**

The use of local and collector road standards within the draft plan area will allow for efficient traffic flow for emergency vehicles, including throughout areas where on-street parking is proposed.



### **Curb Radii**

Curb radii at intersections are currently designed to 6.0m and don't conform to the BWG Design Criteria Manual, Section B3.04. The geometric design of the internal roads is being refined as part of the ongoing design process and will be designed to be consistent with TAC standards. More detailed designs will be designed as part of subsequent submissions.

### **Corner Rounding / Property Daylighting**

Daylighting triangles are proposed at all collector street intersections with arterial streets, Section B3.04. The geometric design of the internal roads is being refined as part of the ongoing design process and will be designed to be consistent with TAC standards. More detailed designs will be designed as part of subsequent submissions.

### **Pedestrian and Handicapped Accommodation**

Accessible pedestrian ramps with tactile plates are proposed at all sidewalk crossings of proposed roads.

### **Surface Treatments**

Surface treatments are not discussed as part of the traffic study for this draft plan area; however, it is noted that expected vehicle speeds will be low, with good sightlines near intersections.

### **Round About and Traffic Circles**

The draft plan does not propose roundabouts or traffic circles.

### **Driveway Locations**

Driveway locations have not been confirmed at this stage of development. These will be confirmed during a later stage of the draft plan review process.

### **Sidewalks**

All sidewalks will be constructed consistent with municipal requirements. Sidewalks are proposed on one side of the road on 18 metre right of ways and on both sides of the road on 20m right of ways.

### **Bicycle Paths and Lanes**

The geometric design of the internal roads is being refined as part of the ongoing design process and will be designed to be consistent with TAC standards. More detailed designs will be designed as part of subsequent submissions.

### **Designated Car Pool Spaces**

The proposed development plan does not propose car pool spaces.

### **Transit Route Pattern**

BWG does not have a municipal transit operation. Notwithstanding, the proposed collector roads have been designed to accommodate a future bus route.

### **Bus Stop Pedestrian Pad**

As there is no transit service currently planned in the community, bus stop and pad locations are not proposed at this time.

### **Development Integration**

The proposed collector streets have been designed with additional pavement width (invert-to-invert) in order to accommodate a future transit route. No additional integration of transit is required until a transit route is proposed.

### **Major Public Generators and Attractors – Driveway and Entrance Locations**

There are no major public generators and attractors proposed in the development.

### **Major Public Generators and Attractors – On-Street Parking Assessment**

There are no major public generators and attractors proposed in the development.

### **Major Public Generators and Attractors – Traffic Device Plan for Entrances Providing Direct Access**

No Traffic Device Plan is required for the northern draft plan area.

### **Traffic Control Device Plan**

Traffic control elements, such as stop bars, stop signs, and traffic signal locations are detailed in **Figure 7**.

### **On-Street and Off-Street Parking Supply**

The draft plan areas are primarily made up of single-detached housing on 12.8 metre (42 foot) lots. A single detached lot width of 30 to 40 feet typically allows for at least one vehicle of on-street parking in between driveways, resulting in an acceptable amount of on-street parking available to residents and visitors to the area. A preliminary parking plan is provided in **Appendix H**.



## 11.0 SUMMARY AND CONCLUSIONS

A summary of the conclusions derived in this study are outlined below.

### Introduction

1. BA Group is retained by Bradford Highlands Joint Venture to prepare a review of the transportation considerations associated with a proposed residential development located in the Town of Bradford West Gwillimbury of Simcoe County.
2. The site is currently occupied by Bradford Highlands Golf Club with a municipal address of 23 Brownlee Drive. The site is an irregular shape that is predominantly bordered by existing residential development.

### Transportation Context

3. The site is surrounded by a mix of major arterial and collector roads with direct connections to the Highway 400 corridor. Significant road improvements are expected to occur within the site vicinity as part of the South West Road alignment at the 10 Sideroad / 5<sup>th</sup> Line intersections, as well as the Line 6 / 10 Sideroad's intersection conversion to a roundabout. Both improvements are anticipated to be completed prior to the development of the site.
4. The site is serviced by Route 2 local transit service with bus stops located adjacent to the site along Line 6. This route provides connection throughout the Town of Bradford West Gwillimbury and to the Bradford GO Station. As part of Metrolinx's GO Expansion program, the Regional Express Rail (RER) is expected to increase the frequency of train service at Bradford GO by providing AM Peak hour 15-minute service or better from the Allandale Waterfront GO to Union station. It was later announced by Metrolinx that through the GO expansion program, 15-minute two-way all day electrified GO train service will extend past Aurora GO Station to the Bradford GO station.

### The Site Concept

5. The proposed development consists of 998 residential units. Access to the site is proposed via two (2) new public street intersections with the existing road network. These connections would be at the proposed Street A intersection with Line 6, located 160 metres east of the Line 6 / Brownlee Drive intersection, and at Street A intersection with 5<sup>th</sup> Line, located approximately 200 metres west of the 5<sup>th</sup> Line / Canal Road intersection. It is anticipated that none of the aforementioned vehicle access points will have restrictions. All intersections will permit all movements.

### Travel Demand Management (TDM)

6. As part of the development program a TDM strategy has been developed to encourage the use of alternate sustainable travel modes, active transportation modes, and increase vehicle occupancy.

Key elements of the proposed TDM strategy include:

- Marketing Programs aimed at new residential unit purchasers to ensure that new residents have comprehensive information on travel choices in the area now and in the future.



- The provision of sidewalks on at least one side of the new Streets A through to N by the developer. The sidewalks will provide connections to the planned park in the south eastern corner of the site, in addition to the external sidewalk network along the neighbouring roads.

### **Traffic Volumes Forecast**

7. Recognizing the existing 2021 counts were surveyed under COVID-19 pandemic circumstances, the traffic volumes were anticipated to be less than normal circumstances. Counts completed in 2021 were factored up proportionally based on the 2019 and 2019 counts undertaken at the Line 6 / Simcoe Road intersection. This represents an addition of 75 and 70 two-way vehicle trips during the AM and PM peak hour periods, respectively.
8. Non-site related traffic volumes due to the Highway 400 employment lands were estimated using forecasted traffic volumes along the Line 6, Simcoe Road, and 5<sup>th</sup> Line corridors as set out in the Roadway Network Assessment conducted for the Town in March 2012. Traffic was generated based on the employment growth rates and distributed using traffic link volume ratios at the Line 6 / 10 Sideroad intersection outlined in the assessment's 2026 and 2031 forecasts.
9. Traffic allowances have been made for general corridor growth on major corridors (i.e. Line 6, 10 Sideroad, 5<sup>th</sup> Line, and Simcoe Road). The Town of Bradford and West Gwillimbury's Official Plan was reviewed to determine a suitable corridor growth rate. Population growth rates of 2.0% per annum, and employment growth rates of 4% per annum were applied across the movements along the aforementioned corridors in both 2026 and 2031 horizon years, while population growth rates of 2.0% per annum only were applied to the 2036 horizon year.
10. Traffic allowances were made for other specific proposed developments in the area, based on a review of the Town of Bradford West Gwillimbury's list of current development projects as of February 2021. These sites represent a total development in the order of 576 residential units and 1,415 m<sup>2</sup> GFA of day care space.
11. Trip generation rates for the Site were established based on the ITE Trip Generation Manual 11<sup>th</sup> edition for Single Family Detached Housing for a general urban/suburban context for the weekday AM and PM peak hours.
12. The overall development programme is anticipated to generate approximately 605 and 865 two-way vehicle trips during the weekday morning and afternoon peak hours, respectively.

### **Traffic Operations Analysis**

13. The Line 6 / Simcoe Road intersection operates under signal control with a cycle length of 60 seconds in the weekday morning and afternoon peak periods. The existing cycle length has been proposed to operate under 80 seconds in the future 2031 and 2036 AM peak hour scenarios to minimize delays and queues.

With the addition of site-related traffic, as the proposed development is fully developed, the intersection will operate at an acceptable level of service during the 2026 horizon's weekday morning and afternoon peak hour periods with overall v/c ratios of 0.64 and 0.55, and will continue to operate at an acceptable level of service during the 2031 horizon's weekday morning and afternoon peak periods with overall v/c ratios of 0.73 and 0.66, as well as the 2036 horizon's weekday morning and afternoon peak periods with overall v/c ratios of 0.77 and 0.70, respectively. The Site related traffic can therefore be accommodated at the intersection.



14. The Line 6 / Melbourne Drive & Inverness Way intersection operates under traffic signal control with a minimum cycle length of 45.7 seconds in the weekday morning and afternoon peak periods. The existing cycle length has been proposed to operate under 80 seconds in the future 2031 and 2036 scenarios in order to maintain coordination with the adjacent Line 6 / Simcoe Road intersection to minimize delays and queues.

With the addition of site-related traffic, as the proposed development is fully developed, the intersection will operate at an acceptable level of service during the 2026 horizon's weekday morning and afternoon peak hour periods with overall v/c ratios of 0.55 and 0.66, and will continue to operate at an acceptable level of service during the 2031 horizon's weekday morning and afternoon peak periods with overall v/c ratios of 0.65 and 0.80, as well as the 2036 horizon's weekday morning and afternoon peak periods with overall v/c ratios of 0.68 and 0.78 respectively. The Site related traffic can therefore be accommodated at the intersection.

15. The line 6 / West Park Avenue intersection operates under traffic signal control with a cycle length of 45.6 seconds during both weekday morning and afternoon peak periods. The existing cycle length has been proposed to operate under 80 seconds in the future 2031 and 2036 AM peak hour scenarios in order to maintain coordination with the adjacent Line 6 / Simcoe Road intersection to minimize delays and queues.

With the addition of site-related traffic, as the proposed development is fully developed, the intersection will operate at an acceptable level of service during the 2026 horizon's weekday morning and afternoon peak hour periods with overall v/c ratios of 0.45 and 0.53, and will continue to operate at an acceptable level of service during the 2031 horizon's weekday morning and afternoon peak periods with overall v/c ratios of 0.54 and 0.67, as well as the 2036 horizon's weekday morning and afternoon peak periods with overall v/c ratios of 0.56 and 0.71, respectively. The Site related traffic can therefore be accommodated at the intersection.

16. All unsignalized intersections will operate at acceptable levels of service (LOS E or better) under the 2026, 2031, and 2036 horizons' future conditions.
17. The Line 6 / 10 Sideroad intersection is currently constructed as an unsignalized intersection. The intersection is planned to be converted into a roundabout by the 2026 horizon period. Under the 2026, 2031, and 2036 horizons' future total traffic conditions, the roundabout operates at an acceptable level of service with overall v/c ratios of 0.39 or below in both weekday morning and afternoon peak hours, respectively. Site related traffic can therefore be accommodated at the proposed roundabout.
18. Vehicle access to the proposed development will be provided along Line 6 and 5<sup>th</sup> Line at the northern and southern development limits, respectively. The access points will function at an acceptable level of service (LOS E or better) under the 2026, 2031, and 2036 horizons' future total traffic conditions. Signalization is not required at the proposed accesses.
19. Internal site intersections operate under 2-way stop control. Key internal intersections analyzed function at an acceptable level of service (LOS B or better) for future AM and PM conditions. Site related traffic can be accommodated at the key intersections within the internal road network.

#### **Turning Lane Warrant**

20. Based on the MTO turning lane warrants, the intersection of Line 6 / Street A will require a westbound left turn lane and an eastbound right turn lane to accommodate site traffic volumes and minimize the delays in the future. The existing road network currently contains a two-way left-turn lane (TWLTL) within the right-of-way, which functions as an auxiliary left-turn lane. The estimated forecast for the westbound left queue that would need to



be accommodated is in the afternoon peak hour, 95<sup>th</sup> percentile queue, which is approximately 10 metres of storage. This can be adequately accommodated within the TWLTL based on existing configurations.

21. The 5<sup>th</sup> Line / Street A intersection will not require any auxiliary left and right turn lanes into the site based on the MTO turning lane warrants.

### **Intersection Controls Assessment**

22. Signal warrant analyses were performed at the proposed site accesses at Line 6 / Street A and 5th Line / Street A based on future total 2026, 2031, and 2036 volumes in accordance with the Ontario Traffic Manual – Book 12 methodology. Based on the signal warrant analyses, signalization is not warranted at the Line 6 / Street A and 5th Line / Street A intersections. As a result, a two-way STOP-controlled operation has been proposed for the purposes of this study at these intersections.
23. All-Way Stop Control Warrant analyses were undertaken at six (6) key internal intersections based on a review of Ontario Traffic Manual (OTM) - Book 5. The key internal intersections analyzed do not meet the all-way stop requirements.
24. Given that the key internal intersections along Street A do not warrant an All-Way Stop Control, it is recommended that the proposed following intersections operate under an all-way stop control in the future in order to provide benefits to pedestrian activity between the park and the residential homes, as well as provide traffic calming to the site by minimizing vehicle travel speed along Street A:
  - Street A / Street B
  - Street A / Street C & Street S
  - Street A / Street L
  - Street A / Street Q

### **Parking Considerations**

25. It is anticipated that all residential lots within the site will be served by 2 off-street parking spaces (1 space in the driveway and 1 space in the garage).
26. BA Group has prepared an on-street parking allocation plan based on the road network elements proposed for the respective public right-of-way and the location of driveways for the proposed lot fabric. Based on the estimated on-street parking supply of 577 spaces, the site can achieve approximately 0.57 spaces per unit on-street.

### **Bradford Functional Traffic Study Checklist**

27. The BWG “FITS” Checklist has been reviewed and applied to the draft plan as per **Section 9.0** of this report.



## **Appendix A: Existing Turning Movement Counts**







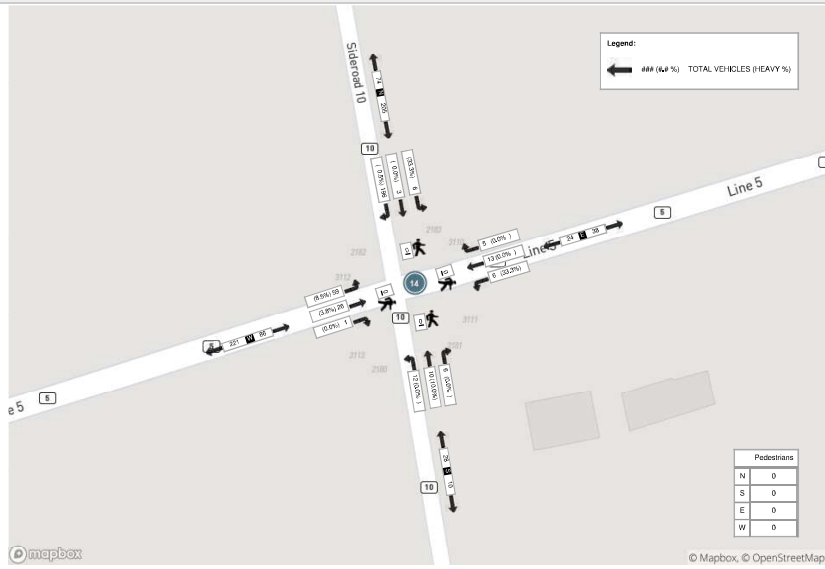


Selected Hour: 07:45 AM - 08:45 AM Weather:
Table with columns: Start Time, N Approach (10TH SIDEROAD), E Approach (5TH LINE), S Approach (10TH SIDEROAD), W Approach (5TH LINE), and H/L Total (15 min). Rows include vehicle counts for Right, Thru, Left, U/Turn, Peds, and percentages for Approach, PHF, Heavy, Lights, Single-Unit Trucks, Buses, Articulated Trucks, and Pedestrians.

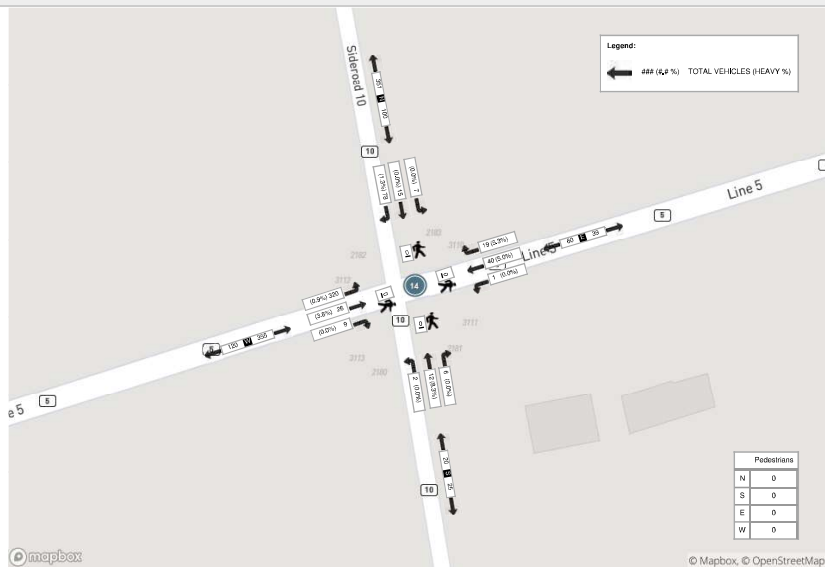


Peak Hour: 04:30 PM - 05:30 PM Weather: Scattered Clouds (-12.23 °C)
Table with columns: Start Time, N Approach (10TH SIDEROAD), E Approach (5TH LINE), S Approach (10TH SIDEROAD), W Approach (5TH LINE), and H/L Total (15 min). Rows include vehicle counts for Right, Thru, Left, U/Turn, Peds, and percentages for Approach, PHF, Heavy, Lights, Single-Unit Trucks, Buses, Articulated Trucks, and Pedestrians.

Selected Hour: 07:45 AM - 08:45 AM Weather:



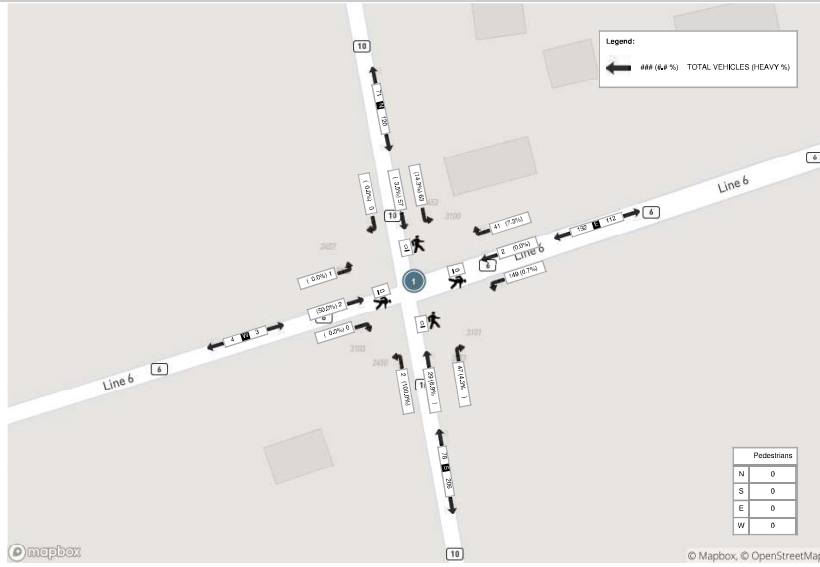
Peak Hour: 04:30 PM - 05:30 PM Weather: Scattered Clouds (-12.23 °C)



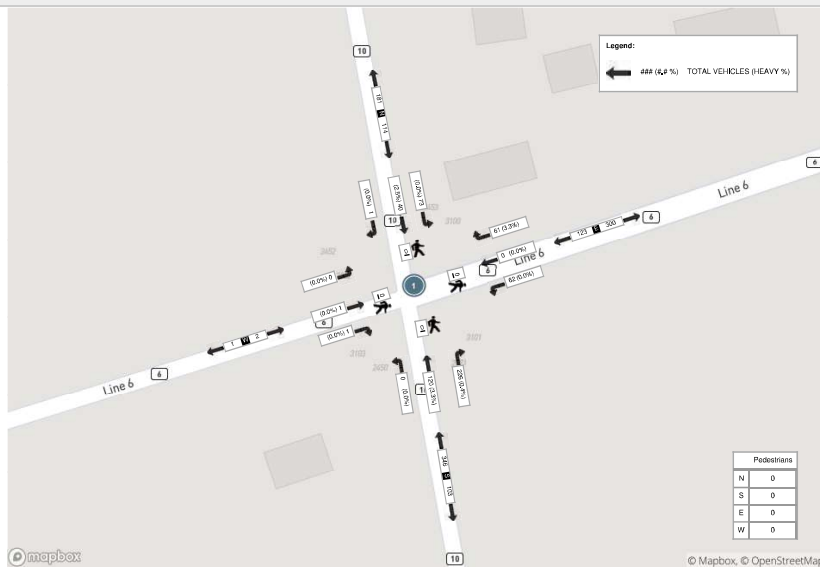




Selected Hour: 07:45 AM - 08:45 AM Weather:



Peak Hour: 04:30 PM - 05:30 PM Weather: Scattered Clouds (-12.23 °C)







**Selected Hour: 08:00 AM - 09:00 AM Weather:**

Start Time	N Approach ADAMS ST					E Approach LINE 6					W Approach LINE 6					Int. Total (15 min)
	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	
08:00:00	7	11	0	2	18	4	35	0	0	39	54	1	0	0	55	112
08:15:00	7	5	0	0	12	4	41	0	0	45	55	3	0	0	58	115
08:30:00	5	11	0	1	16	7	58	0	1	65	40	1	0	0	41	122
08:45:00	7	7	0	0	14	5	41	0	0	46	42	1	0	0	43	103
<b>Grand Total</b>	<b>26</b>	<b>34</b>	<b>0</b>	<b>3</b>	<b>60</b>	<b>20</b>	<b>175</b>	<b>0</b>	<b>1</b>	<b>195</b>	<b>191</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>197</b>	<b>452</b>
<b>Approach%</b>	43.3%	56.7%	0%	-	-	10.3%	89.7%	0%	-	-	97%	3%	0%	-	-	-
<b>Totals %</b>	5.8%	7.5%	0%	13.3%	4.4%	38.7%	0%	43.1%	42.3%	1.3%	0%	43.6%	-	-	-	-
<b>PHF</b>	0.93	0.77	0	0.83	0.71	0.75	0	0.75	0.87	0.5	0	0.85	-	-	-	-
<b>Heavy</b>	0	1	0	1	1	7	0	8	13	0	0	13	-	-	-	-
<b>Heavy %</b>	0%	2.9%	0%	1.7%	5%	4%	0%	4.1%	6.8%	0%	0%	6.5%	-	-	-	-
<b>Lights</b>	26	33	0	59	19	168	0	187	178	6	0	184	-	-	-	-
<b>Lights %</b>	100%	97.1%	0%	98.3%	95%	96%	0%	95.9%	93.2%	100%	0%	93.4%	-	-	-	-
<b>Single-Unit Trucks</b>	0	1	0	1	0	1	0	1	8	0	0	8	-	-	-	-
<b>Single-Unit Trucks %</b>	0%	2.9%	0%	1.7%	0%	0.6%	0%	0.5%	4.2%	0%	0%	4.1%	-	-	-	-
<b>Buses</b>	0	0	0	0	1	6	0	7	5	0	0	5	-	-	-	-
<b>Buses %</b>	0%	0%	0%	0%	5%	3.4%	0%	3.6%	2.6%	0%	0%	2.5%	-	-	-	-
<b>Articulated Trucks</b>	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-
<b>Articulated Trucks %</b>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-	-	-	-
<b>Pedestrians</b>	-	-	-	3	-	-	-	1	-	-	-	0	-	-	-	-
<b>Pedestrians%</b>	-	-	-	75%	-	-	-	25%	-	-	-	0%	-	-	-	-

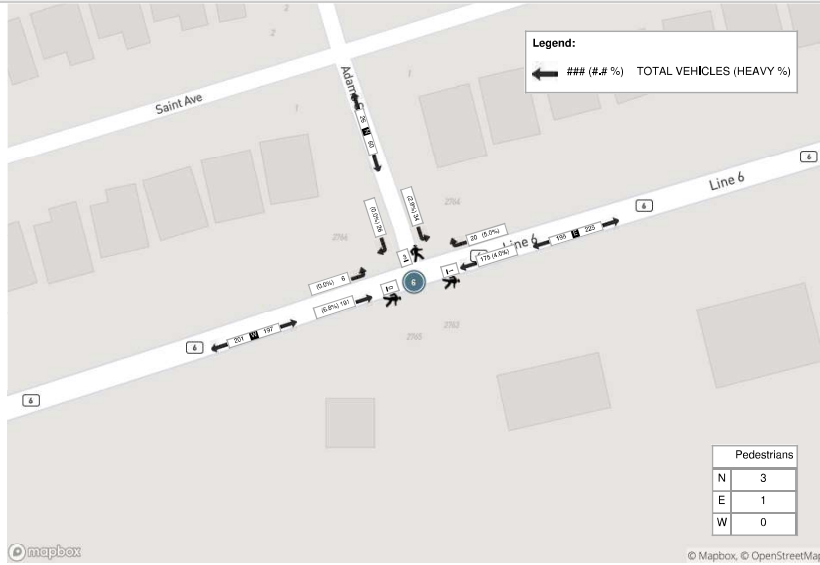


**Peak Hour: 04:00 PM - 05:00 PM Weather: Scattered Clouds (-12.23 °C)**

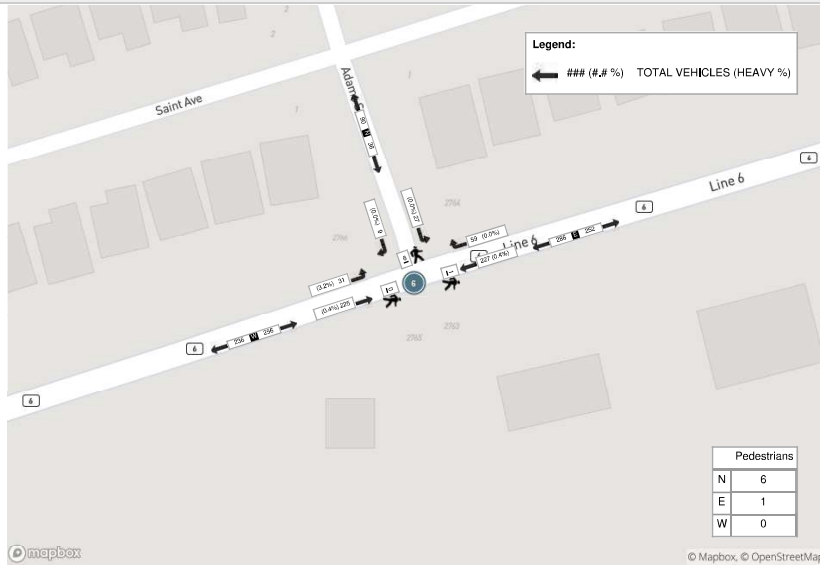
Start Time	N Approach ADAMS ST					E Approach LINE 6					W Approach LINE 6					Int. Total (15 min)
	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	
16:00:00	4	9	0	1	13	13	64	0	1	77	56	9	0	0	65	155
16:15:00	0	3	0	1	3	14	64	0	0	78	44	8	0	0	52	133
16:30:00	2	6	0	3	8	14	47	0	0	61	54	6	0	0	60	129
16:45:00	3	9	0	1	12	18	52	0	0	70	71	8	0	0	79	161
<b>Grand Total</b>	<b>9</b>	<b>27</b>	<b>0</b>	<b>6</b>	<b>36</b>	<b>59</b>	<b>227</b>	<b>0</b>	<b>1</b>	<b>286</b>	<b>225</b>	<b>31</b>	<b>0</b>	<b>0</b>	<b>256</b>	<b>578</b>
<b>Approach%</b>	25%	75%	0%	-	-	20.6%	79.4%	0%	-	-	87.9%	12.1%	0%	-	-	-
<b>Totals %</b>	1.6%	4.7%	0%	6.2%	10.2%	39.3%	0%	49.5%	38.9%	5.4%	0%	44.3%	-	-	-	-
<b>PHF</b>	0.56	0.75	0	0.69	0.82	0.89	0	0.92	0.79	0.86	0	0.81	-	-	-	-
<b>Heavy</b>	0	0	0	0	0	1	0	1	1	1	0	2	-	-	-	-
<b>Heavy %</b>	0%	0%	0%	0%	0%	0.4%	0%	0.3%	0.4%	3.2%	0%	0.8%	-	-	-	-
<b>Lights</b>	9	27	0	36	59	226	0	285	224	30	0	254	-	-	-	-
<b>Lights %</b>	100%	100%	0%	100%	100%	99.6%	0%	99.7%	99.6%	96.8%	0%	99.2%	-	-	-	-
<b>Single-Unit Trucks</b>	0	0	0	0	0	1	0	1	1	0	0	1	-	-	-	-
<b>Single-Unit Trucks %</b>	0%	0%	0%	0%	0%	0.4%	0%	0.3%	0.4%	0%	0%	0.4%	-	-	-	-
<b>Buses</b>	0	0	0	0	0	0	0	0	0	1	0	1	-	-	-	-
<b>Buses %</b>	0%	0%	0%	0%	0%	0%	0%	0%	0%	3.2%	0%	0.4%	-	-	-	-
<b>Articulated Trucks</b>	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-
<b>Articulated Trucks %</b>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-	-	-	-
<b>Pedestrians</b>	-	-	-	6	-	-	-	1	-	-	-	0	-	-	-	-
<b>Pedestrians%</b>	-	-	-	85.7%	-	-	-	14.3%	-	-	-	0%	-	-	-	-



Selected Hour: 08:00 AM - 09:00 AM Weather:



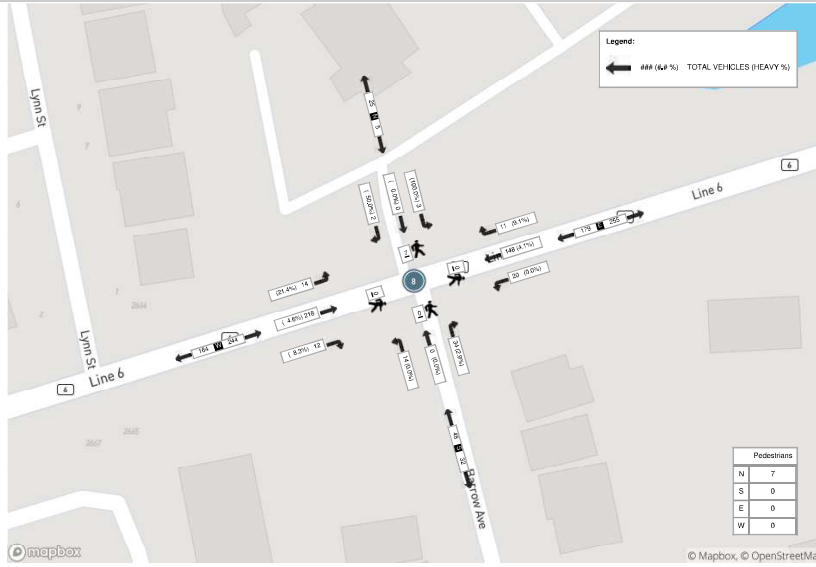
Peak Hour: 04:00 PM - 05:00 PM Weather: Scattered Clouds (-12.23 °C)







Selected Hour: 08:00 AM - 09:00 AM Weather:



Peak Hour: 04:45 PM - 05:45 PM Weather: Scattered Clouds (-12.23 °C)





Turning Movement Count (13 - CANAL RD & 5TH LINE)

Start Time	N Approach CANAL RD					S Approach CANAL RD					W Approach 5TH LINE					Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	UTurn N:N	Peds N:	Approach Total	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	4	23	0	0	27	2	0	0	0	2	0	2	0	0	2	31	
06:15:00	4	29	0	0	33	2	0	0	0	2	0	3	0	0	3	38	
06:30:00	2	27	0	0	29	8	0	0	0	8	1	1	0	0	2	39	
06:45:00	7	24	0	0	31	6	2	0	0	8	0	1	0	0	1	40	148
07:00:00	2	15	0	0	17	7	2	0	0	9	0	6	0	0	6	32	149
07:15:00	1	24	0	0	25	4	1	0	0	5	3	5	0	0	8	38	149
07:30:00	4	23	0	0	27	13	0	0	0	13	0	6	0	0	6	46	156
07:45:00	4	19	0	0	23	10	1	0	0	11	1	6	0	0	7	41	157
08:00:00	6	26	0	0	32	12	0	0	0	12	2	10	0	0	12	56	181
08:15:00	6	16	0	0	22	13	0	0	0	13	1	6	0	0	7	42	185
08:30:00	3	15	0	0	18	11	3	0	0	14	1	10	0	0	11	43	182
08:45:00	1	14	0	0	15	7	0	0	0	7	1	8	0	0	9	31	172
09:00:00	5	11	0	0	16	12	1	0	0	13	0	5	0	0	5	34	150
09:15:00	2	9	0	0	11	5	1	0	0	6	2	3	0	0	5	22	130
09:30:00	2	7	0	0	9	2	1	0	0	3	2	4	0	0	6	18	105
09:45:00	3	14	0	0	17	5	0	0	0	5	0	7	0	0	7	29	103
10:00:00	3	12	0	0	15	7	1	0	0	8	1	5	0	0	6	29	98
10:15:00	6	9	0	0	15	4	0	0	0	4	2	5	0	0	7	26	102
10:30:00	6	9	0	0	15	5	1	0	0	6	2	12	0	0	14	35	119
10:45:00	3	6	0	0	9	10	0	0	0	10	0	3	0	0	3	22	112
11:00:00	7	11	0	0	18	7	2	0	0	9	1	7	0	1	8	35	118
11:15:00	5	8	0	0	13	9	1	0	0	10	1	5	0	0	6	29	121
11:30:00	5	12	0	0	17	5	1	0	0	6	0	6	0	0	6	29	115
11:45:00	4	15	0	0	19	7	3	0	0	10	4	3	0	0	7	36	129
12:00:00	7	7	0	0	14	9	4	0	0	13	6	2	0	0	8	35	129
12:15:00	3	12	0	0	15	11	1	0	0	12	0	4	0	0	4	31	131
12:30:00	9	7	0	0	16	12	2	0	0	14	1	6	0	0	7	37	139
12:45:00	5	11	0	0	16	8	2	0	0	10	1	5	0	0	6	32	135
13:00:00	6	9	0	0	15	7	1	0	0	8	2	3	0	0	5	28	128
13:15:00	5	9	0	0	14	8	1	0	0	9	1	10	0	0	11	34	131
13:30:00	7	9	0	0	16	11	1	0	0	12	2	5	0	0	7	35	129
13:45:00	6	8	0	0	14	8	2	0	0	10	1	10	0	0	11	35	132
14:00:00	6	7	0	0	13	12	4	0	0	16	1	6	0	0	7	36	140
14:15:00	11	8	0	0	19	11	2	0	0	13	1	5	0	0	6	38	144

Turning Movement  
Count



14:30:00	9	13	0	0	22	15	0	0	0	15	0	7	0	0	7	44	153
14:45:00	10	5	0	0	15	16	0	1	0	17	1	8	0	0	9	41	159
15:00:00	10	14	0	0	24	18	1	0	0	19	1	9	0	0	10	53	176
15:15:00	8	9	0	0	17	12	5	0	0	17	2	8	0	0	10	44	182
15:30:00	14	13	1	0	28	28	5	0	0	33	1	9	0	0	10	71	209
15:45:00	8	13	0	0	21	24	4	0	0	28	1	10	0	0	11	60	228
16:00:00	12	8	0	0	20	26	6	0	0	32	4	5	0	0	9	61	236
16:15:00	8	14	0	0	22	21	2	0	0	23	2	4	0	0	6	51	243
16:30:00	8	13	0	0	21	39	3	0	0	42	1	6	0	0	7	70	242
16:45:00	9	4	0	0	13	29	3	0	0	32	1	8	0	0	9	54	236
17:00:00	15	13	0	0	28	27	4	0	0	31	4	8	0	0	12	71	246
17:15:00	16	12	0	0	28	36	4	0	0	40	0	11	0	0	11	79	274
17:30:00	5	15	0	0	20	27	2	0	0	29	1	5	0	0	6	55	259
17:45:00	10	6	0	0	16	25	3	0	0	28	2	12	0	0	14	58	263
18:00:00	3	7	0	0	10	27	2	0	0	29	1	7	0	0	8	47	239
18:15:00	2	7	0	0	9	15	3	0	0	18	4	5	0	0	9	36	196
18:30:00	1	2	0	0	3	14	0	0	0	14	0	5	0	0	5	22	163
18:45:00	2	4	0	0	6	21	1	0	0	22	0	5	0	0	5	33	138
<b>Grand Total</b>	<b>310</b>	<b>637</b>	<b>1</b>	<b>0</b>	<b>948</b>	<b>690</b>	<b>89</b>	<b>1</b>	<b>0</b>	<b>780</b>	<b>67</b>	<b>317</b>	<b>0</b>	<b>1</b>	<b>384</b>	<b>2112</b>	<b>-</b>
<b>Approach%</b>	32.7%	67.2%	0.1%	-	-	88.5%	11.4%	0.1%	-	-	17.4%	82.6%	0%	-	-	-	-
<b>Totals %</b>	14.7%	30.2%	0%	-	44.9%	32.7%	4.2%	0%	-	36.9%	3.2%	15%	0%	-	18.2%	-	-
<b>Heavy</b>	15	33	0	-	-	36	5	1	-	-	6	13	0	-	-	-	-
<b>Heavy %</b>	4.8%	5.2%	0%	-	-	5.2%	5.6%	100%	-	-	9%	4.1%	0%	-	-	-	-
<b>Bicycles</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Bicycle %</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Turning Movement  
Count



**Selected Hour: 07:30 AM - 08:30 AM Weather:**

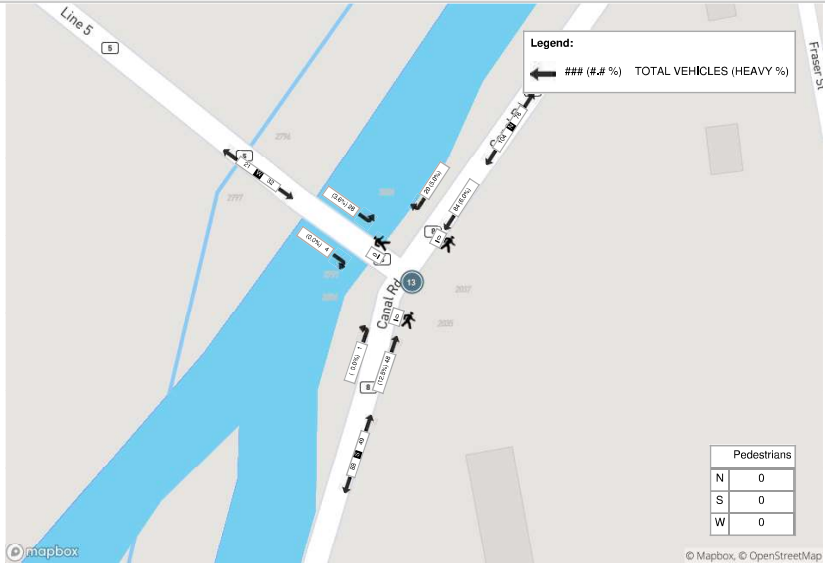
Start Time	N Approach CANAL RD					S Approach CANAL RD					W Approach 5TH LINE					Int. Total (15 min)
	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	
07:30:00	4	23	0	0	27	13	0	0	0	13	0	6	0	0	6	46
07:45:00	4	19	0	0	23	10	1	0	0	11	1	6	0	0	7	41
08:00:00	6	26	0	0	32	12	0	0	0	12	2	10	0	0	12	56
08:15:00	6	16	0	0	22	13	0	0	0	13	1	6	0	0	7	42
<b>Grand Total</b>	<b>20</b>	<b>84</b>	<b>0</b>	<b>0</b>	<b>104</b>	<b>48</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>49</b>	<b>4</b>	<b>28</b>	<b>0</b>	<b>0</b>	<b>32</b>	<b>185</b>
<b>Approach%</b>	19.2%	80.8%	0%	-	-	98%	2%	0%	-	-	12.5%	87.5%	0%	-	-	-
<b>Totals %</b>	10.8%	45.4%	0%	-	56.2%	25.9%	0.5%	0%	-	26.5%	2.2%	15.1%	0%	-	17.3%	-
<b>PHF</b>	0.83	0.81	0	-	0.81	0.92	0.25	0	-	0.94	0.5	0.7	0	-	0.67	-
<b>Heavy</b>	1	5	0	-	6	6	0	0	-	6	0	1	0	-	1	-
<b>Heavy %</b>	5%	6%	0%	-	5.8%	12.5%	0%	0%	-	12.2%	0%	3.6%	0%	-	3.1%	-
<b>Lights</b>	19	79	0	-	98	42	1	0	-	43	4	27	0	-	31	-
<b>Lights %</b>	95%	94%	0%	-	94.2%	87.5%	100%	0%	-	87.8%	100%	96.4%	0%	-	96.9%	-
<b>Single-Unit Trucks</b>	0	3	0	-	3	2	0	0	-	2	0	1	0	-	1	-
<b>Single-Unit Trucks %</b>	0%	3.6%	0%	-	2.9%	4.2%	0%	0%	-	4.1%	0%	3.6%	0%	-	3.1%	-
<b>Buses</b>	1	0	0	-	1	3	0	0	-	3	0	0	0	-	0	-
<b>Buses %</b>	5%	0%	0%	-	1%	6.3%	0%	0%	-	6.1%	0%	0%	0%	-	0%	-
<b>Articulated Trucks</b>	0	2	0	-	2	1	0	0	-	1	0	0	0	-	0	-
<b>Articulated Trucks %</b>	0%	2.4%	0%	-	1.9%	2.1%	0%	0%	-	2%	0%	0%	0%	-	0%	-
<b>Pedestrians</b>	-	-	-	0	-	-	-	0	-	-	-	-	0	-	-	-
<b>Pedestrians%</b>	-	-	-	0%	-	-	-	0%	-	-	-	-	0%	-	-	-



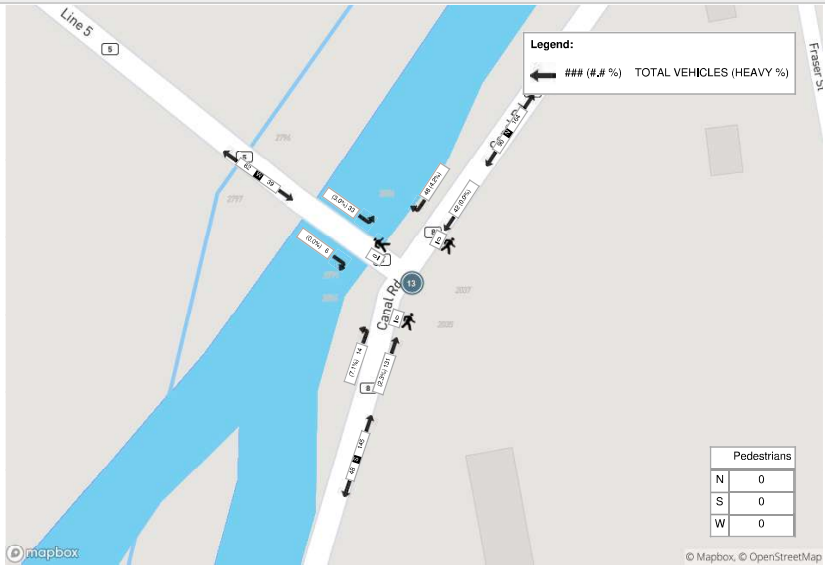
**Peak Hour: 04:30 PM - 05:30 PM Weather: Scattered Clouds (-12.23 °C)**

Start Time	N Approach CANAL RD					S Approach CANAL RD					W Approach 5TH LINE					Int. Total (15 min)
	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	
16:30:00	8	13	0	0	21	39	3	0	0	42	1	6	0	0	7	70
16:45:00	9	4	0	0	13	29	3	0	0	32	1	8	0	0	9	54
17:00:00	15	13	0	0	28	27	4	0	0	31	4	8	0	0	12	71
17:15:00	16	12	0	0	28	36	4	0	0	40	0	11	0	0	11	79
<b>Grand Total</b>	<b>48</b>	<b>42</b>	<b>0</b>	<b>0</b>	<b>90</b>	<b>131</b>	<b>14</b>	<b>0</b>	<b>0</b>	<b>145</b>	<b>6</b>	<b>33</b>	<b>0</b>	<b>0</b>	<b>39</b>	<b>274</b>
<b>Approach%</b>	53.3%	46.7%	0%	-	-	90.3%	9.7%	0%	-	-	15.4%	84.6%	0%	-	-	-
<b>Totals %</b>	17.5%	15.3%	0%	-	32.8%	47.8%	5.1%	0%	-	52.9%	2.2%	12%	0%	-	14.2%	-
<b>PHF</b>	0.75	0.81	0	-	0.8	0.84	0.88	0	-	0.86	0.38	0.75	0	-	0.81	-
<b>Heavy</b>	2	0	0	-	2	3	1	0	-	4	0	1	0	-	1	-
<b>Heavy %</b>	4.2%	0%	0%	-	2.2%	2.3%	7.1%	0%	-	2.8%	0%	3%	0%	-	2.6%	-
<b>Lights</b>	46	42	0	-	88	128	13	0	-	141	6	32	0	-	38	-
<b>Lights %</b>	95.8%	100%	0%	-	97.8%	97.7%	92.9%	0%	-	97.2%	100%	97%	0%	-	97.4%	-
<b>Single-Unit Trucks</b>	2	0	0	-	2	3	0	0	-	3	0	0	0	-	0	-
<b>Single-Unit Trucks %</b>	4.2%	0%	0%	-	2.2%	2.3%	0%	0%	-	2.1%	0%	0%	0%	-	0%	-
<b>Buses</b>	0	0	0	-	0	0	1	0	-	1	0	0	0	-	0	-
<b>Buses %</b>	0%	0%	0%	-	0%	0%	7.1%	0%	-	0.7%	0%	0%	0%	-	0%	-
<b>Articulated Trucks</b>	0	0	0	-	0	0	0	0	-	0	0	1	0	-	1	-
<b>Articulated Trucks %</b>	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	3%	0%	-	2.6%	-
<b>Pedestrians</b>	-	-	-	0	-	-	-	0	-	-	-	-	0	-	-	-
<b>Pedestrians%</b>	-	-	-	0%	-	-	-	0%	-	-	-	-	0%	-	-	-

**Selected Hour: 07:30 AM - 08:30 AM Weather:**



**Peak Hour: 04:30 PM - 05:30 PM Weather: Scattered Clouds (-12.23 °C)**



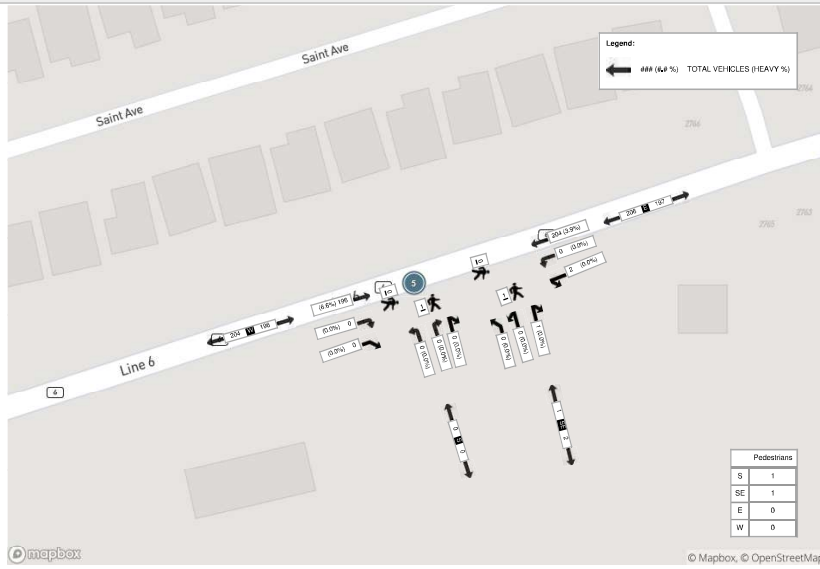




Selected Hour: 08:00 AM - 09:00 AM Weather:																								
Start Time	E Approach LINE 6					S Approach GOLF DRIVEWAY ACCESS					W Approach LINE 6					SE Approach SOUTHEAST DRIVEWAY					Inl. Total (15 min)			
	Thru	Left	Hard Left	UTurn	Peds	Approach Total	Hard Right	Right	Left	UTurn	Peds	Approach Total	Right	Bear Right	Thru	UTurn	Peds	Approach Total	Hard Right	Bear Left		Hard Left	UTurn	Peds
08:00:00	44	0	1	0	0	45	0	0	0	0	0	0	0	0	55	0	0	55	0	0	0	0	0	100
08:15:00	46	0	0	0	0	46	0	0	0	0	0	0	0	0	57	0	0	57	1	0	0	0	0	104
08:30:00	66	0	1	0	0	67	0	0	0	0	1	0	0	0	41	0	0	41	0	0	0	0	1	108
08:45:00	48	0	0	0	0	48	0	0	0	0	0	0	0	0	43	0	0	43	0	0	0	0	0	91
<b>Grand Total</b>	<b>204</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>206</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>196</b>	<b>0</b>	<b>0</b>	<b>196</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>403</b>
<b>Approach%</b>	99%	0%	1%	0%	-	-	0%	0%	0%	0%	-	0%	0%	100%	0%	-	-	100%	0%	0%	0%	0%	-	-
<b>Totals %</b>	50.6%	0%	0.2%	0%	-	51.1%	0%	0%	0%	0%	-	0%	0%	48.6%	0%	-	-	48.6%	0.2%	0%	0%	0%	0.2%	-
<b>PHF</b>	0.77	0	0.5	0	-	0.77	0	0	0	0	-	0	0	0.66	0	-	0.66	0.25	0	0	0	0	0.25	-
<b>Heavy</b>	8	0	0	0	-	8	0	0	0	0	0	0	0	13	0	-	13	0	0	0	0	0	0	-
<b>Heavy %</b>	3.9%	0%	0%	0%	-	3.9%	0%	0%	0%	0%	0%	0%	0%	6.6%	0%	-	6.6%	0%	0%	0%	0%	0%	0%	-
<b>Lights</b>	196	0	2	0	-	198	0	0	0	0	0	0	0	183	0	-	183	1	0	0	0	0	1	-
<b>Lights %</b>	96.1%	0%	100%	0%	-	96.1%	0%	0%	0%	0%	0%	0%	0%	93.4%	0%	-	93.4%	100%	0%	0%	0%	0%	100%	-
<b>Single-Unit Trucks</b>	1	0	0	0	-	1	0	0	0	0	0	0	0	8	0	-	8	0	0	0	0	0	0	-
<b>Single-Unit Trucks %</b>	0.5%	0%	0%	0%	-	0.5%	0%	0%	0%	0%	0%	0%	0%	4.1%	0%	-	4.1%	0%	0%	0%	0%	0%	0%	-
<b>Buses</b>	7	0	0	0	-	7	0	0	0	0	0	0	0	5	0	-	5	0	0	0	0	0	0	-
<b>Buses %</b>	3.4%	0%	0%	0%	-	3.4%	0%	0%	0%	0%	0%	0%	0%	2.6%	0%	-	2.6%	0%	0%	0%	0%	0%	0%	-
<b>Articulated Trucks</b>	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-
<b>Articulated Trucks %</b>	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	0%	-
<b>Pedestrians</b>	-	-	-	0	-	-	-	-	-	1	-	-	-	-	0	-	-	-	-	-	-	-	1	-
<b>Pedestrians %</b>	-	-	-	0%	-	-	-	-	-	50%	-	-	-	-	0%	-	-	-	-	-	-	-	50%	-

Peak Hour: 04:00 PM - 05:00 PM Weather: Scattered Clouds (-12.23 °C)																								
Start Time	E Approach LINE 6					S Approach GOLF DRIVEWAY ACCESS					W Approach LINE 6					SE Approach SOUTHEAST DRIVEWAY					Inl. Total (15 min)			
	Thru	Left	Hard Left	UTurn	Peds	Approach Total	Hard Right	Right	Left	UTurn	Peds	Approach Total	Right	Bear Right	Thru	UTurn	Peds	Approach Total	Hard Right	Bear Left		Hard Left	UTurn	Peds
16:00:00	68	0	0	0	0	68	0	0	0	0	0	0	0	64	0	0	64	0	0	0	0	0	0	132
16:15:00	64	0	0	0	0	64	0	0	0	0	0	0	0	52	0	0	52	0	0	0	0	0	0	116
16:30:00	49	0	0	0	0	49	0	0	0	0	0	0	0	60	0	0	60	0	0	0	0	1	0	109
16:45:00	55	0	0	0	0	55	0	0	0	0	0	0	0	79	0	0	79	0	0	0	0	0	0	134
<b>Grand Total</b>	<b>236</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>236</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>255</b>	<b>0</b>	<b>0</b>	<b>255</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>401</b>
<b>Approach%</b>	100%	0%	0%	0%	-	-	0%	0%	0%	0%	-	0%	0%	100%	0%	-	-	0%	0%	0%	0%	0%	-	-
<b>Totals %</b>	46.1%	0%	0%	0%	-	46.1%	0%	0%	0%	0%	-	0%	0%	51.9%	0%	-	51.9%	0%	0%	0%	0%	0%	0%	-
<b>PHF</b>	0.67	0	0	0	-	0.67	0	0	0	0	0	0	0	0.61	0	-	0.61	0	0	0	0	0	0	-
<b>Heavy</b>	1	0	0	0	-	1	0	0	0	0	0	0	0	2	0	-	2	0	0	0	0	0	0	-
<b>Heavy %</b>	0.4%	0%	0%	0%	-	0.4%	0%	0%	0%	0%	0%	0%	0%	0.8%	0%	-	0.8%	0%	0%	0%	0%	0%	0%	-
<b>Lights</b>	235	0	0	0	-	235	0	0	0	0	0	0	0	253	0	-	253	0	0	0	0	0	0	-
<b>Lights %</b>	99.6%	0%	0%	0%	-	99.6%	0%	0%	0%	0%	0%	0%	0%	99.2%	0%	-	99.2%	0%	0%	0%	0%	0%	0%	-
<b>Single-Unit Trucks</b>	1	0	0	0	-	1	0	0	0	0	0	0	0	1	0	-	1	0	0	0	0	0	0	-
<b>Single-Unit Trucks %</b>	0.4%	0%	0%	0%	-	0.4%	0%	0%	0%	0%	0%	0%	0%	0.4%	0%	-	0.4%	0%	0%	0%	0%	0%	0%	-
<b>Buses</b>	0	0	0	0	-	0	0	0	0	0	0	0	0	1	0	-	1	0	0	0	0	0	0	-
<b>Buses %</b>	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	0%	0%	0.4%	0%	-	0.4%	0%	0%	0%	0%	0%	0%	-
<b>Articulated Trucks</b>	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-
<b>Articulated Trucks %</b>	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	0%	-
<b>Pedestrians</b>	-	-	-	0	-	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	-	-	1	-
<b>Pedestrians %</b>	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	-	-	-	100%	-

**Selected Hour: 08:00 AM - 09:00 AM Weather:**



**Peak Hour: 04:00 PM - 05:00 PM Weather: Scattered Clouds (-12.23 °C)**





Turning Movement Count (2 - LANGFORD BLVD & LINE 6)

Start Time	N Approach LANGFORD BLVD					E Approach LINE 6					W Approach LINE 6					Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	UTurn E:E	Peds E:	Approach Total	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	6	3	0	0	9	0	49	0	0	49	10	1	0	0	11	69	
06:15:00	16	11	0	0	27	5	54	0	0	59	13	1	0	0	14	100	
06:30:00	5	1	0	0	6	1	53	0	0	54	4	2	0	0	6	66	
06:45:00	10	3	0	0	13	4	40	0	0	44	6	5	0	0	11	68	303
07:00:00	10	4	0	0	14	4	44	0	0	48	17	1	0	0	18	80	314
07:15:00	11	4	0	0	15	3	34	0	0	37	20	4	0	0	24	76	290
07:30:00	9	6	0	0	15	2	37	0	0	39	20	2	0	0	22	76	300
07:45:00	13	9	0	0	22	5	32	0	0	37	28	1	0	0	29	88	320
08:00:00	15	11	0	0	26	6	31	0	0	37	37	1	0	0	38	101	341
08:15:00	10	6	0	0	16	5	35	0	0	40	20	4	0	0	24	80	345
08:30:00	11	9	0	0	20	11	48	0	0	59	22	1	0	0	23	102	371
08:45:00	7	9	0	0	16	12	35	0	0	47	20	1	0	0	21	84	367
09:00:00	6	11	0	0	17	8	22	0	0	30	14	2	0	0	16	63	329
09:15:00	8	2	0	0	10	3	22	0	0	25	9	5	0	0	14	49	298
09:30:00	10	9	0	1	19	1	33	0	0	34	7	3	0	0	10	63	259
09:45:00	9	1	0	0	10	3	19	0	0	22	12	4	0	0	16	48	223
10:00:00	6	2	0	0	8	6	26	0	0	32	16	0	0	0	16	56	216
10:15:00	3	2	0	0	5	6	9	0	0	15	19	4	0	0	23	43	210
10:30:00	2	3	0	0	5	6	25	0	0	31	13	2	0	0	15	51	198
10:45:00	3	4	0	0	7	4	15	0	0	19	20	1	0	1	21	47	197
11:00:00	8	4	0	0	12	2	11	0	0	13	16	0	0	0	16	41	182
11:15:00	4	4	0	0	8	5	15	0	0	20	16	8	0	0	24	52	191
11:30:00	4	2	0	0	6	3	20	0	0	23	12	1	0	0	13	42	182
11:45:00	1	2	0	1	3	5	14	0	0	19	12	2	0	0	14	36	171
12:00:00	3	1	0	0	4	3	21	0	0	24	17	3	0	0	20	48	178
12:15:00	2	5	0	0	7	7	13	0	0	20	17	4	0	0	21	48	174
12:30:00	5	11	0	0	16	4	15	0	0	19	17	5	0	0	22	57	189
12:45:00	3	5	0	0	8	7	16	0	0	23	18	1	0	0	19	50	203
13:00:00	4	5	0	0	9	8	18	0	0	26	18	4	0	0	22	57	212
13:15:00	2	5	0	0	7	6	18	0	0	24	19	5	0	0	24	55	219
13:30:00	9	5	0	0	14	4	15	0	0	19	20	2	0	0	22	55	217
13:45:00	4	4	0	0	8	5	25	0	0	30	22	3	0	0	25	63	230
14:00:00	3	6	0	0	9	10	22	0	0	32	26	3	0	0	29	70	243
14:15:00	8	8	0	0	16	6	19	0	0	25	19	8	0	0	27	68	256

Turning Movement  
Count



14:30:00	3	8	0	0	11	4	29	0	0	33	34	13	0	0	47	91	292
14:45:00	6	5	0	0	11	9	30	0	0	39	31	5	0	0	36	86	315
15:00:00	7	8	0	0	15	12	38	0	0	50	52	9	0	0	61	126	371
15:15:00	4	8	0	0	12	7	38	0	0	45	42	9	0	0	51	108	411
15:30:00	2	7	0	0	9	10	24	0	0	34	54	8	0	0	62	105	425
15:45:00	6	8	0	0	14	14	40	0	0	54	37	13	0	0	50	118	457
16:00:00	3	9	0	0	12	22	30	0	0	52	53	14	0	0	67	131	462
16:15:00	10	11	0	0	21	17	27	0	0	44	45	16	0	0	61	126	480
16:30:00	7	8	0	0	15	7	26	0	0	33	56	15	0	0	71	119	494
16:45:00	5	7	0	0	12	15	27	0	0	42	73	16	0	0	89	143	519
17:00:00	1	9	0	0	10	10	34	0	0	44	50	10	0	0	60	114	502
17:15:00	2	6	0	0	8	13	20	0	0	33	66	15	0	0	81	122	498
17:30:00	4	12	0	0	16	12	17	0	0	29	53	15	0	0	68	113	492
17:45:00	3	3	0	0	6	13	15	0	0	28	43	14	0	0	57	91	440
18:00:00	0	4	0	0	4	7	18	0	0	25	48	10	0	0	58	87	413
18:15:00	3	2	0	0	5	7	9	0	0	16	43	8	0	0	51	72	363
18:30:00	4	4	0	0	8	15	16	0	0	31	47	13	0	0	60	99	349
18:45:00	4	3	0	0	7	5	19	0	0	24	23	9	0	0	32	63	321
<b>Grand Total</b>	<b>304</b>	<b>299</b>	<b>0</b>	<b>2</b>	<b>603</b>	<b>369</b>	<b>1362</b>	<b>0</b>	<b>0</b>	<b>1731</b>	<b>1426</b>	<b>306</b>	<b>0</b>	<b>1</b>	<b>1732</b>	<b>4066</b>	<b>-</b>
<b>Approach%</b>	50.4%	49.6%	0%	-	-	21.3%	78.7%	0%	-	-	82.3%	17.7%	0%	-	-	-	-
<b>Totals %</b>	7.5%	7.4%	0%	-	14.8%	9.1%	33.5%	0%	-	42.6%	35.1%	7.5%	0%	-	42.6%	-	-
<b>Heavy</b>	9	5	0	-	-	6	27	0	-	27	8	0	-	-	-	-	-
<b>Heavy %</b>	3%	1.7%	0%	-	-	1.6%	2%	0%	-	1.9%	2.6%	0%	-	-	-	-	-
<b>Bicycles</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Bicycle %</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Turning Movement  
Count



**Selected Hour: 07:45 AM - 08:45 AM Weather:**

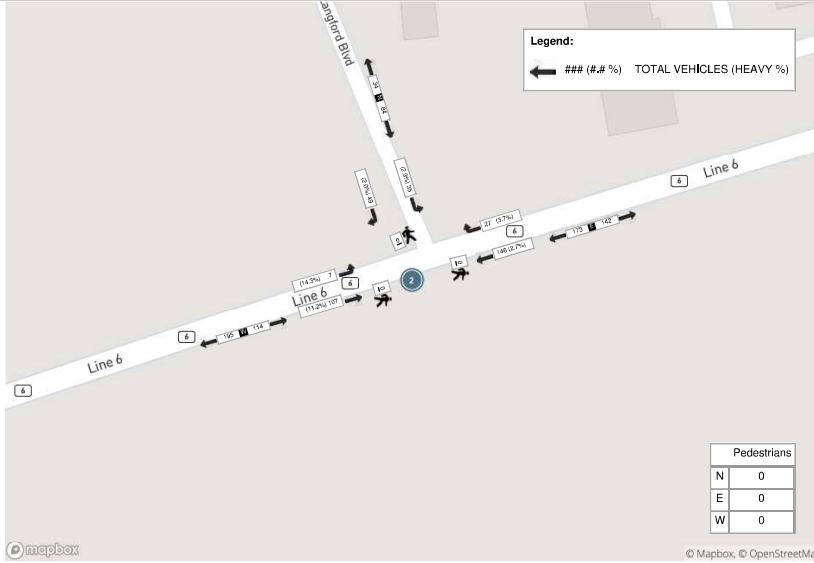
Start Time	N Approach LANGFORD BLVD					E Approach LINE 6					W Approach LINE 6					Int. Total (15 min)
	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	
07:45:00	13	9	0	0	22	5	32	0	0	37	28	1	0	0	29	88
08:00:00	15	11	0	0	26	6	31	0	0	37	37	1	0	0	38	101
08:15:00	10	6	0	0	16	5	35	0	0	40	20	4	0	0	24	80
08:30:00	11	9	0	0	20	11	48	0	0	59	22	1	0	0	23	102
<b>Grand Total</b>	<b>49</b>	<b>35</b>	<b>0</b>	<b>0</b>	<b>84</b>	<b>27</b>	<b>146</b>	<b>0</b>	<b>0</b>	<b>173</b>	<b>107</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>114</b>	<b>371</b>
Approach%	58.3%	41.7%	0%	-	-	15.6%	84.4%	0%	-	-	93.9%	6.1%	0%	-	-	-
Totals %	13.2%	9.4%	0%	22.6%	7.3%	39.4%	0%	46.6%	28.8%	1.9%	0%	30.7%	-	-	-	-
PHF	0.82	0.8	0	0.81	0.61	0.76	0	0.73	0.72	0.44	0	0.75	-	-	-	-
Heavy	1	1	0	2	1	4	0	5	12	1	0	13	-	-	-	-
Heavy %	2%	2.9%	0%	2.4%	3.7%	2.7%	0%	2.9%	11.2%	14.3%	0%	11.4%	-	-	-	-
Lights	48	34	0	82	26	142	0	168	95	6	0	101	-	-	-	-
Lights %	98%	97.1%	0%	97.6%	96.3%	97.3%	0%	97.1%	88.8%	85.7%	0%	88.6%	-	-	-	-
Single-Unit Trucks	1	0	0	1	0	1	0	1	6	1	0	7	-	-	-	-
Single-Unit Trucks %	2%	0%	0%	1.2%	0%	0.7%	0%	0.6%	5.6%	14.3%	0%	6.1%	-	-	-	-
Buses	0	1	0	1	1	3	0	4	6	0	0	6	-	-	-	-
Buses %	0%	2.9%	0%	1.2%	3.7%	2.1%	0%	2.3%	5.6%	0%	0%	5.3%	-	-	-	-
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-
Articulated Trucks %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-	-
Pedestrians%	-	-	-	0%	-	-	-	0%	-	-	-	0%	-	-	-	-



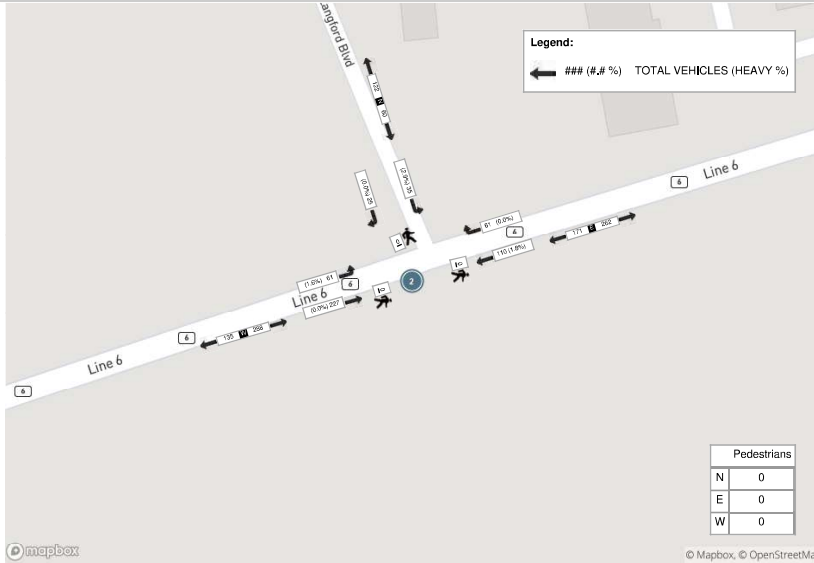
**Peak Hour: 04:00 PM - 05:00 PM Weather: Scattered Clouds (-12.23 °C)**

Start Time	N Approach LANGFORD BLVD					E Approach LINE 6					W Approach LINE 6					Int. Total (15 min)
	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	
16:00:00	3	9	0	0	12	22	30	0	0	52	53	14	0	0	67	131
16:15:00	10	11	0	0	21	17	27	0	0	44	45	16	0	0	61	126
16:30:00	7	8	0	0	15	7	26	0	0	33	56	15	0	0	71	119
16:45:00	5	7	0	0	12	15	27	0	0	42	73	16	0	0	89	143
<b>Grand Total</b>	<b>25</b>	<b>35</b>	<b>0</b>	<b>0</b>	<b>60</b>	<b>61</b>	<b>110</b>	<b>0</b>	<b>0</b>	<b>171</b>	<b>227</b>	<b>61</b>	<b>0</b>	<b>0</b>	<b>288</b>	<b>519</b>
Approach%	41.7%	58.3%	0%	-	-	35.7%	64.3%	0%	-	-	78.8%	21.2%	0%	-	-	-
Totals %	4.8%	6.7%	0%	11.6%	11.8%	21.2%	0%	32.9%	43.7%	11.8%	0%	55.5%	-	-	-	-
PHF	0.63	0.8	0	0.71	0.69	0.92	0	0.82	0.78	0.95	0	0.81	-	-	-	-
Heavy	0	1	0	1	0	2	0	2	0	1	0	1	-	-	-	-
Heavy %	0%	2.9%	0%	1.7%	0%	1.8%	0%	1.2%	0%	1.6%	0%	0.3%	-	-	-	-
Lights	25	34	0	59	61	108	0	169	227	60	0	287	-	-	-	-
Lights %	100%	97.1%	0%	98.3%	100%	98.2%	0%	98.8%	100%	98.4%	0%	99.7%	-	-	-	-
Single-Unit Trucks	0	0	0	0	0	1	0	1	0	1	0	1	-	-	-	-
Single-Unit Trucks %	0%	0%	0%	0%	0%	0.9%	0%	0.6%	0%	1.6%	0%	0.3%	-	-	-	-
Buses	0	1	0	1	0	1	0	1	0	0	0	0	-	-	-	-
Buses %	0%	2.9%	0%	1.7%	0%	0.9%	0%	0.6%	0%	0%	0%	0%	-	-	-	-
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-
Articulated Trucks %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-	-
Pedestrians%	-	-	-	0%	-	-	-	0%	-	-	-	0%	-	-	-	-

Selected Hour: 07:45 AM - 08:45 AM Weather:



Peak Hour: 04:00 PM - 05:00 PM Weather: Scattered Clouds (-12.23 °C)





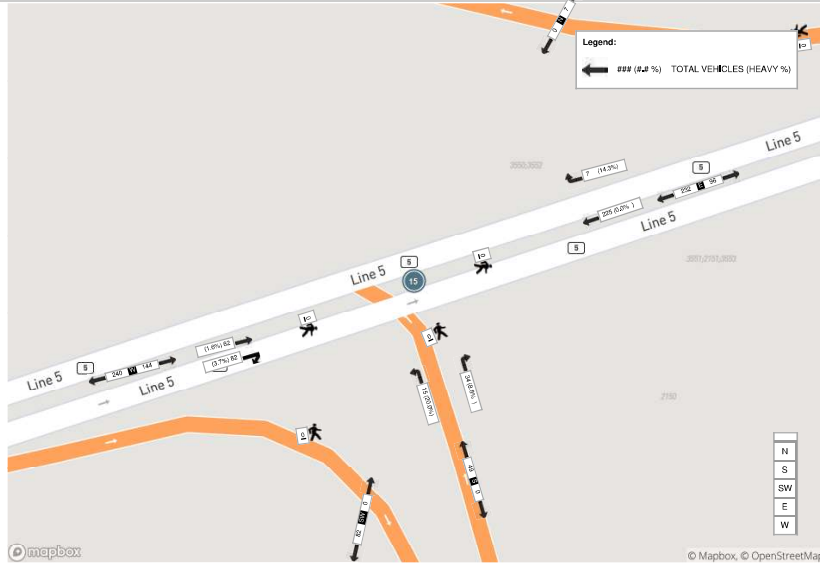


Selected Hour: 07:15 AM - 08:15 AM Weather:																						
Start Time	N Approach HWY 400 NB ON RAMP				E Approach LINE 5				W Approach LINE 5				SW Approach HWY 400 NB ON RAMP (FROM EB LINE 5)			S Approach HWY 400 NB OFF RAMP			Int. Total (15 min)			
	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	Hard Right	Thru	UTurn	Peds	Approach Total	UTurn	Peds	Approach Total	Right	Left		UTurn	Peds	Approach Total
07:15:00	0	0	0	1	57	0	0	58	18	13	0	0	31	0	0	0	8	4	0	0	12	101
07:30:00	0	0	0	3	54	0	0	57	25	19	0	0	44	0	0	0	7	0	0	0	7	108
07:45:00	0	0	0	2	43	0	0	45	20	12	0	0	32	0	0	0	10	4	0	0	14	91
08:00:00	0	0	0	1	71	0	0	72	19	18	0	0	37	0	0	0	9	7	0	0	16	125
<b>Grand Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>225</b>	<b>0</b>	<b>0</b>	<b>232</b>	<b>82</b>	<b>62</b>	<b>0</b>	<b>0</b>	<b>144</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>34</b>	<b>15</b>	<b>0</b>	<b>0</b>	<b>49</b>	<b>425</b>
Approach%	0%	-	3%	97%	0%	-	56.6%	43.1%	0%	-	0%	-	69.4%	30.6%	0%	-	-	-	-	-	-	-
Totals %	0%	0%	1.6%	52.9%	0%	5.46%	19.3%	14.6%	0%	33.9%	0%	0%	8%	3.5%	0%	11.5%	-	-	-	-	-	-
PHF	0	0	0.58	0.79	0	0.81	0.62	0.62	0	0.62	0	0	0.85	0.54	0	0.77	-	-	-	-	-	-
Heavy %	0%	0%	14.3%	0%	0%	0.4%	3.7%	1.6%	0%	2.8%	0%	0%	8.8%	20%	0%	12.2%	-	-	-	-	-	-
Lights %	0%	0%	85.7%	100%	0%	95.6%	96.3%	98.4%	0%	97.2%	0%	0%	91.2%	80%	0%	87.8%	-	-	-	-	-	-
Single-Unit Trucks %	0%	0%	14.2%	0%	0%	0.4%	2.4%	0%	0%	1.4%	0%	0%	8.8%	13.2%	0%	10.2%	-	-	-	-	-	-
Buses %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-	-	-	-	-	-
Articulated Trucks %	0%	0%	0%	0%	0%	0%	1.2%	0%	0%	0.7%	0%	0%	0%	6.7%	0%	2%	-	-	-	-	-	-



Peak Hour: 04:30 PM - 05:30 PM Weather: Scattered Clouds (-12.23 °C)																						
Start Time	N Approach HWY 400 NB ON RAMP				E Approach LINE 5				W Approach LINE 5				SW Approach HWY 400 NB ON RAMP (FROM EB LINE 5)			S Approach HWY 400 NB OFF RAMP			Int. Total (15 min)			
	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	Hard Right	Thru	UTurn	Peds	Approach Total	UTurn	Peds	Approach Total	Right	Left		UTurn	Peds	Approach Total
16:30:00	0	0	0	4	29	0	0	33	28	26	0	0	54	0	0	0	61	14	0	0	75	162
16:45:00	0	0	0	3	31	0	0	34	20	34	0	0	54	0	0	0	69	13	0	0	82	170
17:00:00	0	0	0	6	15	0	0	21	25	18	0	0	43	0	0	0	57	15	0	0	72	136
17:15:00	0	0	0	10	23	0	0	33	21	26	0	0	47	0	0	0	62	10	0	0	72	152
<b>Grand Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>23</b>	<b>98</b>	<b>0</b>	<b>0</b>	<b>121</b>	<b>94</b>	<b>103</b>	<b>0</b>	<b>0</b>	<b>198</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>249</b>	<b>52</b>	<b>0</b>	<b>0</b>	<b>301</b>	<b>620</b>
Approach%	0%	-	19%	81%	0%	-	47.5%	52.5%	0%	-	0%	-	82.7%	17.3%	0%	-	-	-	-	-	-	-
Totals %	0%	0%	3.7%	15.8%	0%	19.5%	15.2%	16.8%	0%	31.9%	0%	0%	40.2%	8.4%	0%	48.5%	-	-	-	-	-	-
PHF	0	0	0.58	0.79	0	0.89	0.84	0.76	0	0.92	0	0	0.9	0.87	0	0.92	-	-	-	-	-	-
Heavy %	0%	0%	4.3%	1%	0%	1.7%	0%	1%	0%	0.5%	0%	0%	0.8%	1.9%	0%	1%	-	-	-	-	-	-
Lights %	0%	0%	95.7%	99%	0%	98.3%	100%	99%	0%	99.5%	0%	0%	99.2%	96.1%	0%	99%	-	-	-	-	-	-
Single-Unit Trucks %	0%	0%	4.3%	1%	0%	1.7%	0%	0%	0%	0%	0%	0%	0%	1.9%	0%	0.3%	-	-	-	-	-	-
Buses %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-	-	-	-	-	-
Articulated Trucks %	0%	0%	0%	0%	0%	0%	0%	1%	0%	0.5%	0%	0%	0.8%	0%	0%	0.7%	-	-	-	-	-	-

Selected Hour: 07:15 AM - 08:15 AM Weather:



Peak Hour: 04:30 PM - 05:30 PM Weather: Scattered Clouds (-12.33 °C)

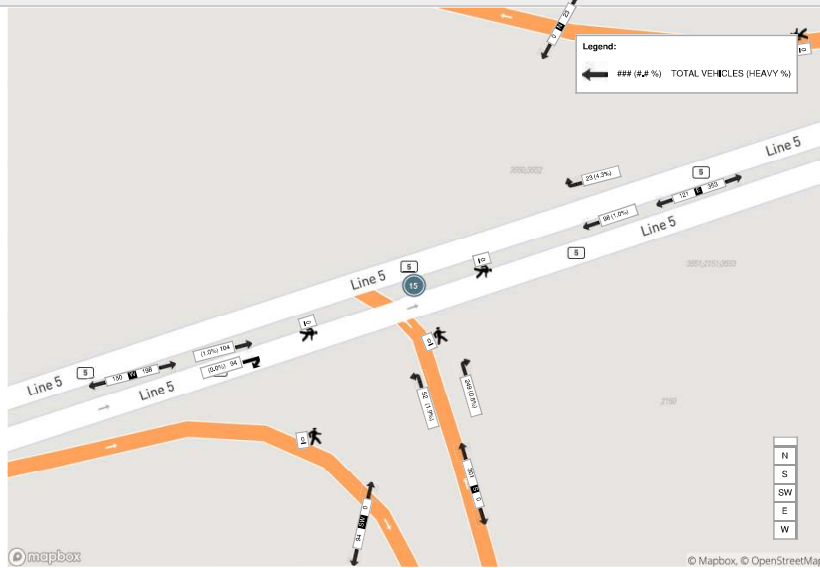






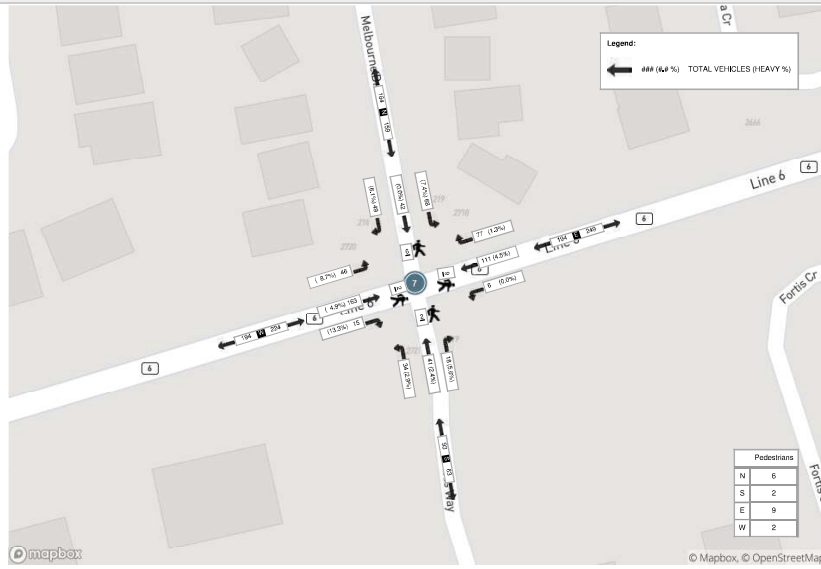


Table with columns: Start Time, Approach (N, E, S, W), Movement (Right, Thru, Left, UTurn, Peds), and InL Total (15 min). Data rows include time intervals (08:00:00 to 08:45:00), Grand Total, and various vehicle type percentages (Approach%, Totals %, PHF, Heavy %, Lights %, Single-Unit Trucks, Buses, Articulated Trucks, Pedestrians).

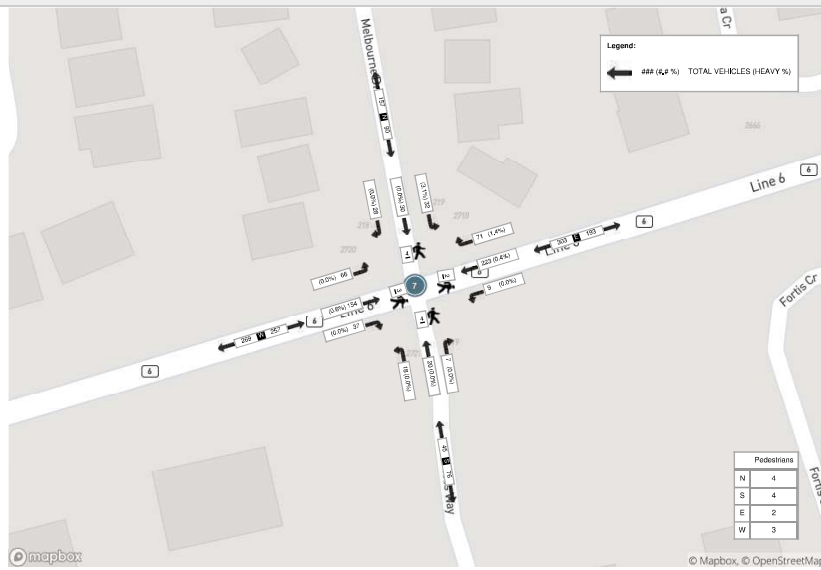


Table with columns: Start Time, Approach (N, E, S, W), Movement (Right, Thru, Left, UTurn, Peds), and InL Total (15 min). Data rows include time intervals (16:45:00 to 17:30:00), Grand Total, and various vehicle type percentages (Approach%, Totals %, PHF, Heavy %, Lights %, Single-Unit Trucks, Buses, Articulated Trucks, Pedestrians).

Selected Hour: 08:00 AM - 09:00 AM Weather:



Peak Hour: 04:45 PM - 05:45 PM Weather: Scattered Clouds (-12.23 °C)







Selected Hour: 07:30 AM - 08:30 AM Weather:																									
Start Time	N Approach SMCQE RD						E Approach CANAL RD						S Approach SMCQE RD						W Approach CANAL RD						InL Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
07:30:00	24	2	7	0	0	33	1	7	0	0	0	8	0	0	0	0	1	0	0	7	7	0	0	14	55
07:45:00	22	1	12	0	0	35	1	3	0	0	0	4	0	1	1	0	0	2	1	8	10	0	0	19	60
08:00:00	24	2	11	0	0	37	6	5	1	0	0	12	2	0	0	0	0	2	0	8	14	0	0	22	73
08:15:00	20	2	7	0	0	29	3	3	1	0	0	7	0	1	0	0	0	1	0	10	11	0	0	21	56
<b>Grand Total</b>	<b>90</b>	<b>7</b>	<b>37</b>	<b>0</b>	<b>0</b>	<b>134</b>	<b>11</b>	<b>18</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>31</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>5</b>	<b>1</b>	<b>33</b>	<b>42</b>	<b>0</b>	<b>0</b>	<b>76</b>	<b>246</b>
<b>Approach%</b>	87.2%	5.2%	27.6%	0%	-	-	35.2%	58.1%	6.5%	0%	-	40%	40%	20%	0%	-	-	1.2%	43.4%	55.2%	0%	-	-	-	-
<b>Totals %</b>	36.6%	2.9%	15%	0%	-	54.5%	4.5%	7.2%	0.8%	0%	12.2%	0.8%	0.8%	6.4%	0%	2%	0.4%	13.4%	17.1%	0%	-	-	-	30.9%	-
<b>PHF</b>	0.94	0.88	0.77	0	-	0.91	0.46	0.64	0.5	0	0.25	0.25	0.5	0.25	0	0.23	0.25	0.83	0.75	0	-	-	-	0.88	-
<b>Heavy</b>	5	0	1	0	0	6	2	0	0	0	2	0	2	0	0	2	0	2	4	0	-	-	-	6	-
<b>Heavy %</b>	5.5%	0%	2.7%	0%	-	4.5%	18.2%	0%	0%	0%	6.5%	0%	100%	0%	0%	40%	0%	6.1%	9.5%	0%	-	-	-	7.9%	-
<b>Lights</b>	85	7	36	0	-	128	9	18	2	0	29	2	2	1	0	3	1	31	38	0	-	-	-	70	-
<b>Lights %</b>	94.4%	100%	97.3%	0%	-	95.5%	81.8%	100%	100%	0%	93.5%	100%	0%	100%	0%	60%	100%	93.9%	90.5%	0%	-	-	-	92.1%	-
<b>Single-Unit Trucks</b>	2	0	1	0	0	3	1	0	0	0	1	0	2	0	0	2	0	1	2	0	-	-	-	3	-
<b>Single-Unit Trucks %</b>	2.2%	0%	2.7%	0%	-	2.2%	5.1%	0%	0%	0%	3.2%	0%	100%	0%	0%	40%	0%	3%	4.8%	0%	-	-	-	3.9%	-
<b>Buses</b>	1	0	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	2	0	-	-	-	2	-
<b>Buses %</b>	1.1%	0%	0%	0%	-	0.7%	5.1%	0%	0%	0%	3.2%	0%	0%	0%	0%	0%	0%	0%	4.8%	0%	-	-	-	2.6%	-
<b>Articulated Trucks</b>	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	-	-	-	1	-
<b>Articulated Trucks %</b>	2.2%	0%	0%	0%	-	1.5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	-	-	-	1.2%	-
<b>Pedestrians</b>	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	0	-	-	-	-
<b>Pedestrians %</b>	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	100%	-	-	-	-	-	0%	-	-	-	-



Peak Hour: 04:30 PM - 05:30 PM Weather: Scattered Clouds (-12.23 °C)																									
Start Time	N Approach SMCQE RD						E Approach CANAL RD						S Approach SMCQE RD						W Approach CANAL RD						InL Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:30:00	14	0	6	0	0	20	4	7	3	0	0	14	0	2	1	0	0	3	0	6	39	0	0	45	82
16:45:00	2	3	9	0	0	14	15	10	0	0	0	25	0	1	1	0	0	2	0	14	28	0	0	40	81
17:00:00	14	1	3	0	0	18	20	15	0	0	0	35	0	1	1	0	0	2	1	11	25	0	0	37	92
17:15:00	8	1	5	0	0	15	25	23	2	0	0	50	0	0	0	0	0	0	0	14	32	0	0	46	111
<b>Grand Total</b>	<b>39</b>	<b>5</b>	<b>23</b>	<b>0</b>	<b>0</b>	<b>67</b>	<b>64</b>	<b>55</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>124</b>	<b>0</b>	<b>4</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>1</b>	<b>45</b>	<b>122</b>	<b>0</b>	<b>0</b>	<b>168</b>	<b>366</b>
<b>Approach%</b>	58.2%	7.0%	34.2%	0%	-	-	51.6%	44.1%	4%	0%	-	0%	57.1%	43.9%	0%	-	-	0.6%	26.6%	72.6%	0%	-	-	-	-
<b>Totals %</b>	16.7%	1.4%	6.2%	0%	-	19.3%	17.5%	15%	1.4%	0%	32.4%	0%	1.1%	0.8%	0%	1.2%	0.2%	12.3%	33.3%	0%	-	-	-	45.9%	-
<b>PHF</b>	0.7	0.42	0.64	0	-	0.84	0.64	0.8	0.42	0	0.62	0	0.6	0.75	0	0.68	0.25	0.8	0.78	0	-	-	-	0.91	-
<b>Heavy</b>	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	2	0	-	-	-	5	-
<b>Heavy %</b>	0%	0%	0%	0%	-	0%	0%	3.2%	0%	0%	1.6%	0%	0%	0%	0%	0%	0%	6.7%	1.6%	0%	-	-	-	3%	-
<b>Lights</b>	39	5	23	0	-	67	64	53	5	0	122	0	4	3	0	7	1	42	120	0	-	-	-	163	-
<b>Lights %</b>	100%	100%	100%	0%	-	100%	100%	96.4%	100%	0%	98.4%	0%	100%	100%	0%	100%	100%	93.3%	98.4%	0%	-	-	-	97%	-
<b>Single-Unit Trucks</b>	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	2	0	-	-	-	4	-
<b>Single-Unit Trucks %</b>	0%	0%	0%	0%	-	0%	0%	3.6%	0%	0%	1.6%	0%	0%	0%	0%	0%	0%	4.4%	1.6%	0%	-	-	-	2.4%	-
<b>Buses</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	0	-
<b>Buses %</b>	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-	-	-	0%	-
<b>Articulated Trucks</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	-	-	-	1	-
<b>Articulated Trucks %</b>	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2.2%	0%	0%	-	-	-	0.6%	-
<b>Pedestrians</b>	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	0	-	-	-	-
<b>Pedestrians %</b>	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-

Selected Hour: 07:30 AM - 08:30 AM Weather:



Peak Hour: 04:30 PM - 05:30 PM Weather: Scattered Clouds (-12.23 °C)





Turning Movement Count (10 - SIMCOE RD & GIBSON CIRCLE)

Start Time	N Approach SIMCOE RD					S Approach SIMCOE RD					W Approach GIBSON CIRCLE					Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	UTurn N:N	Peds N:	Approach Total	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	0	23	0	0	23	2	0	0	0	2	4	3	0	0	7	32	
06:15:00	0	27	0	0	27	5	0	0	0	5	2	1	0	0	3	35	
06:30:00	3	28	0	0	31	7	3	0	0	10	3	3	0	0	6	47	
06:45:00	1	18	0	0	19	5	2	0	0	7	7	7	0	0	14	40	154
07:00:00	1	12	0	0	13	12	0	0	0	12	7	2	0	0	9	34	156
07:15:00	0	18	0	0	18	9	1	0	0	10	6	1	0	0	7	35	156
07:30:00	0	34	0	0	34	7	2	0	0	9	4	0	0	0	4	47	156
07:45:00	3	27	0	0	30	14	3	0	0	17	9	5	0	0	14	61	177
08:00:00	5	30	0	0	35	20	2	0	0	22	9	5	0	1	14	71	214
08:15:00	3	41	0	0	44	16	1	0	0	17	7	8	0	2	15	76	255
08:30:00	2	28	0	0	30	37	9	0	6	46	28	8	0	0	36	112	320
08:45:00	1	19	1	0	21	29	9	0	1	38	6	4	0	0	10	69	328
09:00:00	1	18	0	0	19	8	4	0	0	12	2	1	0	0	3	34	291
09:15:00	4	13	0	0	17	10	4	0	0	14	3	3	0	1	6	37	252
09:30:00	3	16	0	0	19	10	0	0	0	10	3	2	0	0	5	34	174
09:45:00	0	14	0	0	14	8	1	0	0	9	4	2	0	2	6	29	134
10:00:00	3	25	0	0	28	12	1	0	0	13	3	2	0	1	5	46	146
10:15:00	1	12	0	0	13	14	2	0	0	16	1	1	0	1	2	31	140
10:30:00	3	11	0	0	14	17	1	0	0	18	3	2	0	0	5	37	143
10:45:00	0	11	0	0	11	15	3	0	0	18	3	2	0	0	5	34	148
11:00:00	4	13	0	0	17	16	0	0	0	16	3	1	0	0	4	37	139
11:15:00	4	19	0	0	23	13	0	0	0	13	3	1	0	0	4	40	148
11:30:00	2	12	0	0	14	14	1	0	0	15	3	2	0	3	5	34	145
11:45:00	1	19	0	0	20	16	1	0	0	17	4	6	0	0	10	47	158
12:00:00	2	20	0	1	22	14	2	0	0	16	3	1	0	1	4	42	163
12:15:00	1	18	0	0	19	23	2	0	0	25	5	4	0	0	9	53	176
12:30:00	4	25	0	1	29	27	3	0	0	30	1	1	0	3	2	61	203
12:45:00	1	9	0	2	10	22	2	1	0	25	5	1	0	7	6	41	197
13:00:00	2	17	0	0	19	19	1	0	0	20	4	2	0	1	6	45	200
13:15:00	1	21	0	0	22	14	3	0	0	17	1	0	0	4	1	40	187
13:30:00	4	19	0	0	23	25	3	0	1	28	2	0	0	5	2	53	179
13:45:00	1	17	0	0	18	19	1	0	0	20	2	2	0	0	4	42	180
14:00:00	3	23	0	0	26	19	1	0	0	20	1	2	0	2	3	49	184
14:15:00	2	23	0	0	25	21	1	0	0	22	3	4	0	0	7	54	198

Turning Movement Count



14:30:00	3	19	0	0	22	25	1	0	1	26	2	3	0	0	5	53	198
14:45:00	2	16	0	0	18	23	6	0	6	29	10	6	0	1	16	63	219
15:00:00	6	25	0	0	31	41	18	0	17	59	7	3	0	4	10	100	270
15:15:00	5	11	0	0	16	29	4	0	0	33	2	1	0	0	3	52	268
15:30:00	6	21	0	0	27	37	3	0	0	40	3	1	0	2	4	71	286
15:45:00	3	17	0	0	20	39	1	0	0	40	2	3	0	0	5	65	288
16:00:00	3	23	0	1	26	42	7	0	0	49	2	3	0	0	5	80	268
16:15:00	2	20	0	0	22	33	3	0	0	36	4	1	0	2	5	63	279
16:30:00	3	19	0	0	22	40	7	0	0	47	1	1	0	1	2	71	279
16:45:00	4	14	0	0	18	41	3	0	0	44	1	3	0	0	4	66	280
17:00:00	5	21	0	0	26	47	4	0	1	51	1	1	0	2	2	79	279
17:15:00	7	21	0	0	28	55	6	0	1	61	1	5	0	2	6	95	311
17:30:00	8	17	0	0	25	41	11	0	1	52	3	1	0	0	4	81	321
17:45:00	3	19	0	0	22	36	6	0	0	42	0	3	0	6	3	67	322
18:00:00	8	11	0	0	19	25	6	0	0	31	1	0	0	2	1	51	294
18:15:00	2	8	0	0	10	23	3	0	0	26	3	1	0	0	4	40	239
18:30:00	1	7	0	0	8	24	6	0	0	30	5	0	0	0	5	43	201
18:45:00	3	11	0	0	14	20	6	0	0	26	2	2	0	0	4	44	178
<b>Grand Total</b>	<b>140</b>	<b>980</b>	<b>1</b>	<b>5</b>	<b>1121</b>	<b>1140</b>	<b>170</b>	<b>1</b>	<b>37</b>	<b>1311</b>	<b>204</b>	<b>127</b>	<b>0</b>	<b>56</b>	<b>331</b>	<b>2763</b>	<b>-</b>
<b>Approach%</b>	12.5%	87.4%	0.1%	-	-	87%	13%	0.1%	-	-	61.6%	38.4%	0%	-	-	-	-
<b>Totals %</b>	5.1%	35.5%	0%	-	40.6%	41.3%	6.2%	0%	-	47.4%	7.4%	4.6%	0%	-	12%	-	-
<b>Heavy</b>	5	49	1	-	-	51	8	0	-	-	7	6	0	-	-	-	-
<b>Heavy %</b>	3.6%	5%	100%	-	-	4.5%	4.7%	0%	-	-	3.4%	4.7%	0%	-	-	-	-
<b>Bicycles</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Bicycle %</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Turning Movement Count



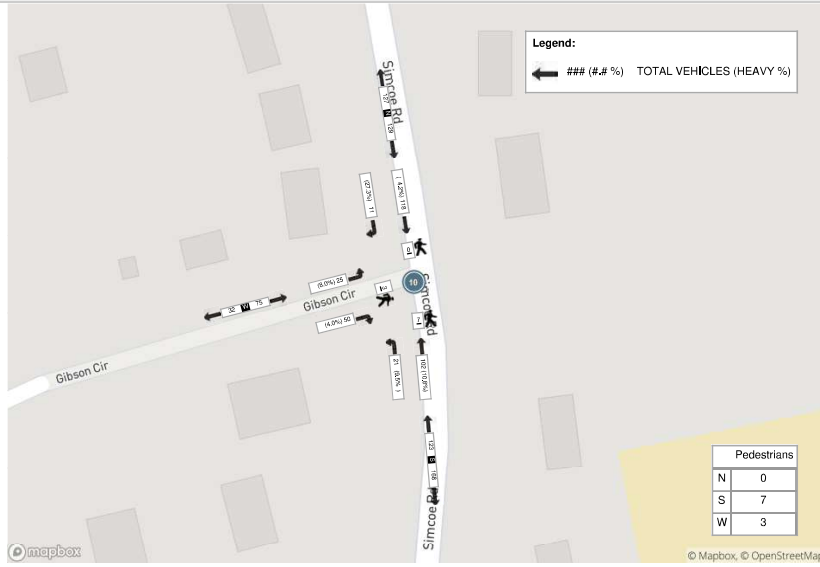
Peak Hour: 08:00 AM - 09:00 AM Weather: Scattered Clouds (-12.23 °C)																
Start Time	N Approach SIMCOE RD					S Approach SIMCOE RD					W Approach GIBSON CIRCLE					Int. Total (15 min)
	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	
08:00:00	5	30	0	0	35	20	2	0	0	22	9	5	0	1	14	71
08:15:00	3	41	0	0	44	16	1	0	0	17	7	8	0	2	15	76
08:30:00	2	28	0	0	30	37	9	0	6	46	28	8	0	0	36	112
08:45:00	1	19	1	0	21	29	9	0	1	38	6	4	0	0	10	69
<b>Grand Total</b>	<b>11</b>	<b>118</b>	<b>1</b>	<b>0</b>	<b>130</b>	<b>102</b>	<b>21</b>	<b>0</b>	<b>7</b>	<b>123</b>	<b>50</b>	<b>25</b>	<b>0</b>	<b>3</b>	<b>75</b>	<b>328</b>
<b>Approach%</b>	8.5%	90.8%	0.8%	-	-	82.9%	17.1%	0%	-	-	66.7%	33.3%	0%	-	-	-
<b>Totals %</b>	3.4%	36%	0.3%	-	39.6%	31.1%	6.4%	0%	-	37.5%	15.2%	7.6%	0%	-	22.9%	-
<b>PHF</b>	0.55	0.72	0.25	-	0.74	0.69	0.58	0	-	0.67	0.45	0.78	0	-	0.52	-
<b>Heavy</b>	3	5	1	-	9	11	2	0	-	13	2	2	0	-	4	-
<b>Heavy %</b>	27.3%	4.2%	100%	-	6.9%	10.8%	9.5%	0%	-	10.6%	4%	8%	0%	-	5.3%	-
<b>Lights</b>	8	113	0	-	121	91	19	0	-	110	48	23	0	-	71	-
<b>Lights %</b>	72.7%	95.8%	0%	-	93.1%	89.2%	90.5%	0%	-	89.4%	96%	92%	0%	-	94.7%	-
<b>Single-Unit Trucks</b>	2	3	1	-	6	4	0	0	-	4	0	2	0	-	2	-
<b>Single-Unit Trucks %</b>	18.2%	2.5%	100%	-	4.6%	3.9%	0%	0%	-	3.3%	0%	8%	0%	-	2.7%	-
<b>Buses</b>	1	2	0	-	3	6	2	0	-	8	2	0	0	-	2	-
<b>Buses %</b>	9.1%	1.7%	0%	-	2.3%	5.9%	9.5%	0%	-	6.5%	4%	0%	0%	-	2.7%	-
<b>Articulated Trucks</b>	0	0	0	-	0	1	0	0	-	1	0	0	0	-	0	-
<b>Articulated Trucks %</b>	0%	0%	0%	-	0%	1%	0%	0%	-	0.8%	0%	0%	0%	-	0%	-
<b>Pedestrians</b>	-	-	-	0	-	-	-	7	-	-	-	-	3	-	-	-
<b>Pedestrians%</b>	-	-	-	0%	-	-	-	70%	-	-	-	-	30%	-	-	-



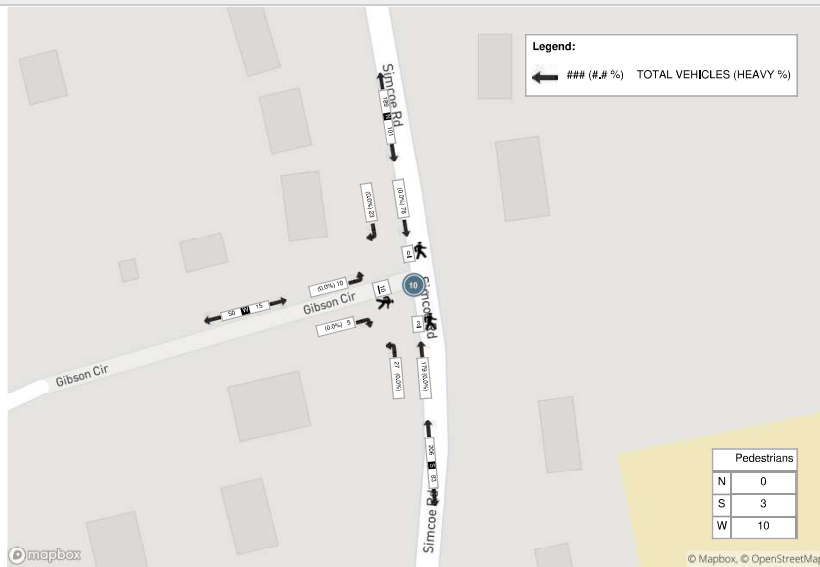
Selected Hour: 05:00 PM - 06:00 PM Weather:																
Start Time	N Approach SIMCOE RD					S Approach SIMCOE RD					W Approach GIBSON CIRCLE					Int. Total (15 min)
	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	
17:00:00	5	21	0	0	26	47	4	0	1	51	1	1	0	2	2	79
17:15:00	7	21	0	0	28	55	6	0	1	61	1	5	0	2	6	95
17:30:00	8	17	0	0	25	41	11	0	1	52	3	1	0	0	4	81
17:45:00	3	19	0	0	22	36	6	0	0	42	0	3	0	6	3	67
<b>Grand Total</b>	<b>23</b>	<b>78</b>	<b>0</b>	<b>0</b>	<b>101</b>	<b>179</b>	<b>27</b>	<b>0</b>	<b>3</b>	<b>206</b>	<b>5</b>	<b>10</b>	<b>0</b>	<b>10</b>	<b>15</b>	<b>322</b>
<b>Approach%</b>	22.8%	77.2%	0%	-	-	86.9%	13.1%	0%	-	-	33.3%	66.7%	0%	-	-	-
<b>Totals %</b>	7.1%	24.2%	0%	-	31.4%	55.6%	8.4%	0%	-	64%	1.6%	3.1%	0%	-	4.7%	-
<b>PHF</b>	0.72	0.93	0	-	0.9	0.81	0.61	0	-	0.84	0.42	0.5	0	-	0.63	-
<b>Heavy</b>	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	-
<b>Heavy %</b>	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	-
<b>Lights</b>	23	78	0	-	101	179	27	0	-	206	5	10	0	-	15	-
<b>Lights %</b>	100%	100%	0%	-	100%	100%	100%	0%	-	100%	100%	100%	0%	-	100%	-
<b>Single-Unit Trucks</b>	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	-
<b>Single-Unit Trucks %</b>	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	-
<b>Buses</b>	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	-
<b>Buses %</b>	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	-
<b>Articulated Trucks</b>	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	-
<b>Articulated Trucks %</b>	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	-
<b>Pedestrians</b>	-	-	-	0	-	-	-	3	-	-	-	-	10	-	-	-
<b>Pedestrians%</b>	-	-	-	0%	-	-	-	23.1%	-	-	-	-	76.9%	-	-	-



Peak Hour: 08:00 AM - 09:00 AM Weather: Scattered Clouds (-12.23 °C)



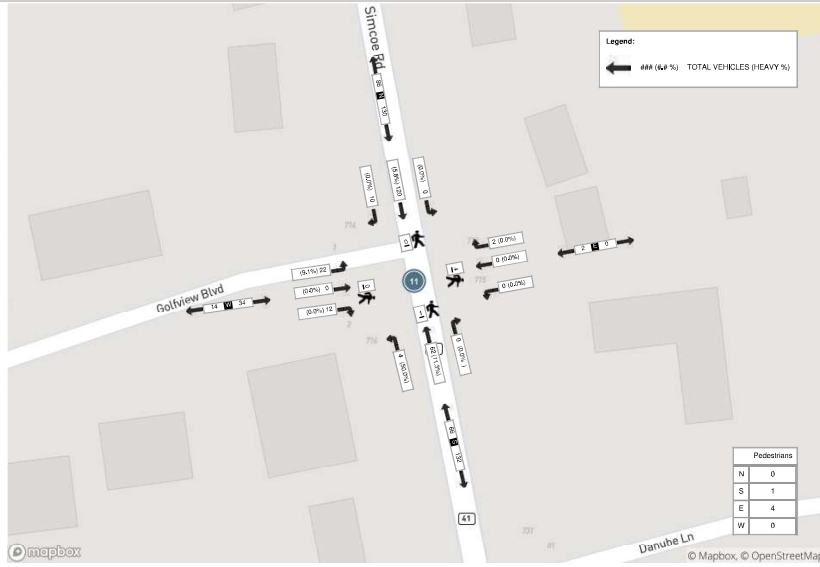
Selected Hour: 05:00 PM - 06:00 PM Weather:



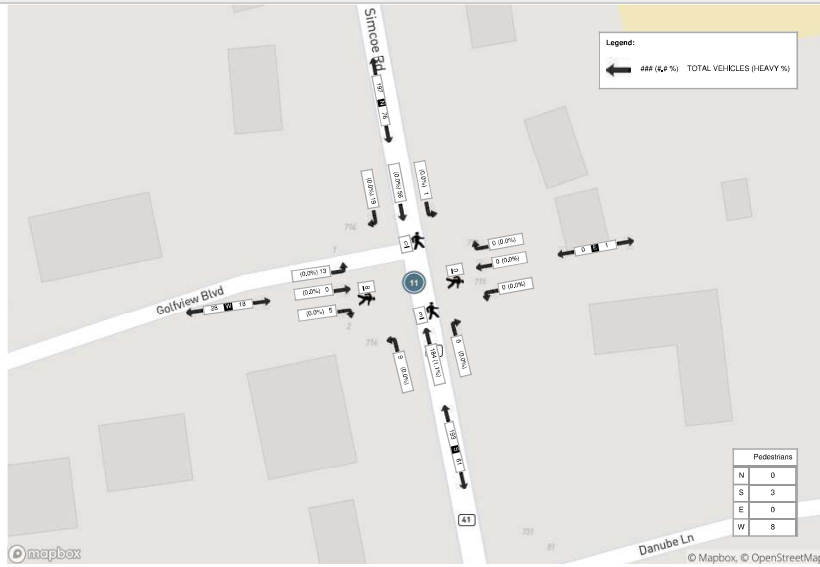




Selected Hour: 07:45 AM - 08:45 AM Weather:



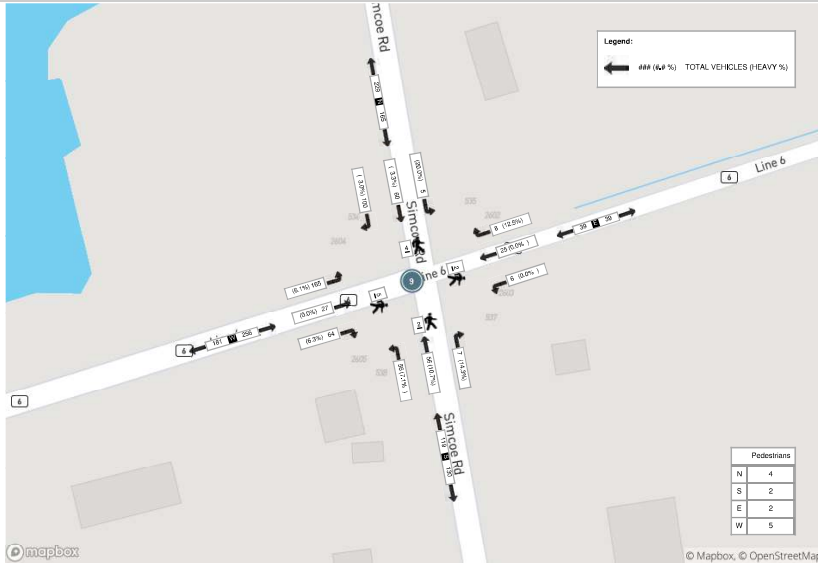
Peak Hour: 04:30 PM - 05:30 PM Weather: Scattered Clouds (-12.23 °C)



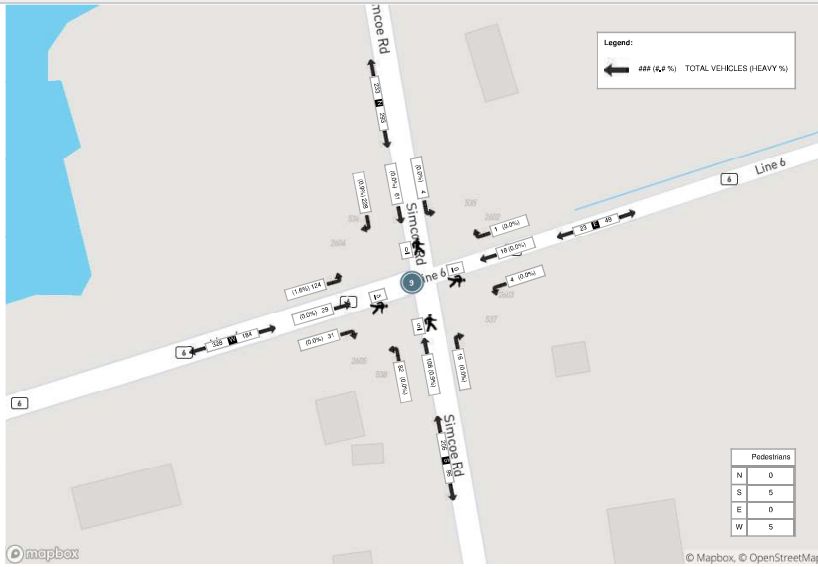




Selected Hour: 08:00 AM - 09:00 AM Weather:



Peak Hour: 04:45 PM - 05:45 PM Weather: Scattered Clouds (-12.23 °C)









**Selected Hour: 08:00 AM - 09:00 AM Weather:**



**Peak Hour: 04:00 PM - 05:00 PM Weather: Scattered Clouds (-12.23 °C)**





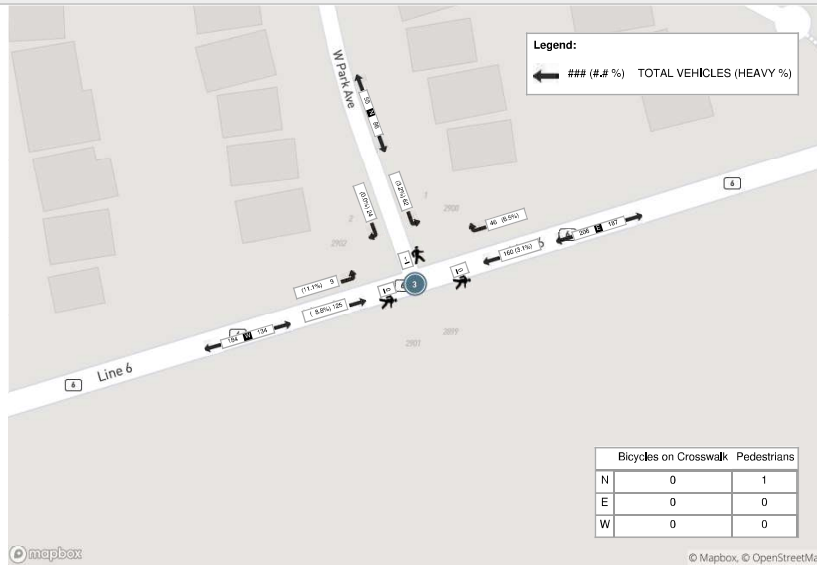
**Selected Hour: 08:00 AM - 09:00 AM Weather:**

Start Time	N Approach WEST PARK AVE					E Approach LINE 6					W Approach LINE 6					Int. Total (15 min)
	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	
08:00:00	6	14	0	0	20	10	31	0	0	41	42	4	0	0	46	107
08:15:00	3	21	0	0	24	9	38	0	0	47	26	2	0	0	28	99
08:30:00	10	15	0	0	25	16	50	0	0	66	29	1	0	0	30	121
08:45:00	5	12	0	1	17	11	41	0	0	52	28	2	0	0	30	99
<b>Grand Total</b>	<b>24</b>	<b>62</b>	<b>0</b>	<b>1</b>	<b>86</b>	<b>46</b>	<b>160</b>	<b>0</b>	<b>0</b>	<b>206</b>	<b>125</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>134</b>	<b>426</b>
<b>Approach%</b>	27.9%	72.1%	0%	-	-	22.3%	77.7%	0%	-	-	93.3%	6.7%	0%	-	-	-
<b>Totals %</b>	5.6%	14.6%	0%	20.2%	10.8%	37.6%	0%	48.4%	29.3%	2.1%	0%	31.5%	-	-	-	-
<b>PHF</b>	0.6	0.74	0	0.86	0.72	0.8	0	0.78	0.74	0.56	0	0.73	-	-	-	-
<b>Heavy</b>	0	2	0	2	3	5	0	8	11	1	0	12	-	-	-	-
<b>Heavy %</b>	0%	3.2%	0%	2.3%	6.5%	3.1%	0%	3.9%	8.8%	11.1%	0%	9%	-	-	-	-
<b>Lights</b>	24	60	0	84	43	155	0	198	114	8	0	122	-	-	-	-
<b>Lights %</b>	100%	96.8%	0%	97.7%	93.5%	96.9%	0%	96.1%	91.2%	88.9%	0%	91%	-	-	-	-
<b>Single-Unit Trucks</b>	0	2	0	2	0	1	0	1	6	0	0	6	-	-	-	-
<b>Single-Unit Trucks %</b>	0%	3.2%	0%	2.3%	0%	0.6%	0%	0.5%	4.8%	0%	0%	4.5%	-	-	-	-
<b>Buses</b>	0	0	0	0	3	4	0	7	5	1	0	6	-	-	-	-
<b>Buses %</b>	0%	0%	0%	0%	6.5%	2.5%	0%	3.4%	4%	11.1%	0%	4.5%	-	-	-	-
<b>Articulated Trucks</b>	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-
<b>Articulated Trucks %</b>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-	-	-	-
<b>Pedestrians</b>	-	-	-	1	-	-	-	0	-	-	-	0	-	-	-	-
<b>Pedestrians %</b>	-	-	-	100%	-	-	-	0%	-	-	-	0%	-	-	-	-
<b>Bicycles on Crosswalk</b>	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-	-
<b>Bicycles on Crosswalk %</b>	-	-	-	0%	-	-	-	0%	-	-	-	0%	-	-	-	-

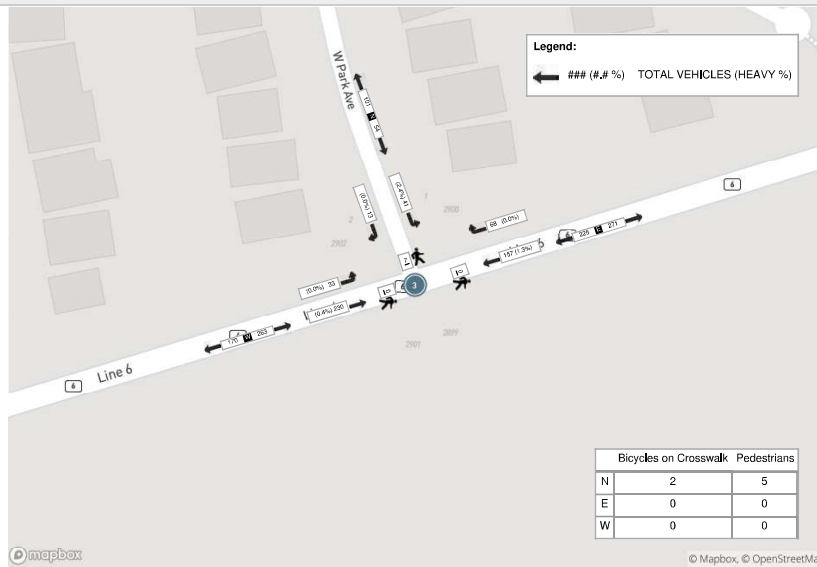
**Peak Hour: 04:00 PM - 05:00 PM Weather: Scattered Clouds (-12.23 °C)**

Start Time	N Approach WEST PARK AVE					E Approach LINE 6					W Approach LINE 6					Int. Total (15 min)
	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	
16:00:00	5	11	0	3	16	30	43	0	0	73	54	10	0	0	64	153
16:15:00	4	8	0	0	12	16	42	0	0	58	51	5	0	0	56	126
16:30:00	3	10	0	1	13	14	30	0	0	44	54	7	0	0	61	118
16:45:00	1	12	0	3	13	8	42	0	0	50	71	11	0	0	82	145
<b>Grand Total</b>	<b>13</b>	<b>41</b>	<b>0</b>	<b>7</b>	<b>54</b>	<b>68</b>	<b>157</b>	<b>0</b>	<b>0</b>	<b>225</b>	<b>230</b>	<b>33</b>	<b>0</b>	<b>0</b>	<b>263</b>	<b>542</b>
<b>Approach%</b>	24.1%	75.9%	0%	-	-	30.2%	69.8%	0%	-	-	87.5%	12.5%	0%	-	-	-
<b>Totals %</b>	2.4%	7.6%	0%	10%	12.5%	29%	0%	41.5%	42.4%	6.1%	0%	48.5%	-	-	-	-
<b>PHF</b>	0.65	0.85	0	0.84	0.57	0.91	0	0.77	0.81	0.75	0	0.8	-	-	-	-
<b>Heavy</b>	0	1	0	1	0	2	0	2	1	0	0	1	-	-	-	-
<b>Heavy %</b>	0%	2.4%	0%	1.9%	0%	1.3%	0%	0.9%	0.4%	0%	0%	0.4%	-	-	-	-
<b>Lights</b>	13	40	0	53	68	155	0	223	229	33	0	262	-	-	-	-
<b>Lights %</b>	100%	97.6%	0%	98.1%	100%	98.7%	0%	99.1%	99.6%	100%	0%	99.6%	-	-	-	-
<b>Single-Unit Trucks</b>	0	1	0	1	0	1	0	1	0	0	0	0	-	-	-	-
<b>Single-Unit Trucks %</b>	0%	2.4%	0%	1.9%	0%	0.6%	0%	0.4%	0%	0%	0%	0%	-	-	-	-
<b>Buses</b>	0	0	0	0	0	1	0	1	1	0	0	1	-	-	-	-
<b>Buses %</b>	0%	0%	0%	0%	0%	0.6%	0%	0.4%	0.4%	0%	0%	0.4%	-	-	-	-
<b>Articulated Trucks</b>	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-
<b>Articulated Trucks %</b>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-	-	-	-
<b>Pedestrians</b>	-	-	-	5	-	-	-	0	-	-	-	0	-	-	-	-
<b>Pedestrians %</b>	-	-	-	71.4%	-	-	-	0%	-	-	-	0%	-	-	-	-
<b>Bicycles on Crosswalk</b>	-	-	-	2	-	-	-	0	-	-	-	0	-	-	-	-
<b>Bicycles on Crosswalk %</b>	-	-	-	28.6%	-	-	-	0%	-	-	-	0%	-	-	-	-

**Selected Hour: 08:00 AM - 09:00 AM Weather:**



**Peak Hour: 04:00 PM - 05:00 PM Weather: Scattered Clouds (-12.23 °C)**



# Ontario Traffic Inc.

## Morning Peak Diagram

### Specified Period

**From:** 7:00:00

**To:** 9:00:00

### One Hour Peak

**From:** 7:00:00

**To:** 8:00:00

**Municipality:** Bradford  
**Site #:** 1801300016  
**Intersection:** Sdrd 10 & Line 6  
**TFR File #:** 1  
**Count date:** 27-Jun-18

**Weather conditions:**

**Person(s) who counted:**

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

**Major Road:** Sdrd 10 runs N/S

North Leg Total: 266

North Entering: 119

North Peds: 0

Peds Cross:  $\times$

Cyclists	0	0	1	1
Trucks	1	7	6	14
Cars	1	33	70	104
<b>Totals</b>	<b>2</b>	<b>40</b>	<b>77</b>	



Cyclists 0

Trucks 8

Cars 139

Totals 147

East Leg Total: 244

East Entering: 150

East Peds: 0

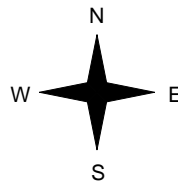
Peds Cross:  $\times$

Cyclists	0	Trucks	2	Cars	4	Totals	6
----------	---	--------	---	------	---	--------	---



Line 6

Cyclists	0	Trucks	2	Cars	0	Totals	2
	0		0		4		4
	0		0		0		0
	0		2		4		



Sdrd 10

Cars	116	Trucks	2	Cyclists	0	Totals	118
	3		0		0		3
	29		0		0		29
	148		2		0		

Line 6



Cars	87	Trucks	6	Cyclists	1	Totals	94
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Peds Cross:  $\times$

West Peds: 0

West Entering: 6

West Leg Total: 12

Cars	62
Trucks	7
Cyclists	0
<b>Totals</b>	<b>69</b>



Cars	0	23	13	36
Trucks	1	4	0	5
Cyclists	0	0	0	0
<b>Totals</b>	<b>1</b>	<b>27</b>	<b>13</b>	

Peds Cross:  $\times$

South Peds: 0

South Entering: 41

South Leg Total: 110

## Comments

# Ontario Traffic Inc.

## Mid-day Peak Diagram

### Specified Period

**From:** 11:00:00  
**To:** 14:00:00

### One Hour Peak

**From:** 11:00:00  
**To:** 12:00:00

**Municipality:** Bradford  
**Site #:** 1801300016  
**Intersection:** Sdrd 10 & Line 6  
**TFR File #:** 1  
**Count date:** 27-Jun-18

**Weather conditions:**

**Person(s) who counted:**

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

**Major Road:** Sdrd 10 runs N/S

North Leg Total: 214  
North Entering: 112  
North Peds: 0  
Peds Cross:  $\bowtie$

Cyclists	0	0	0	0
Trucks	0	6	10	16
Cars	2	22	72	96
<b>Totals</b>	<b>2</b>	<b>28</b>	<b>82</b>	



Cyclists	0
Trucks	10
Cars	92
<b>Totals</b>	<b>102</b>

East Leg Total: 172  
East Entering: 81  
East Peds: 0  
Peds Cross:  $\bowtie$

Cyclists	0
Trucks	0
Cars	4
<b>Totals</b>	<b>4</b>

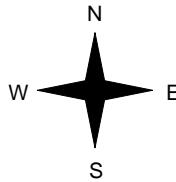


Sdrd 10

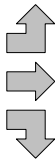
Cars	64	5	0	69
Trucks	2	0	0	2
Cyclists	10	0	0	10
<b>Totals</b>	<b>76</b>	<b>5</b>	<b>0</b>	



Line 6



Cyclists	0
Trucks	0
Cars	1
<b>Totals</b>	<b>1</b>
Cyclists	0
Trucks	0
Cars	0
<b>Totals</b>	<b>0</b>
Cyclists	0
Trucks	0
Cars	0
<b>Totals</b>	<b>0</b>
Cyclists	0
Trucks	0
Cars	1
<b>Totals</b>	<b>1</b>



Sdrd 10

Line 6



Cars	80	11	0	91
Trucks				
Cyclists				
<b>Totals</b>				

Peds Cross:  $\bowtie$   
West Peds: 0  
West Entering: 1  
West Leg Total: 5

Cars	32
Trucks	6
Cyclists	0
<b>Totals</b>	<b>38</b>



Cars	0	27	8	35
Trucks	0	5	1	6
Cyclists	0	0	0	0
<b>Totals</b>	<b>0</b>	<b>32</b>	<b>9</b>	

Peds Cross:  $\bowtie$   
South Peds: 0  
South Entering: 41  
South Leg Total: 79

## Comments

# Ontario Traffic Inc.

## Afternoon Peak Diagram

### Specified Period

**From:** 16:00:00  
**To:** 19:00:00

### One Hour Peak

**From:** 17:15:00  
**To:** 18:15:00

**Municipality:** Bradford  
**Site #:** 1801300016  
**Intersection:** Sdrd 10 & Line 6  
**TFR File #:** 1  
**Count date:** 27-Jun-18

**Weather conditions:**  
**Person(s) who counted:**

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

**Major Road:** Sdrd 10 runs N/S

North Leg Total: 371  
North Entering: 196  
North Peds: 2  
Peds Cross:  $\bowtie$

Cyclists	0	0	1	1
Trucks	0	0	1	1
Cars	1	39	154	194
<b>Totals</b>	<b>1</b>	<b>39</b>	<b>156</b>	



Cyclists 1  
Trucks 4  
Cars 170  
Totals 175

East Leg Total: 318  
East Entering: 104  
East Peds: 0  
Peds Cross:  $\bowtie$

Cyclists	Trucks	Cars	Totals
0	0	2	2

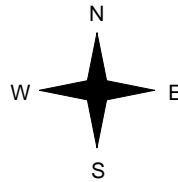


Sdrd 10

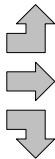
Cars	Trucks	Cyclists	Totals
93	1	0	94
1	0	0	1
9	0	0	9
<b>103</b>	<b>1</b>	<b>0</b>	



Line 6



Cyclists	Trucks	Cars	Totals
0	0	2	2
0	0	1	1
0	0	0	0
<b>0</b>	<b>0</b>	<b>3</b>	



Line 6



Sdrd 10

Cars	Trucks	Cyclists	Totals
212	1	1	214

Peds Cross:  $\bowtie$   
West Peds: 1  
West Entering: 3  
West Leg Total: 5

Cars	48	Cars	0	75	57	132
Trucks	0	Trucks	0	3	0	3
Cyclists	0	Cyclists	0	1	0	1
<b>Totals</b>	<b>48</b>	<b>Totals</b>	<b>0</b>	<b>79</b>	<b>57</b>	



Peds Cross:  $\bowtie$   
South Peds: 0  
South Entering: 136  
South Leg Total: 184

## Comments



# Ontario Traffic Inc.

## Total Count Diagram

**Municipality:** Bradford  
**Site #:** 1801300016  
**Intersection:** Sdrd 10 & Line 6  
**TFR File #:** 1  
**Count date:** 27-Jun-18

**Weather conditions:**  
**Person(s) who counted:**

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

**Major Road:** Sdrd 10 runs N/S

North Leg Total: 2148  
 North Entering: 1032  
 North Peds: 2  
 Peds Cross:  $\bowtie$

Cyclists	0	0	3	3
Trucks	2	30	36	68
Cars	18	221	722	961
<b>Totals</b>	<b>20</b>	<b>251</b>	<b>761</b>	



Cyclists	2
Trucks	67
Cars	1047
<b>Totals</b>	<b>1116</b>

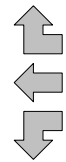
East Leg Total: 1787  
 East Entering: 861  
 East Peds: 1  
 Peds Cross:  $\bowtie$

Cyclists	Trucks	Cars	Totals
0	5	37	42

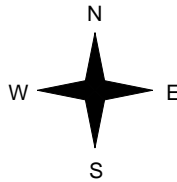


Sdrd 10

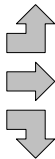
Cars	Trucks	Cyclists	Totals
691	28	1	720
14	0	0	14
125	2	0	127
<b>830</b>	<b>30</b>	<b>1</b>	



Line 6



Cyclists	Trucks	Cars	Totals
0	3	10	13
0	1	16	17
0	1	6	7
<b>0</b>	<b>5</b>	<b>32</b>	



Sdrd 10

Line 6



Cars	Trucks	Cyclists	Totals
883	40	3	926

Peds Cross:  $\bowtie$   
 West Peds: 1  
 West Entering: 37  
 West Leg Total: 79

Cars	352	Cars	5	346	145	496
Trucks	33	Trucks	3	36	3	42
Cyclists	0	Cyclists	0	1	0	1
<b>Totals</b>	<b>385</b>	<b>Totals</b>	<b>8</b>	<b>383</b>	<b>148</b>	



Peds Cross:  $\bowtie$   
 South Peds: 0  
 South Entering: 539  
 South Leg Total: 924

### Comments

# Ontario Traffic Inc. Traffic Count Summary

Intersection: Sdrd 10 & Line 6

Count Date: 27-Jun-18

Municipality: Bradford

<b>North Approach Totals</b>						North/South Total Approaches	<b>South Approach Totals</b>					
Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds		Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	77	40	2	119	0	160	8:00:00	1	27	13	41	0
9:00:00	84	38	1	123	0	164	9:00:00	2	33	6	41	0
11:00:00	0	0	0	0	0	0	11:00:00	0	0	0	0	0
12:00:00	82	28	2	112	0	153	12:00:00	0	32	9	41	0
13:00:00	64	21	4	89	0	131	13:00:00	1	32	9	42	0
14:00:00	58	26	6	90	0	131	14:00:00	1	31	9	41	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	116	31	4	151	0	242	17:00:00	2	70	19	91	0
18:00:00	158	38	1	197	2	328	18:00:00	1	82	48	131	0
19:00:00	122	29	0	151	0	262	19:00:00	0	76	35	111	0
<b>Totals:</b>	761	251	20	1032	2	1571		8	383	148	539	0
<b>East Approach Totals</b>						East/West Total Approaches	<b>West Approach Totals</b>					
Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds		Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	29	3	118	150	0	156	8:00:00	2	4	0	6	0
9:00:00	22	2	107	131	1	137	9:00:00	2	4	0	6	0
11:00:00	0	0	0	0	0	0	11:00:00	0	0	0	0	0
12:00:00	10	2	69	81	0	82	12:00:00	1	0	0	1	0
13:00:00	13	0	65	78	0	83	13:00:00	2	1	2	5	0
14:00:00	10	2	74	86	0	94	14:00:00	2	3	3	8	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	13	3	93	109	0	116	17:00:00	2	3	2	7	0
18:00:00	6	1	94	101	0	104	18:00:00	2	1	0	3	1
19:00:00	24	1	100	125	0	126	19:00:00	0	1	0	1	0
<b>Totals:</b>	127	14	720	861	1	898		13	17	7	37	1
<b>Calculated Values for Traffic Crossing Major Street</b>												
Hours Ending:	8:00	9:00	12:00	13:00		14:00	17:00	18:00	19:00			
Crossing Values:	35	28	13	16		15	18	11	25			

# Ontario Traffic Inc.

## Morning Peak Diagram

### Specified Period

**From:** 7:00:00

**To:** 9:00:00

### One Hour Peak

**From:** 7:00:00

**To:** 8:00:00

**Municipality:** Bradford  
**Site #:** 1801300016  
**Intersection:** Sdrd 10 & Line 6  
**TFR File #:** 1  
**Count date:** 27-Jun-18

**Weather conditions:**

**Person(s) who counted:**

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

**Major Road:** Sdrd 10 runs N/S

North Leg Total: 266

North Entering: 119

North Peds: 0

Peds Cross:  $\times$

Cyclists	0	0	1	1
Trucks	1	7	6	14
Cars	1	33	70	104
<b>Totals</b>	<b>2</b>	<b>40</b>	<b>77</b>	



Cyclists 0

Trucks 8

Cars 139

Totals 147

East Leg Total: 244

East Entering: 150

East Peds: 0

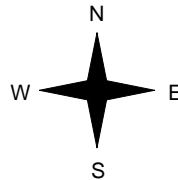
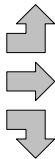
Peds Cross:  $\times$

Cyclists	0	Trucks	2	Cars	4	Totals	6
----------	---	--------	---	------	---	--------	---



Line 6

Cyclists	0	Trucks	2	Cars	0	Totals	2
	0		0		4		4
	0		0		0		0
	0		2		4		



Sdrd 10

Cars	116	Trucks	2	Cyclists	0	Totals	118
	3		0		0		3
	29		0		0		29
	148		2		0		

Line 6



Cars	87	Trucks	6	Cyclists	1	Totals	94
------	----	--------	---	----------	---	--------	----

Peds Cross:  $\times$

West Peds: 0

West Entering: 6

West Leg Total: 12

Cars	62
Trucks	7
Cyclists	0
<b>Totals</b>	<b>69</b>



Cars	0	23	13	36
Trucks	1	4	0	5
Cyclists	0	0	0	0
<b>Totals</b>	<b>1</b>	<b>27</b>	<b>13</b>	

Peds Cross:  $\times$

South Peds: 0

South Entering: 41

South Leg Total: 110

## Comments

# Ontario Traffic Inc.

## Mid-day Peak Diagram

### Specified Period

**From:** 11:00:00  
**To:** 14:00:00

### One Hour Peak

**From:** 11:00:00  
**To:** 12:00:00

**Municipality:** Bradford  
**Site #:** 1801300016  
**Intersection:** Sdrd 10 & Line 6  
**TFR File #:** 1  
**Count date:** 27-Jun-18

**Weather conditions:**  
**Person(s) who counted:**

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

**Major Road:** Sdrd 10 runs N/S

North Leg Total: 214  
North Entering: 112  
North Peds: 0  
Peds Cross:  $\times$

Cyclists	0	0	0	0
Trucks	0	6	10	16
Cars	2	22	72	96
<b>Totals</b>	<b>2</b>	<b>28</b>	<b>82</b>	



Cyclists	0
Trucks	10
Cars	92
<b>Totals</b>	<b>102</b>

East Leg Total: 172  
East Entering: 81  
East Peds: 0  
Peds Cross:  $\times$

Cyclists	0	0	4	4
Trucks	0	0		
Cars				
<b>Totals</b>				

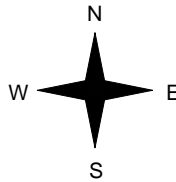


Sdrd 10

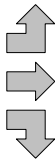
Cars	64	5	0	69
Trucks	2	0	0	2
Cyclists	10	0	0	10
<b>Totals</b>	<b>76</b>	<b>5</b>	<b>0</b>	



Line 6



Cyclists	0	0	1	1
Trucks	0	0	0	0
Cars	0	0	0	0
<b>Totals</b>	<b>0</b>	<b>0</b>	<b>1</b>	



Sdrd 10

Line 6



Cars	80	11	0	91
Trucks				
Cyclists				
<b>Totals</b>				

Peds Cross:  $\times$   
West Peds: 0  
West Entering: 1  
West Leg Total: 5

Cars	32
Trucks	6
Cyclists	0
<b>Totals</b>	<b>38</b>



Cars	0	27	8	35
Trucks	0	5	1	6
Cyclists	0	0	0	0
<b>Totals</b>	<b>0</b>	<b>32</b>	<b>9</b>	

Peds Cross:  $\times$   
South Peds: 0  
South Entering: 41  
South Leg Total: 79

## Comments

# Ontario Traffic Inc.

## Afternoon Peak Diagram

### Specified Period

**From:** 16:00:00

**To:** 19:00:00

### One Hour Peak

**From:** 17:15:00

**To:** 18:15:00

**Municipality:** Bradford  
**Site #:** 1801300016  
**Intersection:** Sdrd 10 & Line 6  
**TFR File #:** 1  
**Count date:** 27-Jun-18

**Weather conditions:**  
**Person(s) who counted:**

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

**Major Road:** Sdrd 10 runs N/S

North Leg Total: 371  
 North Entering: 196  
 North Peds: 2  
 Peds Cross:  $\bowtie$

Cyclists	0	0	1	1
Trucks	0	0	1	1
Cars	1	39	154	194
<b>Totals</b>	<b>1</b>	<b>39</b>	<b>156</b>	



Cyclists	1
Trucks	4
Cars	170
<b>Totals</b>	<b>175</b>

East Leg Total: 318  
 East Entering: 104  
 East Peds: 0  
 Peds Cross:  $\bowtie$

Cyclists	Trucks	Cars	Totals
0	0	2	2

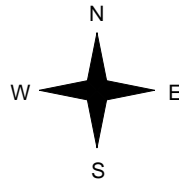
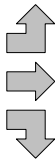


Sdrd 10

Cars	Trucks	Cyclists	Totals
93	1	0	94
1	0	0	1
9	0	0	9
<b>103</b>	<b>1</b>	<b>0</b>	



Cyclists	Trucks	Cars	Totals
0	0	2	2
0	0	1	1
0	0	0	0
<b>0</b>	<b>0</b>	<b>3</b>	



Line 6



Sdrd 10



Cars	Trucks	Cyclists	Totals
212	1	1	214

Peds Cross:  $\bowtie$   
 West Peds: 1  
 West Entering: 3  
 West Leg Total: 5

Cars	48
Trucks	0
Cyclists	0
<b>Totals</b>	<b>48</b>



Cars	0	75	57	132
Trucks	0	3	0	3
Cyclists	0	1	0	1
<b>Totals</b>	<b>0</b>	<b>79</b>	<b>57</b>	

Peds Cross:  $\bowtie$   
 South Peds: 0  
 South Entering: 136  
 South Leg Total: 184

## Comments

# Ontario Traffic Inc.

## Total Count Diagram

**Municipality:** Bradford  
**Site #:** 1801300016  
**Intersection:** Sdrd 10 & Line 6  
**TFR File #:** 1  
**Count date:** 27-Jun-18

**Weather conditions:**  
**Person(s) who counted:**

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

**Major Road:** Sdrd 10 runs N/S

North Leg Total: 2148  
 North Entering: 1032  
 North Peds: 2  
 Peds Cross:  $\bowtie$

Cyclists	0	0	3	3
Trucks	2	30	36	68
Cars	18	221	722	961
Totals	20	251	761	



Cyclists	2
Trucks	67
Cars	1047
Totals	1116

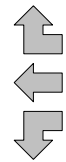
East Leg Total: 1787  
 East Entering: 861  
 East Peds: 1  
 Peds Cross:  $\bowtie$

Cyclists	Trucks	Cars	Totals
0	5	37	42

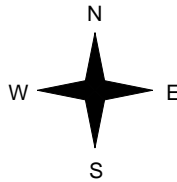
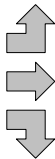


Sdrd 10

Cars	Trucks	Cyclists	Totals
691	28	1	720
14	0	0	14
125	2	0	127
830	30	1	



Cyclists	Trucks	Cars	Totals
0	3	10	13
0	1	16	17
0	1	6	7
0	5	32	



Line 6



Cars	Trucks	Cyclists	Totals
883	40	3	926

Peds Cross:  $\bowtie$   
 West Peds: 1  
 West Entering: 37  
 West Leg Total: 79

Cars	352	Cars	5	346	145	496
Trucks	33	Trucks	3	36	3	42
Cyclists	0	Cyclists	0	1	0	1
Totals	385	Totals	8	383	148	



Peds Cross:  $\bowtie$   
 South Peds: 0  
 South Entering: 539  
 South Leg Total: 924

### Comments

# Ontario Traffic Inc. Traffic Count Summary

Intersection: Sdrd 10 & Line 6

Count Date: 27-Jun-18

Municipality: Bradford

<b>North Approach Totals</b>						North/South Total Approaches	<b>South Approach Totals</b>					
Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds		Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	77	40	2	119	0	160	8:00:00	1	27	13	41	0
9:00:00	84	38	1	123	0	164	9:00:00	2	33	6	41	0
11:00:00	0	0	0	0	0	0	11:00:00	0	0	0	0	0
12:00:00	82	28	2	112	0	153	12:00:00	0	32	9	41	0
13:00:00	64	21	4	89	0	131	13:00:00	1	32	9	42	0
14:00:00	58	26	6	90	0	131	14:00:00	1	31	9	41	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	116	31	4	151	0	242	17:00:00	2	70	19	91	0
18:00:00	158	38	1	197	2	328	18:00:00	1	82	48	131	0
19:00:00	122	29	0	151	0	262	19:00:00	0	76	35	111	0
<b>Totals:</b>	761	251	20	1032	2	1571		8	383	148	539	0
<b>East Approach Totals</b>						East/West Total Approaches	<b>West Approach Totals</b>					
Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds		Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	29	3	118	150	0	156	8:00:00	2	4	0	6	0
9:00:00	22	2	107	131	1	137	9:00:00	2	4	0	6	0
11:00:00	0	0	0	0	0	0	11:00:00	0	0	0	0	0
12:00:00	10	2	69	81	0	82	12:00:00	1	0	0	1	0
13:00:00	13	0	65	78	0	83	13:00:00	2	1	2	5	0
14:00:00	10	2	74	86	0	94	14:00:00	2	3	3	8	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	13	3	93	109	0	116	17:00:00	2	3	2	7	0
18:00:00	6	1	94	101	0	104	18:00:00	2	1	0	3	1
19:00:00	24	1	100	125	0	126	19:00:00	0	1	0	1	0
<b>Totals:</b>	127	14	720	861	1	898		13	17	7	37	1
<b>Calculated Values for Traffic Crossing Major Street</b>												
Hours Ending:	8:00	9:00	12:00	13:00		14:00	17:00	18:00	19:00			
Crossing Values:	35	28	13	16		15	18	11	25			

# Ontario Traffic Inc.

## Morning Peak Diagram

### Specified Period

**From:** 7:00:00

**To:** 9:00:00

### One Hour Peak

**From:** 8:00:00

**To:** 9:00:00

**Municipality:** Bradford  
**Site #:** 1801300017  
**Intersection:** Simcoe Rd & Line 6  
**TFR File #:** 1  
**Count date:** 20-Jun-18

**Weather conditions:**  
**Person(s) who counted:**

**\*\* Signalized Intersection \*\***

**Major Road:** Simcoe Rd runs N/S

North Leg Total: 284  
 North Entering: 126  
 North Peds: 3  
 Peds Cross:  $\bowtie$

Cyclists	0	1	0	1
Trucks	0	8	6	14
Cars	4	59	48	111
<b>Totals</b>	<b>4</b>	<b>68</b>	<b>54</b>	



Cyclists 0  
 Trucks 13  
 Cars 145  
 Totals 158

East Leg Total: 487  
 East Entering: 322  
 East Peds: 0  
 Peds Cross:  $\bowtie$

Cyclists	Trucks	Cars	Totals
2	0	22	24

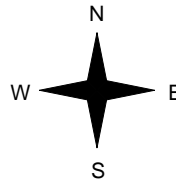


Simcoe Rd

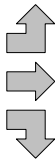
Cars	Trucks	Cyclists	Totals
72	6	0	78
15	0	2	17
223	4	0	227
<b>310</b>	<b>10</b>	<b>2</b>	



Line 6



Cyclists	Trucks	Cars	Totals
0	1	5	6
1	1	23	25
0	0	5	5
<b>1</b>	<b>2</b>	<b>33</b>	



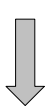
Line 6



Cars	Trucks	Cyclists	Totals
155	9	1	165

Peds Cross:  $\bowtie$   
 West Peds: 1  
 West Entering: 36  
 West Leg Total: 60

Cars	287	Cars	3	68	84	155
Trucks	12	Trucks	0	6	2	8
Cyclists	1	Cyclists	0	0	0	0
<b>Totals</b>	<b>300</b>	<b>Totals</b>	<b>3</b>	<b>74</b>	<b>86</b>	



Simcoe Rd

Peds Cross:  $\bowtie$   
 South Peds: 1  
 South Entering: 163  
 South Leg Total: 463

## Comments



# Ontario Traffic Inc.

## Mid-day Peak Diagram

### Specified Period

**From:** 11:00:00

**To:** 14:00:00

### One Hour Peak

**From:** 13:00:00

**To:** 14:00:00

**Municipality:** Bradford  
**Site #:** 1801300017  
**Intersection:** Simcoe Rd & Line 6  
**TFR File #:** 1  
**Count date:** 20-Jun-18

**Weather conditions:**

**Person(s) who counted:**

**\*\* Signalized Intersection \*\***

**Major Road:** Simcoe Rd runs N/S

North Leg Total: 168

North Entering: 81

North Peds: 1

Peds Cross:  $\times$

Cyclists	0	0	0	0
Trucks	0	1	1	2
Cars	6	42	31	79
<b>Totals</b>	<b>6</b>	<b>43</b>	<b>32</b>	



Cyclists 1

Trucks 3

Cars 83

Totals 87

East Leg Total: 336

East Entering: 168

East Peds: 6

Peds Cross:  $\times$

Cyclists	Trucks	Cars	Totals
0	1	24	25

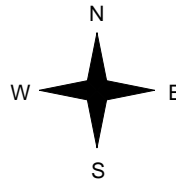


Simcoe Rd

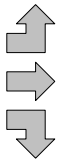
Cars	Trucks	Cyclists	Totals
40	0	0	40
16	1	0	17
110	1	0	111
<b>166</b>	<b>2</b>	<b>0</b>	



Line 6



Cyclists	Trucks	Cars	Totals
1	0	2	3
0	1	15	16
0	0	2	2
<b>1</b>	<b>1</b>	<b>19</b>	



Line 6



Simcoe Rd



Cars	Trucks	Cyclists	Totals
163	4	1	168

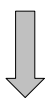
Peds Cross:  $\times$

West Peds: 1

West Entering: 21

West Leg Total: 46

Cars	154	Cars	2	41	117	160
Trucks	2	Trucks	0	3	2	5
Cyclists	0	Cyclists	0	0	1	1
<b>Totals</b>	<b>156</b>	<b>Totals</b>	<b>2</b>	<b>44</b>	<b>120</b>	



Peds Cross:  $\times$

South Peds: 0

South Entering: 166

South Leg Total: 322

## Comments

# Ontario Traffic Inc.

## Afternoon Peak Diagram

### Specified Period

**From:** 16:00:00

**To:** 19:00:00

### One Hour Peak

**From:** 17:30:00

**To:** 18:30:00

**Municipality:** Bradford  
**Site #:** 1801300017  
**Intersection:** Simcoe Rd & Line 6  
**TFR File #:** 1  
**Count date:** 20-Jun-18

**Weather conditions:**

**Person(s) who counted:**

**\*\* Signalized Intersection \*\***

**Major Road:** Simcoe Rd runs N/S

North Leg Total: 446  
 North Entering: 296  
 North Peds: 0  
 Peds Cross:  $\bowtie$

Cyclists	0	0	0	0
Trucks	0	1	0	1
Cars	12	139	144	295
<b>Totals</b>	<b>12</b>	<b>140</b>	<b>144</b>	



Cyclists 0  
 Trucks 2  
 Cars 148  
 Totals 150

East Leg Total: 720  
 East Entering: 295  
 East Peds: 1  
 Peds Cross:  $\bowtie$

Cyclists	Trucks	Cars	Totals
1	0	49	50

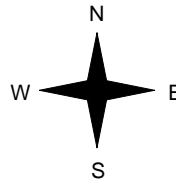


Simcoe Rd

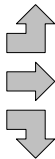
Cars	Trucks	Cyclists	Totals
74	0	0	74
34	0	1	35
186	0	0	186
<b>294</b>	<b>0</b>	<b>1</b>	



Line 6



Cyclists	Trucks	Cars	Totals
0	0	4	4
0	0	30	30
0	0	3	3
<b>0</b>	<b>0</b>	<b>37</b>	



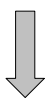
Line 6



Cars	Trucks	Cyclists	Totals
425	0	0	425

Peds Cross:  $\bowtie$   
 West Peds: 0  
 West Entering: 37  
 West Leg Total: 87

Cars	328	Cars	3	70	251	324
Trucks	1	Trucks	0	2	0	2
Cyclists	0	Cyclists	0	0	0	0
<b>Totals</b>	<b>329</b>	<b>Totals</b>	<b>3</b>	<b>72</b>	<b>251</b>	



Simcoe Rd

Peds Cross:  $\bowtie$   
 South Peds: 0  
 South Entering: 326  
 South Leg Total: 655

## Comments

# Ontario Traffic Inc.

## Total Count Diagram

**Municipality:** Bradford  
**Site #:** 1801300017  
**Intersection:** Simcoe Rd & Line 6  
**TFR File #:** 1  
**Count date:** 20-Jun-18

**Weather conditions:**  
**Person(s) who counted:**

**\*\* Signalized Intersection \*\***

**Major Road:** Simcoe Rd runs N/S

North Leg Total: 2088  
 North Entering: 1195  
 North Peds: 11  
 Peds Cross:  $\bowtie$

Cyclists	5	1	0	6
Trucks	0	26	15	41
Cars	58	589	501	1148
<b>Totals</b>	<b>63</b>	<b>616</b>	<b>516</b>	



Cyclists	5
Trucks	34
Cars	854
<b>Totals</b>	<b>893</b>

East Leg Total: 3749  
 East Entering: 1837  
 East Peds: 16  
 Peds Cross:  $\bowtie$

Cyclists	Trucks	Cars	Totals
9	6	241	256

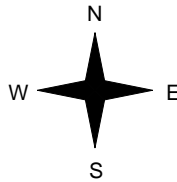


Simcoe Rd

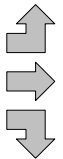
Cars	Trucks	Cyclists	Totals
388	15	0	403
162	6	4	172
1248	12	2	1262
<b>1798</b>	<b>33</b>	<b>6</b>	



Line 6



Cyclists	Trucks	Cars	Totals
4	1	32	37
3	6	163	172
0	0	25	25
<b>7</b>	<b>7</b>	<b>220</b>	



Line 6



Simcoe Rd



Cars	Trucks	Cyclists	Totals
1876	32	4	1912

Peds Cross:  $\bowtie$   
 West Peds: 3  
 West Entering: 234  
 West Leg Total: 490

Cars	1862	Cars	21	434	1212	1667
Trucks	38	Trucks	0	18	11	29
Cyclists	3	Cyclists	0	1	1	2
<b>Totals</b>	<b>1903</b>	<b>Totals</b>	<b>21</b>	<b>453</b>	<b>1224</b>	



Peds Cross:  $\bowtie$   
 South Peds: 3  
 South Entering: 1698  
 South Leg Total: 3601

### Comments

# Ontario Traffic Inc. Traffic Count Summary

Intersection: Simcoe Rd & Line 6

Count Date: 20-Jun-18

Municipality: Bradford

<b>North Approach Totals</b>						North/South Total Approaches	<b>South Approach Totals</b>					
Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds		Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	28	33	4	65	2	194	8:00:00	2	71	56	129	0
9:00:00	54	68	4	126	3	289	9:00:00	3	74	86	163	1
11:00:00	0	0	0	0	0	0	11:00:00	0	0	0	0	0
12:00:00	32	43	5	80	2	244	12:00:00	1	49	114	164	0
13:00:00	36	56	5	97	1	236	13:00:00	3	37	99	139	0
14:00:00	32	43	6	81	1	247	14:00:00	2	44	120	166	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	81	107	10	198	0	492	17:00:00	2	51	241	294	1
18:00:00	141	131	16	288	0	605	18:00:00	3	67	247	317	1
19:00:00	112	135	13	260	2	586	19:00:00	5	60	261	326	0
<b>Totals:</b>	516	616	63	1195	11	2893		21	453	1224	1698	3
<b>East Approach Totals</b>						East/West Total Approaches	<b>West Approach Totals</b>					
Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds		Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	238	11	54	303	1	346	8:00:00	10	27	6	43	0
9:00:00	227	17	78	322	0	358	9:00:00	6	25	5	36	1
11:00:00	0	0	0	0	0	0	11:00:00	0	0	0	0	0
12:00:00	111	13	26	150	1	172	12:00:00	4	16	2	22	0
13:00:00	107	23	36	166	6	185	13:00:00	3	14	2	19	0
14:00:00	111	17	40	168	6	189	14:00:00	3	16	2	21	1
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	133	23	48	204	0	226	17:00:00	4	15	3	22	1
18:00:00	156	37	54	247	1	281	18:00:00	6	26	2	34	0
19:00:00	179	31	67	277	1	314	19:00:00	1	33	3	37	0
<b>Totals:</b>	1262	172	403	1837	16	2071		37	172	25	234	3
<b>Calculated Values for Traffic Crossing Major Street</b>												
Hours Ending:	8:00	9:00	12:00	13:00		14:00	17:00	18:00	19:00			
Crossing Values:	277	262	133	134		132	161	200	215			

# Ontario Traffic Inc.

## Morning Peak Diagram

### Specified Period

**From:** 7:00:00

**To:** 9:00:00

### One Hour Peak

**From:** 8:00:00

**To:** 9:00:00

**Municipality:** Bradford  
**Site #:** 1801300018  
**Intersection:** Simcoe Rd & Gibson Circle  
**TFR File #:** 1  
**Count date:** 20-Jun-18

**Weather conditions:**

**Person(s) who counted:**

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

**Major Road:** Simcoe Rd runs N/S

North Leg Total: 288

North Entering: 163

North Peds: 0

Peds Cross:  $\nabla$

Cyclists	0	0	0
Trucks	4	9	13
Cars	15	135	150
<b>Totals</b>	<b>19</b>	<b>144</b>	



Cyclists	2
Trucks	13
Cars	110
<b>Totals</b>	<b>125</b>

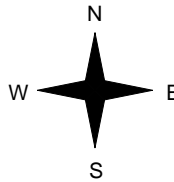
Cyclists	Trucks	Cars	Totals
0	4	20	24



Simcoe Rd



Gibson Circle



Cyclists	Trucks	Cars	Totals
0	2	22	24
0	0	16	16
0	2	38	



Simcoe Rd

Peds Cross:  $\nabla$   
 West Peds: 0  
 West Entering: 40  
 West Leg Total: 64

Cars	151
Trucks	9
Cyclists	0
<b>Totals</b>	<b>160</b>



Cars	5	88	93
Trucks	0	11	11
Cyclists	0	2	2
<b>Totals</b>	<b>5</b>	<b>101</b>	

Peds Cross:  $\nabla$   
 South Peds: 0  
 South Entering: 106  
 South Leg Total: 266

## Comments

# Ontario Traffic Inc.

## Mid-day Peak Diagram

### Specified Period

**From:** 11:00:00  
**To:** 14:00:00

### One Hour Peak

**From:** 12:15:00  
**To:** 13:15:00

**Municipality:** Bradford  
**Site #:** 1801300018  
**Intersection:** Simcoe Rd & Gibson Circle  
**TFR File #:** 1  
**Count date:** 20-Jun-18

**Weather conditions:**  
**Person(s) who counted:**

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

**Major Road:** Simcoe Rd runs N/S

North Leg Total: 172  
North Entering: 85  
North Peds: 0  
Peds Cross:  $\nabla$

Cyclists	0	0	0
Trucks	0	3	3
Cars	6	76	82
<b>Totals</b>	<b>6</b>	<b>79</b>	



Cyclists	0
Trucks	3
Cars	84
<b>Totals</b>	<b>87</b>

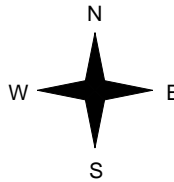
Cyclists	Trucks	Cars	Totals
0	1	11	12



Simcoe Rd



Gibson Circle



Cyclists	Trucks	Cars	Totals
0	2	7	9
0	1	8	9
0	3	15	



Simcoe Rd



Peds Cross:  $\nabla$   
West Peds: 1  
West Entering: 18  
West Leg Total: 30

Cars	84
Trucks	4
Cyclists	0
<b>Totals</b>	<b>88</b>



Cars	5	77	82
Trucks	1	1	2
Cyclists	0	0	0
<b>Totals</b>	<b>6</b>	<b>78</b>	

Peds Cross:  $\nabla$   
South Peds: 0  
South Entering: 84  
South Leg Total: 172

## Comments

# Ontario Traffic Inc.

## Afternoon Peak Diagram

### Specified Period

**From:** 16:00:00

**To:** 19:00:00

### One Hour Peak

**From:** 17:15:00

**To:** 18:15:00

**Municipality:** Bradford  
**Site #:** 1801300018  
**Intersection:** Simcoe Rd & Gibson Circle  
**TFR File #:** 1  
**Count date:** 20-Jun-18

**Weather conditions:**  
**Person(s) who counted:**

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

**Major Road:** Simcoe Rd runs N/S

North Leg Total: 428

North Entering: 135

North Peds: 2

Peds Cross:

Cyclists	0	0	0
Trucks	0	2	2
Cars	11	122	133
<b>Totals</b>	<b>11</b>	<b>124</b>	



Cyclists 0

Trucks 2

Cars 291

**Totals 293**

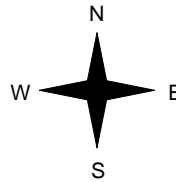
Cyclists	Trucks	Cars	Totals
0	0	29	29



Simcoe Rd



Gibson Circle



Cyclists	Trucks	Cars	Totals
0	0	10	10
0	0	11	11
0	0	21	



Simcoe Rd

Peds Cross:

West Peds: 0

West Entering: 21

West Leg Total: 50

Cars	133	Cars	18	281	299
Trucks	2	Trucks	0	2	2
Cyclists	0	Cyclists	0	0	0
<b>Totals</b>	<b>135</b>	<b>Totals</b>	<b>18</b>	<b>283</b>	



Peds Cross:

South Peds: 0

South Entering: 301

South Leg Total: 436

## Comments

# Ontario Traffic Inc.

## Total Count Diagram

**Municipality:** Bradford  
**Site #:** 1801300018  
**Intersection:** Simcoe Rd & Gibson Circle  
**TFR File #:** 1  
**Count date:** 20-Jun-18

**Weather conditions:**  
**Person(s) who counted:**

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

**Major Road:** Simcoe Rd runs N/S

North Leg Total: 2011  
 North Entering: 866  
 North Peds: 2  
 Peds Cross:  $\nabla$

Cyclists	2	5	7
Trucks	11	23	34
Cars	77	748	825
Totals	90	776	



Cyclists	6
Trucks	39
Cars	1100
Totals	1145

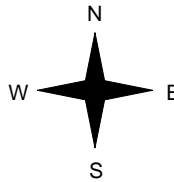
Cyclists	Trucks	Cars	Totals
2	14	148	164



Simcoe Rd



Gibson Circle



Cyclists	Trucks	Cars	Totals
0	8	102	110
2	2	74	78
2	10	176	



Simcoe Rd

Peds Cross:  $\nabla$   
 West Peds: 8  
 West Entering: 188  
 West Leg Total: 352

Cars	822
Trucks	25
Cyclists	7
Totals	854



Cars	71	998	1069
Trucks	3	31	34
Cyclists	0	6	6
Totals	74	1035	

Peds Cross:  $\nabla$   
 South Peds: 0  
 South Entering: 1109  
 South Leg Total: 1963

### Comments



# Ontario Traffic Inc. Traffic Count Summary

Intersection: Simcoe Rd & Gibson Circle					Count Date: 20-Jun-18		Municipality: Bradford					
North Approach Totals						South Approach Totals						
Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds	North/South Total Approaches	Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	0	126	6	132	0	175	8:00:00	3	40	0	43	0
9:00:00	0	144	19	163	0	269	9:00:00	5	101	0	106	0
11:00:00	0	0	0	0	0	0	11:00:00	0	0	0	0	0
12:00:00	0	57	14	71	0	134	12:00:00	4	59	0	63	0
13:00:00	0	64	10	74	0	160	13:00:00	5	81	0	86	0
14:00:00	0	67	11	78	0	147	14:00:00	4	65	0	69	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	0	94	11	105	0	311	17:00:00	16	190	0	206	0
18:00:00	0	114	7	121	0	406	18:00:00	14	271	0	285	0
19:00:00	0	110	12	122	2	373	19:00:00	23	228	0	251	0
<b>Totals:</b>	0	776	90	866	2	1975		74	1035	0	1109	0
East Approach Totals						West Approach Totals						
Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds	East/West Total Approaches	Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0	26	8:00:00	11	0	15	26	1
9:00:00	0	0	0	0	0	40	9:00:00	24	0	16	40	0
11:00:00	0	0	0	0	0	0	11:00:00	0	0	0	0	0
12:00:00	0	0	0	0	0	18	12:00:00	11	0	7	18	0
13:00:00	0	0	0	0	0	21	13:00:00	12	0	9	21	1
14:00:00	0	0	0	0	0	15	14:00:00	13	0	2	15	2
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	0	0	0	0	0	29	17:00:00	16	0	13	29	2
18:00:00	0	0	0	0	0	18	18:00:00	10	0	8	18	0
19:00:00	0	0	0	0	0	21	19:00:00	13	0	8	21	2
<b>Totals:</b>	0	0	0	0	0	188		110	0	78	188	8
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	8:00	9:00	12:00	13:00		14:00	17:00	18:00	19:00			
Crossing Values:	11	24	11	12		13	16	10	15			

# Simcoe Road & Line 6

## Morning Peak Diagram

### Specified Period

**From:** 7:00:00  
**To:** 10:00:00

### One Hour Peak

**From:** 8:00:00  
**To:** 9:00:00

**Municipality:** Bradford  
**Site #:** 000000014  
**Intersection:** Simcoe Road & Line 6  
**TFR File #:** 1  
**Count date:** 19-Mar-2019

**Weather conditions:**  
Clear / Cloudy  
**Person(s) who counted:**

**\*\* Signalized Intersection \*\***

**Major Road:** Simcoe Road runs N/S

North Leg Total: 450  
North Entering: 159  
North Peds: 2  
Peds Cross:  $\bowtie$

Heavys	1	1	0	2
Trucks	4	2	0	6
Cars	95	55	1	151
Totals	100	58	1	



Heavys	4
Trucks	10
Cars	277
Totals	291

East Leg Total: 39  
East Entering: 28  
East Peds: 3  
Peds Cross:  $\bowtie$

Heavys	5
Trucks	5
Cars	165
Totals	175

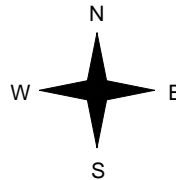
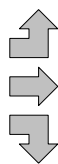


Simcoe Road

Cars	3	0	0	3
Trucks	19	1	1	21
Heavys	3	0	1	4
Totals	25	1	2	



Heavys	1
Trucks	5
Cars	220
Totals	226
Heavys	0
Trucks	0
Cars	5
Totals	5
Heavys	3
Trucks	0
Cars	64
Totals	67
Heavys	4
Trucks	5
Cars	289
Totals	298



Line 6



Cars	11	0	0	11
Trucks				
Heavys				
Totals				

Peds Cross:  $\bowtie$   
West Peds: 1  
West Entering: 298  
West Leg Total: 473

Cars	122	51	54	5	110
Trucks	2	0	5	0	5
Heavys	5	3	3	0	6
Totals	129	54	62	5	



Simcoe Road



Peds Cross:  $\bowtie$   
South Peds: 3  
South Entering: 121  
South Leg Total: 250

## Comments

# Simcoe Road & Line 6

## Mid-day Peak Diagram

### Specified Period

**From:** 11:30:00

**To:** 13:30:00

### One Hour Peak

**From:** 12:30:00

**To:** 13:30:00

**Municipality:** Bradford  
**Site #:** 000000014  
**Intersection:** Simcoe Road & Line 6  
**TFR File #:** 1  
**Count date:** 19-Mar-2019

**Weather conditions:**  
 Clear / Cloudy  
**Person(s) who counted:**

**\*\* Signalized Intersection \*\***

**Major Road:** Simcoe Road runs N/S

North Leg Total: 327  
 North Entering: 166  
 North Peds: 0  
 Peds Cross:  $\bowtie$

Heavys	0	0	1	1
Trucks	1	2	0	3
Cars	106	53	3	162
<b>Totals</b>	<b>107</b>	<b>55</b>	<b>4</b>	



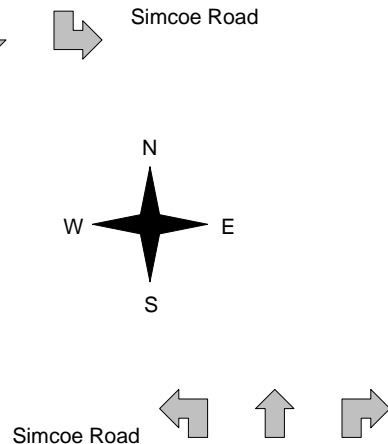
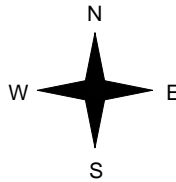
Heavys	0
Trucks	6
Cars	155
<b>Totals</b>	<b>161</b>

East Leg Total: 36  
 East Entering: 19  
 East Peds: 0  
 Peds Cross:  $\bowtie$

Heavys	Trucks	Cars	Totals
0	2	151	153



Line 6

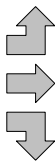


Cars	Trucks	Heavys	Totals
3	0	0	3
15	0	0	15
0	1	0	1
<b>18</b>	<b>1</b>	<b>0</b>	

Line 6



Heavys	Trucks	Cars	Totals
0	4	113	117
0	0	11	11
0	0	33	33
<b>0</b>	<b>4</b>	<b>157</b>	

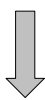


Simcoe Road

Cars	Trucks	Heavys	Totals
15	1	1	17

Peds Cross:  $\bowtie$   
 West Peds: 0  
 West Entering: 161  
 West Leg Total: 314

Cars	86	Cars	30	39	1	70
Trucks	3	Trucks	1	2	1	4
Heavys	0	Heavys	0	0	0	0
<b>Totals</b>	<b>89</b>	<b>Totals</b>	<b>31</b>	<b>41</b>	<b>2</b>	



Peds Cross:  $\bowtie$   
 South Peds: 0  
 South Entering: 74  
 South Leg Total: 163

## Comments

# Simcoe Road & Line 6

## Afternoon Peak Diagram

### Specified Period

**From:** 16:00:00

**To:** 19:00:00

### One Hour Peak

**From:** 17:00:00

**To:** 18:00:00

**Municipality:** Bradford  
**Site #:** 000000014  
**Intersection:** Simcoe Road & Line 6  
**TFR File #:** 1  
**Count date:** 19-Mar-2019

**Weather conditions:**  
 Clear / Cloudy  
**Person(s) who counted:**

**\*\* Signalized Intersection \*\***

**Major Road:** Simcoe Road runs N/S

North Leg Total: 645  
 North Entering: 338  
 North Peds: 1  
 Peds Cross:  $\bowtie$

Heavys	0	0	0	0
Trucks	2	1	0	3
Cars	278	55	2	335
Totals	280	56	2	



Heavys	0
Trucks	0
Cars	307
Totals	307

East Leg Total: 76  
 East Entering: 21  
 East Peds: 0  
 Peds Cross:  $\bowtie$

Heavys	0
Trucks	3
Cars	402
Totals	405

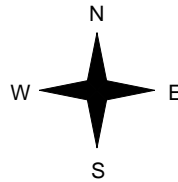


Simcoe Road

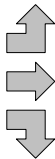
Cars	4	0	0	4
Trucks	15	0	0	15
Heavys	2	0	0	2
Totals	21	0	0	



Line 6



Heavys	0
Trucks	0
Cars	169
Totals	169
Heavys	0
Trucks	0
Cars	38
Totals	38
Heavys	0
Trucks	0
Cars	38
Totals	38
Heavys	0
Trucks	0
Cars	245
Totals	245



Line 6



Cars	55	0	0	55
Trucks				
Heavys				
Totals				

Peds Cross:  $\bowtie$   
 West Peds: 2  
 West Entering: 245  
 West Leg Total: 650

Cars	95	109	134	15	258
Trucks	1	1	0	0	1
Heavys	0	0	0	0	0
Totals	96	110	134	15	



Simcoe Road

Peds Cross:  $\bowtie$   
 South Peds: 2  
 South Entering: 259  
 South Leg Total: 355

## Comments

# Simcoe Road & Line 6

## Total Count Diagram

**Municipality:** Bradford  
**Site #:** 000000014  
**Intersection:** Simcoe Road & Line 6  
**TFR File #:** 1  
**Count date:** 19-Mar-2019

**Weather conditions:**  
 Clear / Cloudy  
**Person(s) who counted:**

**\*\* Signalized Intersection \*\***

**Major Road:** Simcoe Road runs N/S

North Leg Total: 3470  
 North Entering: 1643  
 North Peds: 7  
 Peds Cross: ⚡

Heavys	2	2	1	5
Trucks	16	14	0	30
Cars	1168	424	16	1608
<b>Totals</b>	<b>1186</b>	<b>440</b>	<b>17</b>	



Heavys	11
Trucks	34
Cars	1782
<b>Totals</b>	<b>1827</b>

East Leg Total: 431  
 East Entering: 197  
 East Peds: 5  
 Peds Cross: ⚡

Heavys	Trucks	Cars	Totals
9	21	1683	1713

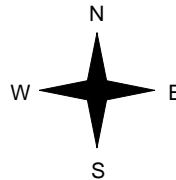


Simcoe Road

Cars	Trucks	Heavys	Totals
30	0	0	30
133	2	1	136
29	1	1	31
<b>192</b>	<b>3</b>	<b>2</b>	



Heavys	Trucks	Cars	Totals
3	19	1247	1269
0	2	162	164
5	4	318	327
<b>8</b>	<b>25</b>	<b>1727</b>	



Line 6

Line 6



Peds Cross: ⚡  
 West Peds: 8  
 West Entering: 1760  
 West Leg Total: 3473

Cars	771	Cars	382	505	51	938
Trucks	19	Trucks	3	15	2	20
Heavys	8	Heavys	6	8	0	14
<b>Totals</b>	<b>798</b>	<b>Totals</b>	<b>391</b>	<b>528</b>	<b>53</b>	



Simcoe Road



Peds Cross: ⚡  
 South Peds: 19  
 South Entering: 972  
 South Leg Total: 1770

### Comments

# Simcoe Road & Line 6 Traffic Count Summary

Intersection: Simcoe Road & Line 6						Count Date: 19-Mar-2019		Municipality: Bradford					
North Approach Totals						South Approach Totals							
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	North/South Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total		
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0	
8:00:00	0	77	60	137	0	185	8:00:00	20	26	2	48	1	
9:00:00	1	58	100	159	2	280	9:00:00	54	62	5	121	3	
10:00:00	2	59	71	132	4	199	10:00:00	24	39	4	67	3	
12:00:00	2	19	47	68	0	103	12:00:00	18	17	0	35	0	
13:00:00	3	50	110	163	0	246	13:00:00	25	55	3	83	2	
16:00:00	1	21	56	78	0	114	16:00:00	17	19	0	36	0	
17:00:00	2	53	238	293	0	471	17:00:00	72	93	13	178	2	
18:00:00	2	56	280	338	1	597	18:00:00	110	134	15	259	2	
19:00:00	4	47	224	275	0	420	19:00:00	51	83	11	145	6	
<b>Totals:</b>	17	440	1186	1643	7	2615		391	528	53	972	19	
East Approach Totals						West Approach Totals							
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	East/West Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total		
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0	
8:00:00	9	25	6	40	1	331	8:00:00	217	14	60	291	2	
9:00:00	4	21	3	28	3	326	9:00:00	226	5	67	298	1	
10:00:00	2	19	0	21	1	235	10:00:00	155	22	37	214	0	
12:00:00	2	6	2	10	0	92	12:00:00	59	7	16	82	0	
13:00:00	2	10	5	17	0	165	13:00:00	100	13	35	148	2	
16:00:00	1	9	1	11	0	84	16:00:00	56	5	12	73	0	
17:00:00	4	16	3	23	0	236	17:00:00	151	28	34	213	0	
18:00:00	2	15	4	21	0	266	18:00:00	169	38	38	245	2	
19:00:00	5	15	6	26	0	222	19:00:00	136	32	28	196	1	
<b>Totals:</b>	31	136	30	197	5	1957		1269	164	327	1760	8	
Calculated Values for Traffic Crossing Major Street													
Hours Ending:	8:00	9:00	10:00	13:00		16:00	17:00	18:00	19:00				
Crossing Values:	252	256	186	117		66	185	212	179				

















**Appendix B:  
Synchro Analysis Worksheets**



# HCM Unsignalized Intersection Capacity Analysis

## 1: 10 Sideroad & Line 6

Existing AM Peak Hour Period

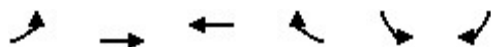
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	165	0	45	0	35	50	65	55	0
Future Volume (Veh/h)	0	0	0	165	0	45	0	35	50	65	55	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	183	0	50	0	39	56	72	61	0
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	322	300	61	272	272	67	61			95		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	322	300	61	272	272	67	61			95		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.3	5.1			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.4	3.1			2.3		
p0 queue free %	100	100	100	72	100	95	100			95		
cM capacity (veh/h)	576	581	1004	656	606	983	1093			1427		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	233	95	133								
Volume Left	0	183	0	72								
Volume Right	0	50	56	0								
cSH	1700	707	1093	1427								
Volume to Capacity	0.00	0.33	0.00	0.05								
Queue Length 95th (m)	0.0	11.5	0.0	1.3								
Control Delay (s)	0.0	12.6	0.0	4.3								
Lane LOS	A	B		A								
Approach Delay (s)	0.0	12.6	0.0	4.3								
Approach LOS	A	B										
Intersection Summary												
Average Delay			7.6									
Intersection Capacity Utilization			31.7%		ICU Level of Service				A			
Analysis Period (min)			15									



# HCM Unsignalized Intersection Capacity Analysis

## 2: Line 6 & Langford Boulevard

Existing AM Peak Hour Period

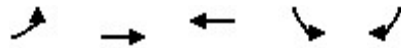


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	110	160	25	35	50
Future Volume (Veh/h)	5	110	160	25	35	50
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	5	121	176	27	38	55
<b>Pedestrians</b>						
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	203				320	190
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	203				320	190
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	100				94	94
cM capacity (veh/h)	1300				668	852
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>SB 1</b>		
Volume Total	5	121	203	93		
Volume Left	5	0	0	38		
Volume Right	0	0	27	55		
cSH	1300	1700	1700	766		
Volume to Capacity	0.00	0.07	0.12	0.12		
Queue Length 95th (m)	0.1	0.0	0.0	3.3		
Control Delay (s)	7.8	0.0	0.0	10.3		
Lane LOS	A			B		
Approach Delay (s)	0.3		0.0	10.3		
Approach LOS				B		
<b>Intersection Summary</b>						
Average Delay			2.4			
Intersection Capacity Utilization			21.6%	ICU Level of Service	A	
Analysis Period (min)	15					

# Queues

## 3: Line 6 & West Park Ave

Existing AM Peak Hour Period



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations	↖	↑	↗	↖	↗
Traffic Volume (vph)	10	135	160	65	25
Future Volume (vph)	10	135	160	65	25
Lane Group Flow (vph)	11	153	233	74	28
Turn Type	Perm	NA	NA	Prot	Prot
Protected Phases		4	8	6	6
Permitted Phases	4				
Detector Phase	4	4	8	6	6
Switch Phase					
Minimum Initial (s)	25.0	25.0	25.0	10.0	10.0
Minimum Split (s)	30.7	30.7	30.7	20.0	20.0
Total Split (s)	30.7	30.7	30.7	20.9	20.9
Total Split (%)	59.5%	59.5%	59.5%	40.5%	40.5%
Yellow Time (s)	3.3	3.3	3.3	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	5.7	5.7	4.9	4.9
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max	C-Max	None	None
v/c Ratio	0.01	0.12	0.17	0.22	0.08
Control Delay	4.3	4.2	3.7	19.4	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	4.3	4.2	3.7	19.4	8.6
Queue Length 50th (m)	0.4	5.4	7.1	6.1	0.0
Queue Length 95th (m)	1.7	11.1	14.4	14.8	5.0
Internal Link Dist (m)		582.6	325.3	441.0	
Turn Bay Length (m)	110.0				
Base Capacity (vph)	797	1325	1357	543	520
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	0.01	0.12	0.17	0.14	0.05

### Intersection Summary

Cycle Length: 51.6

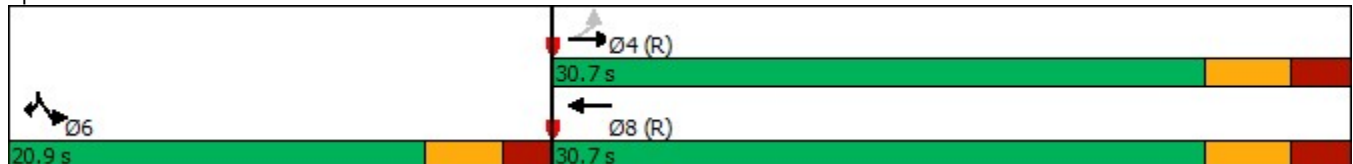
Actuated Cycle Length: 51.6

Offset: 20.9 (41%), Referenced to phase 4:EBTL and 8:WBT, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

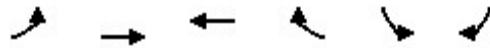
Splits and Phases: 3: Line 6 & West Park Ave



# HCM Signalized Intersection Capacity Analysis

## 3: Line 6 & West Park Ave

Existing AM Peak Hour Period






















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	135	160	45	65	25
Future Volume (vph)	10	135	160	45	65	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7		4.9	4.9
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1626	1743	1775		1752	1615
Flt Permitted	0.61	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1050	1743	1775		1752	1615
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	11	153	182	51	74	28
RTOR Reduction (vph)	0	0	12	0	0	25
Lane Group Flow (vph)	11	153	221	0	74	3
Heavy Vehicles (%)	11%	9%	3%	7%	3%	0%
Turn Type	Perm	NA	NA		Prot	Prot
Protected Phases		4	8		6	6
Permitted Phases	4					
Actuated Green, G (s)	35.0	35.0	35.0		6.0	6.0
Effective Green, g (s)	35.0	35.0	35.0		6.0	6.0
Actuated g/C Ratio	0.68	0.68	0.68		0.12	0.12
Clearance Time (s)	5.7	5.7	5.7		4.9	4.9
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	712	1182	1203		203	187
v/s Ratio Prot		0.09	c0.12		c0.04	0.00
v/s Ratio Perm	0.01					
v/c Ratio	0.02	0.13	0.18		0.36	0.02
Uniform Delay, d1	2.7	2.9	3.0		21.0	20.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.2	0.3		1.1	0.0
Delay (s)	2.7	3.2	3.4		22.2	20.2
Level of Service	A	A	A		C	C
Approach Delay (s)		3.1	3.4		21.6	
Approach LOS		A	A		C	
<b>Intersection Summary</b>						
HCM 2000 Control Delay			7.0		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.21			
Actuated Cycle Length (s)			51.6		Sum of lost time (s)	10.6
Intersection Capacity Utilization			38.0%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

# HCM Unsignalized Intersection Capacity Analysis











## 4: Brownlee Drive/Southfield Gate & Line 6

Existing AM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	190	5	5	190	5	5	5	10	15	0	10
Future Volume (Veh/h)	5	190	5	5	190	5	5	5	10	15	0	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	207	5	5	207	5	5	5	11	16	0	11
Pedestrians												5
Lane Width (m)												3.6
Walking Speed (m/s)												1.2
Percent Blockage												0
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage (veh)		2			2							
Upstream signal (m)		349										
pX, platoon unblocked												
vC, conflicting volume	217			212			448	446	210	455	446	214
vC1, stage 1 conf vol							220	220		224	224	
vC2, stage 2 conf vol							228	227		230	222	
vCu, unblocked vol	217			212			448	446	210	455	446	214
tC, single (s)	4.1			4.3			7.3	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.3	5.5		6.1	5.5	
tF (s)	2.2			2.4			3.7	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			99	99	99	98	100	99
cM capacity (veh/h)	1359			1274			622	630	836	661	630	827
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	5	212	5	212	21	27						
Volume Left	5	0	5	0	5	16						
Volume Right	0	5	0	5	11	11						
cSH	1359	1700	1274	1700	721	720						
Volume to Capacity	0.00	0.12	0.00	0.12	0.03	0.04						
Queue Length 95th (m)	0.1	0.0	0.1	0.0	0.7	0.9						
Control Delay (s)	7.7	0.0	7.8	0.0	10.1	10.2						
Lane LOS	A		A		B	B						
Approach Delay (s)	0.2		0.2		10.1	10.2						
Approach LOS					B	B						
<b>Intersection Summary</b>												
Average Delay			1.2									
Intersection Capacity Utilization			20.8%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis  
 5: Golf Driveway Access & Line 6

Existing AM Peak Hour Period

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	215	0	0	200	0	0
Future Volume (Veh/h)	215	0	0	200	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	231	0	0	215	0	0
<b>Pedestrians</b>						
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)			346			
pX, platoon unblocked						
vC, conflicting volume			231		446	231
vC1, stage 1 conf vol					231	
vC2, stage 2 conf vol					215	
vCu, unblocked vol			231		446	231
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1349		719	813
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>		
Volume Total	231	0	215	0		
Volume Left	0	0	0	0		
Volume Right	0	0	0	0		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.14	0.00	0.13	0.00		
Queue Length 95th (m)	0.0	0.0	0.0	0.0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS				A		
Approach Delay (s)	0.0	0.0		0.0		
Approach LOS				A		
<b>Intersection Summary</b>						
Average Delay			0.0			
Intersection Capacity Utilization			14.6%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
 6: Line 6 & Adams Street

Existing AM Peak Hour Period

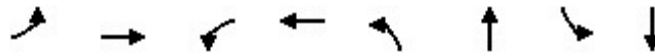


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	210	175	20	35	25
Future Volume (Veh/h)	5	210	175	20	35	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	5	226	188	22	38	27
Pedestrians					5	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage (veh)		2	2			
Upstream signal (m)			258			
pX, platoon unblocked						
vC, conflicting volume	215				440	204
vC1, stage 1 conf vol					204	
vC2, stage 2 conf vol					236	
vCu, unblocked vol	215				440	204
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				95	97
cM capacity (veh/h)	1361				712	838
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>SB 1</b>		
Volume Total	5	226	210	65		
Volume Left	5	0	0	38		
Volume Right	0	0	22	27		
cSH	1361	1700	1700	760		
Volume to Capacity	0.00	0.13	0.12	0.09		
Queue Length 95th (m)	0.1	0.0	0.0	2.2		
Control Delay (s)	7.7	0.0	0.0	10.2		
Lane LOS	A			B		
Approach Delay (s)	0.2		0.0	10.2		
Approach LOS				B		
<b>Intersection Summary</b>						
Average Delay			1.4			
Intersection Capacity Utilization			21.2%		ICU Level of Service	A
Analysis Period (min)			15			

Queues

7: Inverness Way/Melbourne Dr & Line 6

Existing AM Peak Hour Period



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗
Traffic Volume (vph)	45	185	5	110	35	40	75	40
Future Volume (vph)	45	185	5	110	35	40	75	40
Lane Group Flow (vph)	52	230	6	212	40	69	86	103
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		6		2		8		4
Permitted Phases	6		2		8		4	
Detector Phase	6	6	2	2	8	8	4	4
Switch Phase								
Minimum Initial (s)	25.0	25.0	25.0	25.0	10.0	10.0	10.0	10.0
Minimum Split (s)	30.5	30.5	30.5	30.5	21.0	21.0	21.0	21.0
Total Split (s)	30.5	30.5	30.5	30.5	21.2	21.2	21.2	21.2
Total Split (%)	59.0%	59.0%	59.0%	59.0%	41.0%	41.0%	41.0%	41.0%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.0	3.0	3.0	3.0
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.2	5.2	5.2	5.2
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	C-Max	C-Max	None	None	None	None
v/c Ratio	0.07	0.20	0.01	0.18	0.14	0.18	0.32	0.25
Control Delay	6.2	6.1	6.0	4.2	16.6	12.4	19.6	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.2	6.1	6.0	4.2	16.6	12.4	19.6	10.1
Queue Length 50th (m)	1.8	8.2	0.2	4.5	3.3	3.8	7.3	3.8
Queue Length 95th (m)	6.9	21.5	1.7	14.9	8.0	9.8	14.4	11.2
Internal Link Dist (m)		233.8		288.6		331.7		165.8
Turn Bay Length (m)	50.0		50.0					
Base Capacity (vph)	710	1169	765	1148	393	550	386	561
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	0.07	0.20	0.01	0.18	0.10	0.13	0.22	0.18

Intersection Summary

Cycle Length: 51.7

Actuated Cycle Length: 51.7

Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated






















Splits and Phases: 7: Inverness Way/Melbourne Dr & Line 6



# HCM Signalized Intersection Capacity Analysis

## 7: Inverness Way/Melbourne Dr & Line 6

Existing AM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	185	15	5	110	75	35	40	20	75	40	50
Future Volume (vph)	45	185	15	5	110	75	35	40	20	75	40	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	0.94		1.00	0.95		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1650	1779		1805	1709		1752	1728		1668	1686	
Flt Permitted	0.63	1.00		0.62	1.00		0.69	1.00		0.71	1.00	
Satd. Flow (perm)	1086	1779		1169	1709		1274	1728		1250	1686	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	52	213	17	6	126	86	40	46	23	86	46	57
RTOR Reduction (vph)	0	4	0	0	33	0	0	19	0	0	47	0
Lane Group Flow (vph)	52	226	0	6	179	0	40	50	0	86	56	0
Confl. Peds. (#/hr)	5					5			10	10		
Heavy Vehicles (%)	9%	5%	13%	0%	5%	1%	3%	2%	6%	7%	0%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	31.7	31.7		31.7	31.7		9.3	9.3		9.3	9.3	
Effective Green, g (s)	31.7	31.7		31.7	31.7		9.3	9.3		9.3	9.3	
Actuated g/C Ratio	0.61	0.61		0.61	0.61		0.18	0.18		0.18	0.18	
Clearance Time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	665	1090		716	1047		229	310		224	303	
v/s Ratio Prot		c0.13			0.10			0.03			0.03	
v/s Ratio Perm	0.05			0.01			0.03			c0.07		
v/c Ratio	0.08	0.21		0.01	0.17		0.17	0.16		0.38	0.19	
Uniform Delay, d1	4.1	4.4		3.9	4.3		18.0	17.9		18.7	18.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.4		0.0	0.4		0.4	0.2		1.1	0.3	
Delay (s)	4.3	4.9		3.9	4.7		18.3	18.2		19.8	18.3	
Level of Service	A	A		A	A		B	B		B	B	
Approach Delay (s)		4.8			4.7			18.2			19.0	
Approach LOS		A			A			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			9.9				HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio			0.25									
Actuated Cycle Length (s)			51.7				Sum of lost time (s)			10.7		
Intersection Capacity Utilization			57.4%				ICU Level of Service			B		
Analysis Period (min)			15									




















c Critical Lane Group



# HCM Unsignalized Intersection Capacity Analysis

## 8: Barrow Ave & Line 6

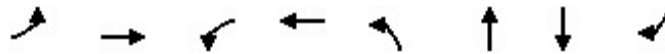
Existing AM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	255	10	20	170	10	20	0	35	5	0	0
Future Volume (Veh/h)	15	255	10	20	170	10	20	0	35	5	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	19	319	12	25	212	12	25	0	44	6	0	0
Pedestrians												5
Lane Width (m)												3.6
Walking Speed (m/s)												1.2
Percent Blockage												0
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage (veh)		2			2							
Upstream signal (m)		313			286							
pX, platoon unblocked												
vC, conflicting volume	229			331			625	642	325	674	642	223
vC1, stage 1 conf vol							363	363		273	273	
vC2, stage 2 conf vol							262	279		401	369	
vCu, unblocked vol	229			331			625	642	325	674	642	223
tC, single (s)	4.3			4.1			7.1	6.5	6.2	8.1	6.5	6.7
tC, 2 stage (s)							6.1	5.5		7.1	5.5	
tF (s)	2.4			2.2			3.5	4.0	3.3	4.4	4.0	3.8
p0 queue free %	98			98			96	100	94	98	100	100
cM capacity (veh/h)	1230			1240			567	535	714	372	528	707
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	19	331	25	224	69	6						
Volume Left	19	0	25	0	25	6						
Volume Right	0	12	0	12	44	0						
cSH	1230	1700	1240	1700	653	372						
Volume to Capacity	0.02	0.19	0.02	0.13	0.11	0.02						
Queue Length 95th (m)	0.4	0.0	0.5	0.0	2.8	0.4						
Control Delay (s)	8.0	0.0	8.0	0.0	11.2	14.8						
Lane LOS	A		A		B	B						
Approach Delay (s)	0.4		0.8		11.2	14.8						
Approach LOS					B	B						
<b>Intersection Summary</b>												
Average Delay			1.8									
Intersection Capacity Utilization			26.6%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues

9: Simcoe Road & Line 6

Existing AM Peak Hour Period



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	225	5	5	20	65	60	60	115
Future Volume (vph)	225	5	5	20	65	60	60	115
Lane Group Flow (vph)	253	79	6	28	73	73	67	129
Turn Type	Perm	NA	Perm	NA	Perm	NA	NA	Perm
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)	25.0	25.0	25.0	25.0	24.0	24.0	24.0	24.0
Minimum Split (s)	30.5	30.5	30.5	30.5	29.5	29.5	29.5	29.5
Total Split (s)	30.5	30.5	30.5	30.5	29.5	29.5	29.5	29.5
Total Split (%)	50.8%	50.8%	50.8%	50.8%	49.2%	49.2%	49.2%	49.2%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.45	0.12	0.01	0.04	0.14	0.11	0.09	0.19
Control Delay	15.7	4.1	10.4	9.1	12.4	11.2	11.7	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.7	4.1	10.4	9.1	12.4	11.2	11.7	3.4
Queue Length 50th (m)	20.1	0.4	0.4	1.4	5.2	4.7	4.6	0.0
Queue Length 95th (m)	37.3	6.8	2.2	5.3	12.4	11.5	11.1	8.3
Internal Link Dist (m)		261.7		146.8		404.3	164.8	
Turn Bay Length (m)	50.0		20.0		110.0			
Base Capacity (vph)	567	684	444	741	511	672	724	692
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	0.45	0.12	0.01	0.04	0.14	0.11	0.09	0.19

Intersection Summary

Cycle Length: 60

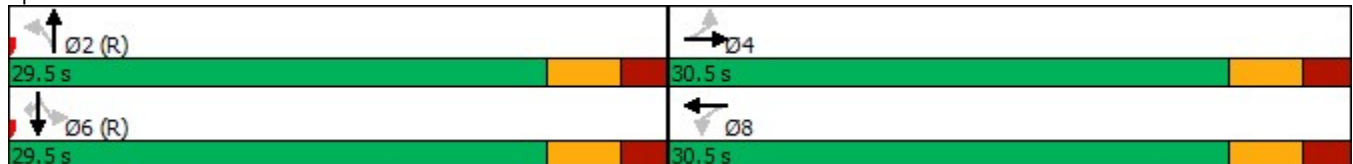
Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated





















Splits and Phases: 9: Simcoe Road & Line 6



# HCM Signalized Intersection Capacity Analysis

## 9: Simcoe Road & Line 6

Existing AM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	5	65	5	20	5	65	60	5	0	60	115
Future Volume (vph)	225	5	65	5	20	5	65	60	5	0	60	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		5.5	5.5			5.5	5.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frbp, ped/bikes	1.00	0.98		1.00	1.00		1.00	1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.86		1.00	0.97		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1752	1541		1436	1769		1703	1673			1810	1538
Flt Permitted	0.74	1.00		0.71	1.00		0.71	1.00			1.00	1.00
Satd. Flow (perm)	1363	1541		1067	1769		1279	1673			1810	1538
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)	253	6	73	6	22	6	73	67	6	0	67	129
RTOR Reduction (vph)	0	43	0	0	4	0	0	4	0	0	0	77
Lane Group Flow (vph)	253	36	0	6	25	0	73	69	0	0	67	52
Confl. Peds. (#/hr)			5	5					5	5		
Heavy Vehicles (%)	3%	0%	4%	25%	5%	0%	6%	13%	0%	0%	5%	5%
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	25.0	25.0		25.0	25.0		24.0	24.0			24.0	24.0
Effective Green, g (s)	25.0	25.0		25.0	25.0		24.0	24.0			24.0	24.0
Actuated g/C Ratio	0.42	0.42		0.42	0.42		0.40	0.40			0.40	0.40
Clearance Time (s)	5.5	5.5		5.5	5.5		5.5	5.5			5.5	5.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	567	642		444	737		511	669			724	615
v/s Ratio Prot		0.02			0.01			0.04			0.04	
v/s Ratio Perm	c0.19			0.01			c0.06					0.03
v/c Ratio	0.45	0.06		0.01	0.03		0.14	0.10			0.09	0.08
Uniform Delay, d1	12.5	10.5		10.3	10.4		11.5	11.3			11.2	11.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	0.6	0.0		0.0	0.0		0.6	0.3			0.3	0.3
Delay (s)	13.1	10.5		10.3	10.4		12.0	11.6			11.5	11.4
Level of Service	B	B		B	B		B	B			B	B
Approach Delay (s)		12.5			10.4			11.8			11.5	
Approach LOS		B			B			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			12.0				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.30									
Actuated Cycle Length (s)			60.0				Sum of lost time (s)			11.0		
Intersection Capacity Utilization			74.6%				ICU Level of Service			D		
Analysis Period (min)			15									

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 10: Simcoe Road & Gibson Circle

Existing AM Peak Hour Period



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	50	20	105	120	10
Future Volume (Veh/h)	25	50	20	105	120	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	34	68	27	144	164	14
Pedestrians	5			5		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	374	181	183			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	374	181	183			
tC, single (s)	6.5	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.3			
p0 queue free %	94	92	98			
cM capacity (veh/h)	600	849	1340			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	102	171	178			
Volume Left	34	27	0			
Volume Right	68	0	14			
cSH	746	1340	1700			
Volume to Capacity	0.14	0.02	0.10			
Queue Length 95th (m)	3.8	0.5	0.0			
Control Delay (s)	10.6	1.4	0.0			
Lane LOS	B	A				
Approach Delay (s)	10.6	1.4	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			2.9			
Intersection Capacity Utilization			30.7%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 11: Simcoe Road & Golfview Blvd

Existing AM Peak Hour Period



















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	10	5	65	120	10
Future Volume (Veh/h)	20	10	5	65	120	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	22	11	6	72	133	11
<b>Pedestrians</b>						
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	222	138	144			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	222	138	144			
tC, single (s)	6.5	6.2	4.6			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.7			
p0 queue free %	97	99	99			
cM capacity (veh/h)	747	915	1191			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	33	78	144			
Volume Left	22	6	0			
Volume Right	11	0	11			
cSH	795	1191	1700			
Volume to Capacity	0.04	0.01	0.08			
Queue Length 95th (m)	1.0	0.1	0.0			
Control Delay (s)	9.7	0.7	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.7	0.7	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			1.5			
Intersection Capacity Utilization			17.5%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 12: Canal Rd










Existing AM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	55	35	0	0	20	15	0	0	0	35	5	90
Future Volume (vph)	55	35	0	0	20	15	0	0	0	35	5	90
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	65	42	0	0	24	18	0	0	0	42	6	107
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	107	42	0	155								
Volume Left (vph)	65	0	0	42								
Volume Right (vph)	0	18	0	107								
Hadj (s)	0.26	-0.13	0.00	-0.28								
Departure Headway (s)	4.5	4.2	4.4	4.0								
Degree Utilization, x	0.14	0.05	0.00	0.17								
Capacity (veh/h)	764	813	790	874								
Control Delay (s)	8.3	7.5	7.4	7.8								
Approach Delay (s)	8.3	7.5	0.0	7.8								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			7.9									
Level of Service			A									
Intersection Capacity Utilization			26.0%	ICU Level of Service	A							
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 13: Line 5 & Canal Rd

















Existing AM Peak Hour Period

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	35	0	70	85	25
Future Volume (Veh/h)	20	35	0	70	85	25
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	24	42	0	84	102	30
<b>Pedestrians</b>						
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	201	117	132			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	201	117	132			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	96	100			
cM capacity (veh/h)	792	941	1466			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	66	84	132			
Volume Left	24	0	0			
Volume Right	42	0	30			
cSH	881	1466	1700			
Volume to Capacity	0.07	0.00	0.08			
Queue Length 95th (m)	1.9	0.0	0.0			
Control Delay (s)	9.4	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.4	0.0	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			2.2			
Intersection Capacity Utilization			16.0%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 14: 10 Sideroad & Line 5










Existing AM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	70	45	0	5	15	5	10	10	5	5	10	205
Future Volume (vph)	70	45	0	5	15	5	10	10	5	5	10	205
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	85	55	0	6	18	6	12	12	6	6	12	250
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	140	30	30	268								
Volume Left (vph)	85	6	12	6								
Volume Right (vph)	0	6	6	250								
Hadj (s)	0.24	0.03	0.03	-0.53								
Departure Headway (s)	4.8	4.7	4.6	3.8								
Degree Utilization, x	0.19	0.04	0.04	0.29								
Capacity (veh/h)	702	699	731	903								
Control Delay (s)	8.9	7.9	7.8	8.4								
Approach Delay (s)	8.9	7.9	7.8	8.4								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			8.5									
Level of Service			A									
Intersection Capacity Utilization			33.1%	ICU Level of Service	A							
Analysis Period (min)			15									












HCM Unsignalized Intersection Capacity Analysis  
 18: Simcoe Road & Danube Ln

Existing AM Peak Hour Period

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	70	0	0	130
Future Volume (Veh/h)	0	0	70	0	0	130
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)	0	0	76	0	0	141
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	217	76			76	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	217	76			76	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	776	991			1536	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	0	76	141			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1536			
Volume to Capacity	0.00	0.04	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			10.2%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
 19: Simcoe Road & Jonkman Blvd

















Existing AM Peak Hour Period

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	130	0	0	130
Future Volume (Veh/h)	0	0	130	0	0	130
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)	0	0	141	0	0	141
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	282	141			141	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	282	141			141	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	712	912			1455	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	0	141	141			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1455			
Volume to Capacity	0.00	0.08	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			10.2%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 1: 10 Sideroad & Line 6

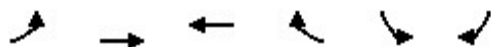
Existing PM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	65	0	75	0	125	240	85	40	0
Future Volume (Veh/h)	0	0	0	65	0	75	0	125	240	85	40	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	72	0	83	0	139	267	94	44	0
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	588	638	44	504	504	272	44			406		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	588	638	44	504	504	272	44			406		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	84	100	89	100			92		
cM capacity (veh/h)	352	363	1026	451	435	764	1577			1164		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	155	406	138								
Volume Left	0	72	0	94								
Volume Right	0	83	267	0								
cSH	1700	578	1577	1164								
Volume to Capacity	0.00	0.27	0.00	0.08								
Queue Length 95th (m)	0.0	8.6	0.0	2.1								
Control Delay (s)	0.0	13.5	0.0	5.9								
Lane LOS	A	B		A								
Approach Delay (s)	0.0	13.5	0.0	5.9								
Approach LOS	A	B										
Intersection Summary												
Average Delay			4.2									
Intersection Capacity Utilization			46.3%		ICU Level of Service				A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 2: Line 6 & Langford Boulevard

Existing PM Peak Hour Period

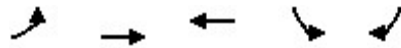


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	65	260	120	70	40	20
Future Volume (Veh/h)	65	260	120	70	40	20
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	71	286	132	77	44	22
<b>Pedestrians</b>						
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	209				598	170
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	209				598	170
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				90	97
cM capacity (veh/h)	1362				439	879
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>SB 1</b>		
Volume Total	71	286	209	66		
Volume Left	71	0	0	44		
Volume Right	0	0	77	22		
cSH	1362	1700	1700	527		
Volume to Capacity	0.05	0.17	0.12	0.13		
Queue Length 95th (m)	1.3	0.0	0.0	3.4		
Control Delay (s)	7.8	0.0	0.0	12.8		
Lane LOS	A			B		
Approach Delay (s)	1.5		0.0	12.8		
Approach LOS				B		
<b>Intersection Summary</b>						
Average Delay			2.2			
Intersection Capacity Utilization			27.6%	ICU Level of Service	A	
Analysis Period (min)			15			

# Queues

## 3: Line 6 & West Park Ave

Existing PM Peak Hour Period



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations	↖	↗	↖	↖	↖
Traffic Volume (vph)	35	265	175	45	15
Future Volume (vph)	35	265	175	45	15
Lane Group Flow (vph)	39	298	287	51	17
Turn Type	Perm	NA	NA	Prot	Prot
Protected Phases		4	8	6	6
Permitted Phases	4				
Detector Phase	4	4	8	6	6
Switch Phase					
Minimum Initial (s)	25.0	25.0	25.0	10.0	10.0
Minimum Split (s)	30.7	30.7	30.7	20.0	20.0
Total Split (s)	30.7	30.7	30.7	20.9	20.9
Total Split (%)	59.5%	59.5%	59.5%	40.5%	40.5%
Yellow Time (s)	3.3	3.3	3.3	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	5.7	5.7	4.9	4.9
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max	C-Max	None	None
v/c Ratio	0.05	0.21	0.21	0.15	0.05
Control Delay	4.3	4.4	3.6	18.6	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	4.3	4.4	3.6	18.6	9.7
Queue Length 50th (m)	1.3	11.5	8.4	4.2	0.0
Queue Length 95th (m)	4.0	20.6	16.8	11.4	4.0
Internal Link Dist (m)		582.6	325.3	441.0	
Turn Bay Length (m)	110.0				
Base Capacity (vph)	841	1445	1379	548	512
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	0.05	0.21	0.21	0.09	0.03

### Intersection Summary

Cycle Length: 51.6

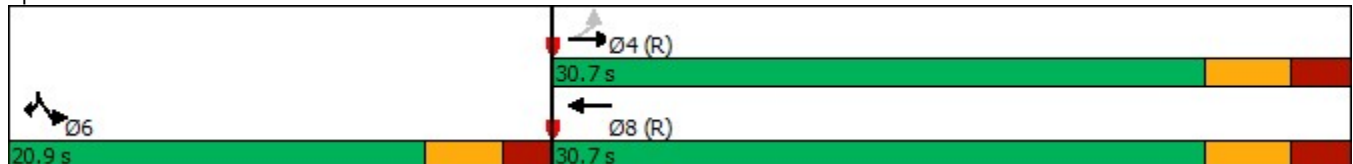
Actuated Cycle Length: 51.6

Offset: 20.9 (41%), Referenced to phase 4:EBTL and 8:WBT, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

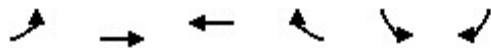
Splits and Phases: 3: Line 6 & West Park Ave



# HCM Signalized Intersection Capacity Analysis

## 3: Line 6 & West Park Ave

Existing PM Peak Hour Period






















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	35	265	175	80	45	15
Future Volume (vph)	35	265	175	80	45	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7		4.9	4.9
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.96		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1799	1900	1793		1770	1615
Flt Permitted	0.58	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1106	1900	1793		1770	1615
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	39	298	197	90	51	17
RTOR Reduction (vph)	0	0	20	0	0	15
Lane Group Flow (vph)	39	298	267	0	51	2
Confl. Peds. (#/hr)	5			5		
Heavy Vehicles (%)	0%	0%	1%	0%	2%	0%
Turn Type	Perm	NA	NA		Prot	Prot
Protected Phases		4	8		6	6
Permitted Phases	4					
Actuated Green, G (s)	35.0	35.0	35.0		6.0	6.0
Effective Green, g (s)	35.0	35.0	35.0		6.0	6.0
Actuated g/C Ratio	0.68	0.68	0.68		0.12	0.12
Clearance Time (s)	5.7	5.7	5.7		4.9	4.9
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	750	1288	1216		205	187
v/s Ratio Prot		c0.16	0.15		c0.03	0.00
v/s Ratio Perm	0.04					
v/c Ratio	0.05	0.23	0.22		0.25	0.01
Uniform Delay, d1	2.8	3.2	3.1		20.7	20.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.1	0.4	0.4		0.6	0.0
Delay (s)	2.9	3.6	3.6		21.4	20.2
Level of Service	A	A	A		C	C
Approach Delay (s)		3.5	3.6		21.1	
Approach LOS		A	A		C	
<b>Intersection Summary</b>						
HCM 2000 Control Delay			5.3		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.23			
Actuated Cycle Length (s)			51.6		Sum of lost time (s)	10.6
Intersection Capacity Utilization			46.3%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

# HCM Unsignalized Intersection Capacity Analysis

## 4: Brownlee Drive/Southfield Gate & Line 6











Existing PM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	285	10	10	245	15	5	5	5	5	0	5
Future Volume (Veh/h)	15	285	10	10	245	15	5	5	5	5	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	317	11	11	272	17	6	6	6	6	0	6
Pedestrians		10			10						10	
Lane Width (m)		3.6			3.6						3.6	
Walking Speed (m/s)		1.2			1.2						1.2	
Percent Blockage		1			1						1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage (veh)		2			2							
Upstream signal (m)		349										
pX, platoon unblocked												
vC, conflicting volume	299			328			666	678	332	682	674	300
vC1, stage 1 conf vol							356	356		312	312	
vC2, stage 2 conf vol							310	321		370	362	
vCu, unblocked vol	299			328			666	678	332	682	674	300
tC, single (s)	4.1			4.2			7.1	6.5	6.5	7.1	6.5	6.7
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.3			3.5	4.0	3.5	3.5	4.0	3.8
p0 queue free %	99			99			99	99	99	99	100	99
cM capacity (veh/h)	1263			1188			548	526	654	534	528	629
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	17	328	11	289	18	12						
Volume Left	17	0	11	0	6	6						
Volume Right	0	11	0	17	6	6						
cSH	1263	1700	1188	1700	571	577						
Volume to Capacity	0.01	0.19	0.01	0.17	0.03	0.02						
Queue Length 95th (m)	0.3	0.0	0.2	0.0	0.8	0.5						
Control Delay (s)	7.9	0.0	8.1	0.0	11.5	11.4						
Lane LOS	A		A		B	B						
Approach Delay (s)	0.4		0.3		11.5	11.4						
Approach LOS					B	B						
<b>Intersection Summary</b>												
Average Delay			0.8									
Intersection Capacity Utilization			28.4%		ICU Level of Service				A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 5: Golf Driveway Access & Line 6

Existing PM Peak Hour Period

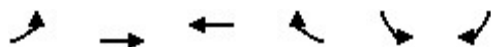
						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	295	0	0	270	0	0
Future Volume (Veh/h)	295	0	0	270	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	321	0	0	293	0	0
<b>Pedestrians</b>						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL		TWLTL			
Median storage veh	2		2			
Upstream signal (m)			346			
pX, platoon unblocked						
vC, conflicting volume			321		614	321
vC1, stage 1 conf vol					321	
vC2, stage 2 conf vol					293	
vCu, unblocked vol			321		614	321
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1250		637	724
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>		
Volume Total	321	0	293	0		
Volume Left	0	0	0	0		
Volume Right	0	0	0	0		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.19	0.00	0.17	0.00		
Queue Length 95th (m)	0.0	0.0	0.0	0.0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS				A		
Approach Delay (s)	0.0	0.0		0.0		
Approach LOS				A		
<b>Intersection Summary</b>						
Average Delay			0.0			
Intersection Capacity Utilization			18.9%	ICU Level of Service		A
Analysis Period (min)			15			



# HCM Unsignalized Intersection Capacity Analysis

## 6: Line 6 & Adams Street

Existing PM Peak Hour Period

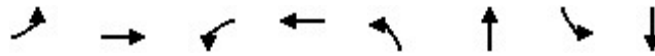


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	265	260	70	30	10
Future Volume (Veh/h)	30	265	260	70	30	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	33	294	289	78	33	11
Pedestrians					5	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage (veh)		2	2			
Upstream signal (m)			258			
pX, platoon unblocked						
vC, conflicting volume	372				693	333
vC1, stage 1 conf vol					333	
vC2, stage 2 conf vol					360	
vCu, unblocked vol	372				693	333
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	97				94	98
cM capacity (veh/h)	1176				590	710
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>SB 1</b>		
Volume Total	33	294	367	44		
Volume Left	33	0	0	33		
Volume Right	0	0	78	11		
cSH	1176	1700	1700	616		
Volume to Capacity	0.03	0.17	0.22	0.07		
Queue Length 95th (m)	0.7	0.0	0.0	1.8		
Control Delay (s)	8.1	0.0	0.0	11.3		
Lane LOS	A			B		
Approach Delay (s)	0.8		0.0	11.3		
Approach LOS				B		
<b>Intersection Summary</b>						
Average Delay			1.0			
Intersection Capacity Utilization			34.7%		ICU Level of Service	A
Analysis Period (min)			15			

Queues

7: Inverness Way/Melbourne Dr & Line 6

Existing PM Peak Hour Period



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↶	↷	↶	↷	↶	↷	↶	↷
Traffic Volume (vph)	65	195	10	280	20	20	40	30
Future Volume (vph)	65	195	10	280	20	20	40	30
Lane Group Flow (vph)	73	258	11	411	22	28	45	68
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		6		2		8		4
Permitted Phases	6		2		8		4	
Detector Phase	6	6	2	2	8	8	4	4
Switch Phase								
Minimum Initial (s)	25.0	25.0	25.0	25.0	10.0	10.0	10.0	10.0
Minimum Split (s)	30.5	30.5	30.5	30.5	21.0	21.0	21.0	21.0
Total Split (s)	30.5	30.5	30.5	30.5	21.2	21.2	21.2	21.2
Total Split (%)	59.0%	59.0%	59.0%	59.0%	41.0%	41.0%	41.0%	41.0%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.0	3.0	3.0	3.0
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.2	5.2	5.2	5.2
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	C-Max	C-Max	None	None	None	None
v/c Ratio	0.10	0.19	0.01	0.30	0.08	0.07	0.15	0.17
Control Delay	6.0	5.1	5.9	5.7	15.6	13.2	16.8	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.0	5.1	5.9	5.7	15.6	13.2	16.8	10.4
Queue Length 50th (m)	2.6	8.8	0.4	15.2	1.8	1.8	3.7	2.8
Queue Length 95th (m)	9.4	23.6	2.5	38.9	5.4	5.8	8.9	9.1
Internal Link Dist (m)		233.8		288.6		331.7		165.8
Turn Bay Length (m)	50.0		50.0					
Base Capacity (vph)	727	1357	837	1350	416	573	421	560
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	0.10	0.19	0.01	0.30	0.05	0.05	0.11	0.12

Intersection Summary

Cycle Length: 51.7

Actuated Cycle Length: 51.7

Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated






















Splits and Phases: 7: Inverness Way/Melbourne Dr & Line 6



# HCM Signalized Intersection Capacity Analysis

## 7: Inverness Way/Melbourne Dr & Line 6

Existing PM Peak Hour Period




















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	195	35	10	280	85	20	20	5	40	30	30
Future Volume (vph)	65	195	35	10	280	85	20	20	5	40	30	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.96		1.00	0.97		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1800	1834		1798	1818		1795	1839		1752	1735	
Flt Permitted	0.52	1.00		0.60	1.00		0.71	1.00		0.74	1.00	
Satd. Flow (perm)	987	1834		1135	1818		1347	1839		1363	1735	
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)	73	219	39	11	315	96	22	22	6	45	34	34
RTOR Reduction (vph)	0	8	0	0	14	0	0	5	0	0	29	0
Lane Group Flow (vph)	73	250	0	11	397	0	22	23	0	45	39	0
Confl. Peds. (#/hr)	5		5	5		5	5					5
Heavy Vehicles (%)	0%	1%	0%	0%	0%	1%	0%	0%	0%	3%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	33.8	33.8		33.8	33.8		7.2	7.2		7.2	7.2	
Effective Green, g (s)	33.8	33.8		33.8	33.8		7.2	7.2		7.2	7.2	
Actuated g/C Ratio	0.65	0.65		0.65	0.65		0.14	0.14		0.14	0.14	
Clearance Time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	645	1199		742	1188		187	256		189	241	
v/s Ratio Prot		0.14			c0.22			0.01			0.02	
v/s Ratio Perm	0.07			0.01			0.02			c0.03		
v/c Ratio	0.11	0.21		0.01	0.33		0.12	0.09		0.24	0.16	
Uniform Delay, d1	3.3	3.6		3.1	4.0		19.5	19.4		19.8	19.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.4		0.0	0.8		0.3	0.2		0.7	0.3	
Delay (s)	3.7	4.0		3.2	4.7		19.8	19.5		20.5	19.9	
Level of Service	A	A		A	A		B	B		C	B	
Approach Delay (s)		3.9			4.7			19.6			20.1	
Approach LOS		A			A			B			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			7.1				HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio			0.32									
Actuated Cycle Length (s)			51.7				Sum of lost time (s)			10.7		
Intersection Capacity Utilization			65.4%				ICU Level of Service			C		
Analysis Period (min)			15									

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 8: Barrow Ave & Line 6

Existing PM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	220	20	45	355	5	10	0	25	10	0	10
Future Volume (Veh/h)	0	220	20	45	355	5	10	0	25	10	0	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	253	23	52	408	6	11	0	29	11	0	11
Pedestrians								5			5	
Lane Width (m)								3.6			3.6	
Walking Speed (m/s)								1.2			1.2	
Percent Blockage								0			0	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage (veh)		2			2							
Upstream signal (m)		313			286							
pX, platoon unblocked												
vC, conflicting volume	419			281			792	792	270	802	801	416
vC1, stage 1 conf vol							270	270		520	520	
vC2, stage 2 conf vol							523	523		282	281	
vCu, unblocked vol	419			281			792	792	270	802	801	416
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			96			98	100	96	98	100	98
cM capacity (veh/h)	1146			1288			468	467	771	460	459	638
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	0	276	52	414	40	22						
Volume Left	0	0	52	0	11	11						
Volume Right	0	23	0	6	29	11						
cSH	1700	1700	1288	1700	655	534						
Volume to Capacity	0.00	0.16	0.04	0.24	0.06	0.04						
Queue Length 95th (m)	0.0	0.0	1.0	0.0	1.6	1.0						
Control Delay (s)	0.0	0.0	7.9	0.0	10.9	12.0						
Lane LOS			A		B	B						
Approach Delay (s)	0.0		0.9		10.9	12.0						
Approach LOS					B	B						
<b>Intersection Summary</b>												
Average Delay			1.4									
Intersection Capacity Utilization			35.7%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues

9: Simcoe Road & Line 6

Existing PM Peak Hour Period



Lane Group	EBL	EBT	WBT	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	170	40	15	110	135	60	280
Future Volume (vph)	170	40	15	110	135	60	280
Lane Group Flow (vph)	183	91	21	118	161	65	301
Turn Type	Perm	NA	NA	Perm	NA	NA	Perm
Protected Phases		4	8		2	6	
Permitted Phases	4			2			6
Detector Phase	4	4	8	2	2	6	6
Switch Phase							
Minimum Initial (s)	25.0	25.0	25.0	24.0	24.0	24.0	24.0
Minimum Split (s)	30.5	30.5	30.5	29.5	29.5	29.5	29.5
Total Split (s)	30.5	30.5	30.5	29.5	29.5	29.5	29.5
Total Split (%)	50.8%	50.8%	50.8%	49.2%	49.2%	49.2%	49.2%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.31	0.12	0.03	0.17	0.16	0.07	0.31
Control Delay	13.6	6.6	9.2	12.7	11.3	11.6	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.6	6.6	9.2	12.7	11.3	11.6	2.8
Queue Length 50th (m)	13.6	2.9	1.1	8.6	10.9	4.5	0.0
Queue Length 95th (m)	26.7	10.1	4.4	18.5	21.9	11.0	12.6
Internal Link Dist (m)		261.7	146.8		404.3	164.8	
Turn Bay Length (m)	50.0			110.0			
Base Capacity (vph)	589	757	760	699	978	969	976
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	0.31	0.12	0.03	0.17	0.16	0.07	0.31

Intersection Summary

Cycle Length: 60

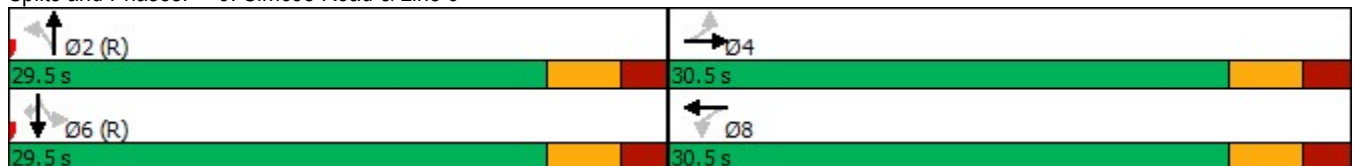
Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated





















Splits and Phases: 9: Simcoe Road & Line 6



# HCM Signalized Intersection Capacity Analysis

## 9: Simcoe Road & Line 6

Existing PM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	40	45	0	15	5	110	135	15	0	60	280
Future Volume (vph)	170	40	45	0	15	5	110	135	15	0	60	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5		5.5	5.5			5.5	5.5
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.92			0.96		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1805	1750			1819		1787	1872			1863	1599
Flt Permitted	0.74	1.00			1.00		0.71	1.00			1.00	1.00
Satd. Flow (perm)	1413	1750			1819		1344	1872			1863	1599
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)	183	43	48	0	16	5	118	145	16	0	65	301
RTOR Reduction (vph)	0	32	0	0	3	0	0	6	0	0	0	156
Lane Group Flow (vph)	183	59	0	0	18	0	118	155	0	0	65	145
Heavy Vehicles (%)	0%	0%	0%	0%	0%	3%	1%	0%	0%	0%	2%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	20.0	20.0			20.0		29.0	29.0			29.0	29.0
Effective Green, g (s)	20.0	20.0			20.0		29.0	29.0			29.0	29.0
Actuated g/C Ratio	0.33	0.33			0.33		0.48	0.48			0.48	0.48
Clearance Time (s)	5.5	5.5			5.5		5.5	5.5			5.5	5.5
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	471	583			606		649	904			900	772
v/s Ratio Prot		0.03			0.01			0.08			0.03	
v/s Ratio Perm	c0.13						0.09					c0.09
v/c Ratio	0.39	0.10			0.03		0.18	0.17			0.07	0.19
Uniform Delay, d1	15.3	13.8			13.5		8.8	8.7			8.3	8.8
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	0.5	0.1			0.0		0.6	0.4			0.2	0.5
Delay (s)	15.9	13.9			13.5		9.4	9.1			8.5	9.4
Level of Service	B	B			B		A	A			A	A
Approach Delay (s)		15.2			13.5			9.3			9.2	
Approach LOS		B			B			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			11.1				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.27									
Actuated Cycle Length (s)			60.0				Sum of lost time (s)			11.0		
Intersection Capacity Utilization			74.6%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Unsignalized Intersection Capacity Analysis

## 10: Simcoe Road & Gibson Circle

Existing PM Peak Hour Period



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	5	25	245	80	25
Future Volume (Veh/h)	15	5	25	245	80	25
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	18	6	29	288	94	29
Pedestrians	10			5		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	1			0		
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	464	124	133			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	464	124	133			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	99	98			
cM capacity (veh/h)	544	921	1452			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	24	317	123			
Volume Left	18	29	0			
Volume Right	6	0	29			
cSH	606	1452	1700			
Volume to Capacity	0.04	0.02	0.07			
Queue Length 95th (m)	1.0	0.5	0.0			
Control Delay (s)	11.2	0.9	0.0			
Lane LOS	B	A				
Approach Delay (s)	11.2	0.9	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay				1.2		
Intersection Capacity Utilization				32.5%	ICU Level of Service	A
Analysis Period (min)				15		

# HCM Unsignalized Intersection Capacity Analysis

## 11: Simcoe Road & Golfview Blvd

Existing PM Peak Hour Period



















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	5	10	235	65	20
Future Volume (Veh/h)	15	5	10	235	65	20
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)	16	5	11	255	71	22
Pedestrians	10			5		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	1			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	369	97	103			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	369	97	103			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	99	99			
cM capacity (veh/h)	625	953	1489			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	21	266	93			
Volume Left	16	11	0			
Volume Right	5	0	22			
cSH	681	1489	1700			
Volume to Capacity	0.03	0.01	0.05			
Queue Length 95th (m)	0.8	0.2	0.0			
Control Delay (s)	10.5	0.4	0.0			
Lane LOS	B	A				
Approach Delay (s)	10.5	0.4	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			0.8			
Intersection Capacity Utilization			31.1%	ICU Level of Service		A
Analysis Period (min)			15			



# HCM Unsignalized Intersection Capacity Analysis

## 12: Canal Rd










Existing PM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	155	45	0	5	55	85	5	5	0	25	5	40
Future Volume (vph)	155	45	0	5	55	85	5	5	0	25	5	40
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	189	55	0	6	67	104	6	6	0	30	6	49
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	244	177	12	85								
Volume Left (vph)	189	6	6	30								
Volume Right (vph)	0	104	0	49								
Hadj (s)	0.21	-0.32	0.10	-0.28								
Departure Headway (s)	4.5	4.1	5.1	4.6								
Degree Utilization, x	0.31	0.20	0.02	0.11								
Capacity (veh/h)	775	842	643	715								
Control Delay (s)	9.5	8.1	8.1	8.1								
Approach Delay (s)	9.5	8.1	8.1	8.1								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			8.8									
Level of Service			A									
Intersection Capacity Utilization			34.0%	ICU Level of Service	A							
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 13: Line 5 & Canal Rd

















Existing PM Peak Hour Period

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	5	15	165	45	55
Future Volume (Veh/h)	35	5	15	165	45	55
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	40	6	17	190	52	63
<b>Pedestrians</b>						
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	308	84	115			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	308	84	115			
tC, single (s)	6.5	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.3			
p0 queue free %	94	99	99			
cM capacity (veh/h)	666	981	1443			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	46	207	115			
Volume Left	40	17	0			
Volume Right	6	0	63			
cSH	696	1443	1700			
Volume to Capacity	0.07	0.01	0.07			
Queue Length 95th (m)	1.7	0.3	0.0			
Control Delay (s)	10.5	0.7	0.0			
Lane LOS	B	A				
Approach Delay (s)	10.5	0.7	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			1.7			
Intersection Capacity Utilization			26.2%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis










## 14: 10 Sideroad & Line 5

Existing PM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	335	30	10	0	50	20	0	10	5	5	15	85
Future Volume (vph)	335	30	10	0	50	20	0	10	5	5	15	85
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	372	33	11	0	56	22	0	11	6	6	17	94
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	416	78	17	117								
Volume Left (vph)	372	0	0	6								
Volume Right (vph)	11	22	6	94								
Hadj (s)	0.18	-0.08	-0.12	-0.46								
Departure Headway (s)	4.5	4.6	5.1	4.6								
Degree Utilization, x	0.52	0.10	0.02	0.15								
Capacity (veh/h)	774	734	626	702								
Control Delay (s)	12.3	8.1	8.2	8.4								
Approach Delay (s)	12.3	8.1	8.2	8.4								
Approach LOS	B	A	A	A								
Intersection Summary												
Delay			11.0									
Level of Service			B									
Intersection Capacity Utilization			44.7%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis  
 18: Simcoe Road & Danube Ln










Existing PM Peak Hour Period

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	245	0	0	70
Future Volume (Veh/h)	0	0	245	0	0	70
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)	0	0	266	0	0	76
<b>Pedestrians</b>						
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	342	266			266	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	342	266			266	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	658	778			1310	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	0	266	76			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1310			
Volume to Capacity	0.00	0.16	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			0.0			
Intersection Capacity Utilization			16.2%	ICU Level of Service		A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 19: Simcoe Road & Jonkman Blvd













Existing PM Peak Hour Period

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	260	0	0	105
Future Volume (Veh/h)	0	0	260	0	0	105
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)	0	0	283	0	0	114
<b>Pedestrians</b>						
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	397	283			283	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	397	283			283	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	612	761			1291	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	0	283	114			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1291			
Volume to Capacity	0.00	0.17	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			0.0			
Intersection Capacity Utilization			17.0%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 1: 10 Sideroad & Line 6

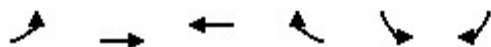
Future Background 2026 AM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	10	15	0	195	35	85	0	35	100	95	55	0
Future Volume (veh/h)	10	15	0	195	35	85	0	35	100	95	55	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	17	0	217	39	94	0	39	111	106	61	0
Approach Volume (veh/h)	28			350			150			167		
Crossing Volume (veh/h)	384			50			134			256		
High Capacity (veh/h)	1024			1332			1247			1133		
High v/c (veh/h)	0.03			0.26			0.12			0.15		
Low Capacity (veh/h)	835			1113			1036			933		
Low v/c (veh/h)	0.03			0.31			0.14			0.18		
<b>Intersection Summary</b>												
Maximum v/c High	0.26											
Maximum v/c Low	0.31											
Intersection Capacity Utilization	36.9%			ICU Level of Service				A				

# HCM Unsignalized Intersection Capacity Analysis

## 2: Line 6 & Langford Boulevard

Future Background 2026 AM Peak Hour Period

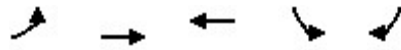


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	200	270	40	40	50
Future Volume (Veh/h)	5	200	270	40	40	50
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	5	220	297	44	44	55
<b>Pedestrians</b>						
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	341				549	319
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	341				549	319
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	100				91	92
cM capacity (veh/h)	1154				493	722
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>SB 1</b>		
Volume Total	5	220	341	99		
Volume Left	5	0	0	44		
Volume Right	0	0	44	55		
cSH	1154	1700	1700	598		
Volume to Capacity	0.00	0.13	0.20	0.17		
Queue Length 95th (m)	0.1	0.0	0.0	4.7		
Control Delay (s)	8.1	0.0	0.0	12.2		
Lane LOS	A			B		
Approach Delay (s)	0.2		0.0	12.2		
Approach LOS				B		
<b>Intersection Summary</b>						
Average Delay			1.9			
Intersection Capacity Utilization			28.6%	ICU Level of Service	A	
Analysis Period (min)			15			

# Queues

## 3: Line 6 & West Park Ave

Future Background 2026 AM Peak Hour Period

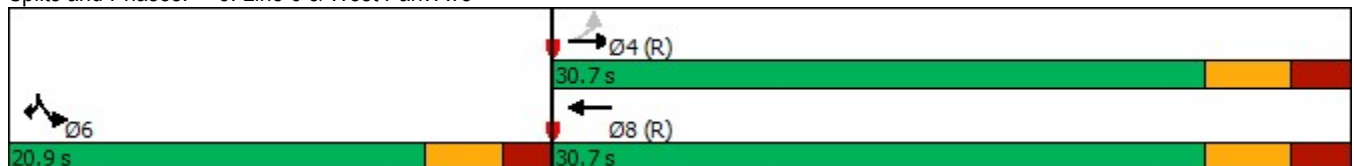


Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations	↖	↑	↗	↖	↘
Traffic Volume (vph)	10	235	265	105	35
Future Volume (vph)	10	235	265	105	35
Lane Group Flow (vph)	11	267	375	119	40
Turn Type	Perm	NA	NA	Prot	Prot
Protected Phases		4	8	6	6
Permitted Phases	4				
Detector Phase	4	4	8	6	6
Switch Phase					
Minimum Initial (s)	25.0	25.0	25.0	10.0	10.0
Minimum Split (s)	30.7	30.7	30.7	20.0	20.0
Total Split (s)	30.7	30.7	30.7	20.9	20.9
Total Split (%)	59.5%	59.5%	59.5%	40.5%	40.5%
Yellow Time (s)	3.3	3.3	3.3	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	5.7	5.7	4.9	4.9
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Min	C-Min	C-Min	None	None
v/c Ratio	0.02	0.23	0.31	0.34	0.11
Control Delay	4.9	5.6	5.6	20.4	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	4.9	5.6	5.6	20.4	7.4
Queue Length 50th (m)	0.4	10.2	13.8	10.1	0.0
Queue Length 95th (m)	2.0	21.4	28.2	20.4	5.6
Internal Link Dist (m)		582.6	325.3	441.0	
Turn Bay Length (m)	110.0				
Base Capacity (vph)	620	1171	1208	543	528
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	0.02	0.23	0.31	0.22	0.08

### Intersection Summary

Cycle Length: 51.6  
 Actuated Cycle Length: 51.6  
 Offset: 20.9 (41%), Referenced to phase 4:EBTL and 8:WBT, Start of Green  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated

### Splits and Phases: 3: Line 6 & West Park Ave

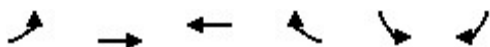




# HCM Signalized Intersection Capacity Analysis

## 3: Line 6 & West Park Ave

Future Background 2026 AM Peak Hour Period






















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	235	265	65	105	35
Future Volume (vph)	10	235	265	65	105	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7		4.9	4.9
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1626	1743	1782		1752	1615
Flt Permitted	0.54	1.00	1.00		0.95	1.00
Satd. Flow (perm)	922	1743	1782		1752	1615
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	11	267	301	74	119	40
RTOR Reduction (vph)	0	0	12	0	0	33
Lane Group Flow (vph)	11	267	363	0	119	7
Heavy Vehicles (%)	11%	9%	3%	7%	3%	0%
Turn Type	Perm	NA	NA		Prot	Prot
Protected Phases		4	8		6	6
Permitted Phases	4					
Actuated Green, G (s)	32.6	32.6	32.6		8.4	8.4
Effective Green, g (s)	32.6	32.6	32.6		8.4	8.4
Actuated g/C Ratio	0.63	0.63	0.63		0.16	0.16
Clearance Time (s)	5.7	5.7	5.7		4.9	4.9
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	582	1101	1125		285	262
v/s Ratio Prot		0.15	c0.20		c0.07	0.00
v/s Ratio Perm	0.01					
v/c Ratio	0.02	0.24	0.32		0.42	0.02
Uniform Delay, d1	3.5	4.1	4.4		19.4	18.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.1	0.5	0.8		1.0	0.0
Delay (s)	3.6	4.7	5.2		20.4	18.2
Level of Service	A	A	A		C	B
Approach Delay (s)		4.6	5.2		19.8	
Approach LOS		A	A		B	
<b>Intersection Summary</b>						
HCM 2000 Control Delay			7.8		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.34			
Actuated Cycle Length (s)			51.6		Sum of lost time (s)	10.6
Intersection Capacity Utilization			38.0%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

# HCM Unsignalized Intersection Capacity Analysis

## 4: Brownlee Drive/Southfield Gate & Line 6












Future Background 2026 AM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	330	5	5	315	5	5	5	10	15	0	10
Future Volume (Veh/h)	5	330	5	5	315	5	5	5	10	15	0	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	359	5	5	342	5	5	5	11	16	0	11
Pedestrians												5
Lane Width (m)												3.6
Walking Speed (m/s)												1.2
Percent Blockage												0
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh		2			2							
Upstream signal (m)		349										
pX, platoon unblocked												
vC, conflicting volume	352			364			734	734	362	742	734	350
vC1, stage 1 conf vol							372	372		360	360	
vC2, stage 2 conf vol							363	362		382	374	
vCu, unblocked vol	352			364			734	734	362	742	734	350
tC, single (s)	4.1			4.3			7.3	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.3	5.5		6.1	5.5	
tF (s)	2.2			2.4			3.7	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			99	99	98	97	100	98
cM capacity (veh/h)	1213			1116			487	515	688	520	515	695
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	5	364	5	347	21	27						
Volume Left	5	0	5	0	5	16						
Volume Right	0	5	0	5	11	11						
cSH	1213	1700	1116	1700	584	579						
Volume to Capacity	0.00	0.21	0.00	0.20	0.04	0.05						
Queue Length 95th (m)	0.1	0.0	0.1	0.0	0.9	1.2						
Control Delay (s)	8.0	0.0	8.2	0.0	11.4	11.5						
Lane LOS	A		A		B	B						
Approach Delay (s)	0.1		0.1		11.4	11.5						
Approach LOS					B	B						
<b>Intersection Summary</b>												
Average Delay			0.8									
Intersection Capacity Utilization			27.7%		ICU Level of Service				A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 5: Golf Driveway Access & Line 6

Future Background 2026 AM Peak Hour Period

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	350	0	0	325	0	0
Future Volume (Veh/h)	350	0	0	325	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	376	0	0	349	0	0
<b>Pedestrians</b>						
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)	346					
pX, platoon unblocked						
vC, conflicting volume			376		725	376
vC1, stage 1 conf vol					376	
vC2, stage 2 conf vol					349	
vCu, unblocked vol			376		725	376
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1194		589	675
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>		
Volume Total	376	0	349	0		
Volume Left	0	0	0	0		
Volume Right	0	0	0	0		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.22	0.00	0.21	0.00		
Queue Length 95th (m)	0.0	0.0	0.0	0.0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS				A		
Approach Delay (s)	0.0	0.0		0.0		
Approach LOS				A		
<b>Intersection Summary</b>						
Average Delay			0.0			
Intersection Capacity Utilization			21.8%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 6: Line 6 & Adams Street

Future Background 2026 AM Peak Hour Period

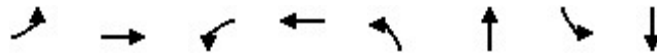


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	345	300	20	40	25
Future Volume (Veh/h)	5	345	300	20	40	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	5	371	323	22	43	27
Pedestrians					5	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh		2	2			
Upstream signal (m)			258			
pX, platoon unblocked						
vC, conflicting volume	350				720	339
vC1, stage 1 conf vol					339	
vC2, stage 2 conf vol					381	
vCu, unblocked vol	350				720	339
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				93	96
cM capacity (veh/h)	1215				582	705
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>SB 1</b>		
Volume Total	5	371	345	70		
Volume Left	5	0	0	43		
Volume Right	0	0	22	27		
cSH	1215	1700	1700	624		
Volume to Capacity	0.00	0.22	0.20	0.11		
Queue Length 95th (m)	0.1	0.0	0.0	3.0		
Control Delay (s)	8.0	0.0	0.0	11.5		
Lane LOS	A			B		
Approach Delay (s)	0.1		0.0	11.5		
Approach LOS				B		
<b>Intersection Summary</b>						
Average Delay			1.1			
Intersection Capacity Utilization			28.6%		ICU Level of Service	A
Analysis Period (min)			15			

# Queues

## 7: Inverness Way/Melbourne Dr & Line 6

Future Background 2026 AM Peak Hour Period



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗
Traffic Volume (vph)	60	310	5	215	35	40	115	40
Future Volume (vph)	60	310	5	215	35	40	115	40
Lane Group Flow (vph)	69	373	6	379	40	69	132	121
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		6		2		8		4
Permitted Phases	6		2		8		4	
Detector Phase	6	6	2	2	8	8	4	4
Switch Phase								
Minimum Initial (s)	25.0	25.0	25.0	25.0	10.0	10.0	10.0	10.0
Minimum Split (s)	30.5	30.5	30.5	30.5	21.0	21.0	21.0	21.0
Total Split (s)	30.5	30.5	30.5	30.5	21.2	21.2	21.2	21.2
Total Split (%)	59.0%	59.0%	59.0%	59.0%	41.0%	41.0%	41.0%	41.0%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.0	3.0	3.0	3.0
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.2	5.2	5.2	5.2
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	C-Min	C-Min	None	None	None	None
v/c Ratio	0.12	0.32	0.01	0.33	0.14	0.17	0.46	0.28
Control Delay	7.0	7.4	6.2	6.4	15.9	11.9	22.1	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.0	7.4	6.2	6.4	15.9	11.9	22.1	9.0
Queue Length 50th (m)	2.6	15.8	0.2	12.8	3.2	3.7	11.5	3.7
Queue Length 95th (m)	8.8	36.5	1.7	32.0	8.0	9.8	20.9	11.9
Internal Link Dist (m)		233.8		288.6		331.7		165.8
Turn Bay Length (m)	50.0		50.0					
Base Capacity (vph)	600	1155	660	1134	387	550	386	566
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	0.12	0.32	0.01	0.33	0.10	0.13	0.34	0.21

### Intersection Summary

Cycle Length: 51.7

Actuated Cycle Length: 51.7

Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated






















Splits and Phases: 7: Inverness Way/Melbourne Dr & Line 6



# HCM Signalized Intersection Capacity Analysis

## 7: Inverness Way/Melbourne Dr & Line 6

Future Background 2026 AM Peak Hour Period




















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	310	15	5	215	115	35	40	20	115	40	65
Future Volume (vph)	60	310	15	5	215	115	35	40	20	115	40	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	0.95		1.00	0.95		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1651	1791		1805	1723		1752	1728		1668	1662	
Flt Permitted	0.54	1.00		0.54	1.00		0.68	1.00		0.71	1.00	
Satd. Flow (perm)	933	1791		1025	1723		1253	1728		1250	1662	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	69	356	17	6	247	132	40	46	23	132	46	75
RTOR Reduction (vph)	0	2	0	0	29	0	0	19	0	0	61	0
Lane Group Flow (vph)	69	371	0	6	350	0	40	50	0	132	60	0
Confl. Peds. (#/hr)	5						5		10	10		
Heavy Vehicles (%)	9%	5%	13%	0%	5%	1%	3%	2%	6%	7%	0%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8				4
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	31.1	31.1		31.1	31.1		9.9	9.9		9.9	9.9	
Effective Green, g (s)	31.1	31.1		31.1	31.1		9.9	9.9		9.9	9.9	
Actuated g/C Ratio	0.60	0.60		0.60	0.60		0.19	0.19		0.19	0.19	
Clearance Time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	561	1077		616	1036		239	330		239	318	
v/s Ratio Prot		c0.21			0.20			0.03			0.04	
v/s Ratio Perm	0.07			0.01			0.03			c0.11		
v/c Ratio	0.12	0.34		0.01	0.34		0.17	0.15		0.55	0.19	
Uniform Delay, d1	4.4	5.2		4.1	5.2		17.5	17.4		18.9	17.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.9		0.0	0.9		0.3	0.2		2.7	0.3	
Delay (s)	4.9	6.0		4.2	6.0		17.8	17.6		21.6	17.8	
Level of Service	A	A		A	A		B	B		C	B	
Approach Delay (s)		5.9			6.0			17.7			19.8	
Approach LOS		A			A			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			10.0				HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio			0.39									
Actuated Cycle Length (s)			51.7				Sum of lost time (s)			10.7		
Intersection Capacity Utilization			68.2%				ICU Level of Service			C		
Analysis Period (min)			15									

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 8: Barrow Ave & Line 6

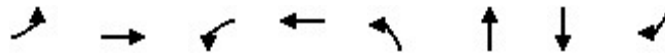
Future Background 2026 AM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	425	10	20	315	10	20	0	35	5	0	0
Future Volume (Veh/h)	15	425	10	20	315	10	20	0	35	5	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	19	531	12	25	394	12	25	0	44	6	0	0
Pedestrians												5
Lane Width (m)												3.6
Walking Speed (m/s)												1.2
Percent Blockage												0
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage (veh)		2			2							
Upstream signal (m)		313			286							
pX, platoon unblocked												
vC, conflicting volume	411			543			1019	1036	537	1068	1036	405
vC1, stage 1 conf vol							575	575		455	455	
vC2, stage 2 conf vol							444	461		613	581	
vCu, unblocked vol	411			543			1019	1036	537	1068	1036	405
tC, single (s)	4.3			4.1			7.1	6.5	6.2	8.1	6.5	6.7
tC, 2 stage (s)							6.1	5.5		7.1	5.5	
tF (s)	2.4			2.2			3.5	4.0	3.3	4.4	4.0	3.8
p0 queue free %	98			98			94	100	92	98	100	100
cM capacity (veh/h)	1048			1036			411	407	542	253	400	551
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	19	543	25	406	69	6						
Volume Left	19	0	25	0	25	6						
Volume Right	0	12	0	12	44	0						
cSH	1048	1700	1036	1700	486	253						
Volume to Capacity	0.02	0.32	0.02	0.24	0.14	0.02						
Queue Length 95th (m)	0.4	0.0	0.6	0.0	3.9	0.6						
Control Delay (s)	8.5	0.0	8.6	0.0	13.6	19.6						
Lane LOS	A		A		B	C						
Approach Delay (s)	0.3		0.5		13.6	19.6						
Approach LOS					B	C						
<b>Intersection Summary</b>												
Average Delay			1.3									
Intersection Capacity Utilization			33.0%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues

9: Simcoe Road & Line 6

Future Background 2026 AM Peak Hour Period



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	330	25	5	45	170	175	110	190
Future Volume (vph)	330	25	5	45	170	175	110	190
Lane Group Flow (vph)	371	168	6	57	191	203	124	213
Turn Type	Perm	NA	Perm	NA	Perm	NA	NA	Perm
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)	25.0	25.0	25.0	25.0	24.0	24.0	24.0	24.0
Minimum Split (s)	30.5	30.5	30.5	30.5	29.5	29.5	29.5	29.5
Total Split (s)	30.5	30.5	30.5	30.5	29.5	29.5	29.5	29.5
Total Split (%)	50.8%	50.8%	50.8%	50.8%	49.2%	49.2%	49.2%	49.2%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio	0.67	0.23	0.01	0.08	0.39	0.30	0.17	0.29
Control Delay	21.6	4.2	10.6	10.1	15.9	13.7	12.4	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	4.2	10.6	10.1	15.9	13.7	12.4	3.2
Queue Length 50th (m)	33.2	1.8	0.4	3.4	15.1	15.1	8.9	0.0
Queue Length 95th (m)	60.1	11.2	2.2	9.0	29.8	28.5	18.2	10.4
Internal Link Dist (m)		261.7		146.8		405.2	164.8	
Turn Bay Length (m)	50.0		20.0		110.0			
Base Capacity (vph)	553	737	410	749	485	673	724	743
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	0.67	0.23	0.01	0.08	0.39	0.30	0.17	0.29

Intersection Summary

Cycle Length: 60

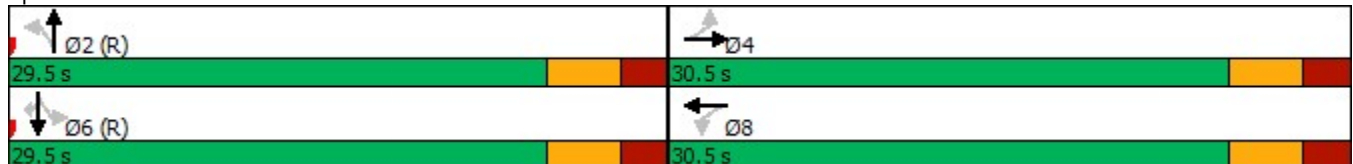
Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Splits and Phases: 9: Simcoe Road & Line 6

























# HCM Signalized Intersection Capacity Analysis

## 9: Simcoe Road & Line 6

Future Background 2026 AM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	330	25	125	5	45	5	170	175	5	0	110	190
Future Volume (vph)	330	25	125	5	45	5	170	175	5	0	110	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		5.5	5.5			5.5	5.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frbp, ped/bikes	1.00	0.98		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	0.88		1.00	0.98		1.00	1.00			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1752	1574		1437	1790		1703	1678			1810	1538
Flt Permitted	0.72	1.00		0.65	1.00		0.68	1.00			1.00	1.00
Satd. Flow (perm)	1328	1574		985	1790		1214	1678			1810	1538
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)	371	28	140	6	51	6	191	197	6	0	124	213
RTOR Reduction (vph)	0	82	0	0	4	0	0	2	0	0	0	128
Lane Group Flow (vph)	371	86	0	6	54	0	191	201	0	0	124	85
Confl. Peds. (#/hr)			5	5					5	5		
Heavy Vehicles (%)	3%	0%	4%	25%	5%	0%	6%	13%	0%	0%	5%	5%
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	25.0	25.0		25.0	25.0		24.0	24.0			24.0	24.0
Effective Green, g (s)	25.0	25.0		25.0	25.0		24.0	24.0			24.0	24.0
Actuated g/C Ratio	0.42	0.42		0.42	0.42		0.40	0.40			0.40	0.40
Clearance Time (s)	5.5	5.5		5.5	5.5		5.5	5.5			5.5	5.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	553	655		410	745		485	671			724	615
v/s Ratio Prot		0.05			0.03			0.12			0.07	
v/s Ratio Perm	c0.28			0.01			c0.16					0.06
v/c Ratio	0.67	0.13		0.01	0.07		0.39	0.30			0.17	0.14
Uniform Delay, d1	14.2	10.8		10.3	10.5		12.8	12.3			11.6	11.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	3.2	0.1		0.0	0.0		2.4	1.1			0.5	0.5
Delay (s)	17.4	10.9		10.3	10.6		15.2	13.4			12.1	11.9
Level of Service	B	B		B	B		B	B			B	B
Approach Delay (s)		15.3			10.5			14.3			12.0	
Approach LOS		B			B			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			14.0				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			60.0				Sum of lost time (s)			11.0		
Intersection Capacity Utilization			74.6%				ICU Level of Service			D		
Analysis Period (min)			15									

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 10: Simcoe Road & Gibson Circle

Future Background 2026 AM Peak Hour Period



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	50	20	215	215	10
Future Volume (Veh/h)	25	50	20	215	215	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	34	68	27	295	295	14
Pedestrians	5			5		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	656	312	314			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	656	312	314			
tC, single (s)	6.5	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.3			
p0 queue free %	92	91	98			
cM capacity (veh/h)	410	718	1197			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	102	322	309			
Volume Left	34	27	0			
Volume Right	68	0	14			
cSH	574	1197	1700			
Volume to Capacity	0.18	0.02	0.18			
Queue Length 95th (m)	5.1	0.6	0.0			
Control Delay (s)	12.6	0.9	0.0			
Lane LOS	B	A				
Approach Delay (s)	12.6	0.9	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay	2.1					
Intersection Capacity Utilization	40.7%			ICU Level of Service	A	
Analysis Period (min)	15					

# HCM Unsignalized Intersection Capacity Analysis

## 11: Simcoe Road & Golfview Blvd

Future Background 2026 AM Peak Hour Period



















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	10	5	170	210	15
Future Volume (Veh/h)	25	10	5	170	210	15
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	28	11	6	189	233	17
<b>Pedestrians</b>						
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	442	242	250			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	442	242	250			
tC, single (s)	6.5	6.2	4.6			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.7			
p0 queue free %	95	99	99			
cM capacity (veh/h)	557	802	1081			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	39	195	250			
Volume Left	28	6	0			
Volume Right	11	0	17			
cSH	609	1081	1700			
Volume to Capacity	0.06	0.01	0.15			
Queue Length 95th (m)	1.6	0.1	0.0			
Control Delay (s)	11.3	0.3	0.0			
Lane LOS	B	A				
Approach Delay (s)	11.3	0.3	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			1.0			
Intersection Capacity Utilization			23.0%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 12: Canal Rd










Future Background 2026 AM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	115	35	0	0	20	20	0	0	0	50	5	155
Future Volume (vph)	115	35	0	0	20	20	0	0	0	50	5	155
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	137	42	0	0	24	24	0	0	0	60	6	185
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	179	48	0	251								
Volume Left (vph)	137	0	0	60								
Volume Right (vph)	0	24	0	185								
Hadj (s)	0.31	-0.15	0.00	-0.31								
Departure Headway (s)	4.8	4.5	4.8	4.2								
Degree Utilization, x	0.24	0.06	0.00	0.29								
Capacity (veh/h)	704	733	710	820								
Control Delay (s)	9.4	7.8	7.8	8.8								
Approach Delay (s)	9.4	7.8	0.0	8.8								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			8.9									
Level of Service			A									
Intersection Capacity Utilization			34.1%	ICU Level of Service	A							
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 13: Line 5 & Canal Rd










Future Background 2026 AM Peak Hour Period

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	65	35	0	95	105	75
Future Volume (Veh/h)	65	35	0	95	105	75
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	78	42	0	114	127	90
<b>Pedestrians</b>						
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	286	172	217			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	286	172	217			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	95	100			
cM capacity (veh/h)	709	877	1365			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	120	114	217			
Volume Left	78	0	0			
Volume Right	42	0	90			
cSH	760	1365	1700			
Volume to Capacity	0.16	0.00	0.13			
Queue Length 95th (m)	4.5	0.0	0.0			
Control Delay (s)	10.6	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	10.6	0.0	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			2.8			
Intersection Capacity Utilization			22.5%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 14: Line 5 & 10 Sideroad











Future Background 2026 AM Peak Hour Period

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	120	90	15	235	75	15
Future Volume (Veh/h)	120	90	15	235	75	15
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	146	110	18	287	91	18
<b>Pedestrians</b>						
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			256		380	128
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			256		380	128
tC, single (s)			4.8		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.5		3.5	3.3
p0 queue free %			98		85	98
cM capacity (veh/h)			1108		590	905
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>	
Volume Total	97	159	114	191	109	
Volume Left	0	0	18	0	91	
Volume Right	0	110	0	0	18	
cSH	1700	1700	1108	1700	626	
Volume to Capacity	0.06	0.09	0.02	0.11	0.17	
Queue Length 95th (m)	0.0	0.0	0.4	0.0	5.0	
Control Delay (s)	0.0	0.0	1.4	0.0	12.0	
Lane LOS	A			B		
Approach Delay (s)	0.0		0.5		12.0	
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			2.2			
Intersection Capacity Utilization			28.2%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 16: Line 10 & Line 5










Future Background 2026 AM Peak Hour Period

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	95	10	5	70	20	5
Future Volume (Veh/h)	95	10	5	70	20	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	100	11	5	74	21	5
<b>Pedestrians</b>						
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			111		190	106
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			111		190	106
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		97	99
cM capacity (veh/h)			1492		801	954
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	111	79	26			
Volume Left	0	5	21			
Volume Right	11	0	5			
cSH	1700	1492	827			
Volume to Capacity	0.07	0.00	0.03			
Queue Length 95th (m)	0.0	0.1	0.8			
Control Delay (s)	0.0	0.5	9.5			
Lane LOS		A	A			
Approach Delay (s)	0.0	0.5	9.5			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			1.3			
Intersection Capacity Utilization			17.8%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 18: Simcoe Road & Danube Lane

Future Background 2026 AM Peak Hour Period










						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	45	130	5	20	200
Future Volume (Veh/h)	10	45	130	5	20	200
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)	11	49	141	5	22	217
<b>Pedestrians</b>						
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	404	144			146	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	404	144			146	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	95			98	
cM capacity (veh/h)	597	909			1448	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	60	146	239			
Volume Left	11	0	22			
Volume Right	49	5	0			
cSH	830	1700	1448			
Volume to Capacity	0.07	0.09	0.02			
Queue Length 95th (m)	1.9	0.0	0.4			
Control Delay (s)	9.7	0.0	0.8			
Lane LOS	A		A			
Approach Delay (s)	9.7	0.0	0.8			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			1.7			
Intersection Capacity Utilization			32.1%	ICU Level of Service	A	
Analysis Period (min)			15			



# HCM Unsignalized Intersection Capacity Analysis

## 19: Simcoe Road & Jonkman Blvd













Future Background 2026 AM Peak Hour Period

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	95	235	5	30	215
Future Volume (Veh/h)	10	95	235	5	30	215
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)	11	103	255	5	33	234
<b>Pedestrians</b>						
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	558	258			260	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	558	258			260	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	87			97	
cM capacity (veh/h)	482	786			1316	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	114	260	267			
Volume Left	11	0	33			
Volume Right	103	5	0			
cSH	741	1700	1316			
Volume to Capacity	0.15	0.15	0.03			
Queue Length 95th (m)	4.3	0.0	0.6			
Control Delay (s)	10.7	0.0	1.2			
Lane LOS	B		A			
Approach Delay (s)	10.7	0.0	1.2			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			2.4			
Intersection Capacity Utilization			42.1%		ICU Level of Service	A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 1: 10 Sideroad & Line 6

Future Background 2031 AM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	15	40	0	230	75	105	0	35	130	120	55	0
Future Volume (veh/h)	15	40	0	230	75	105	0	35	130	120	55	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	44	0	256	83	117	0	39	144	133	61	0
Approach Volume (veh/h)	61		456				183		194			
Crossing Volume (veh/h)	450			56			194			339		
High Capacity (veh/h)	971			1326			1190			1061		
High v/c (veh/h)	0.06			0.34			0.15			0.18		
Low Capacity (veh/h)	788			1107			984			868		
Low v/c (veh/h)	0.08			0.41			0.19			0.22		
<b>Intersection Summary</b>												
Maximum v/c High			0.34									
Maximum v/c Low			0.41									
Intersection Capacity Utilization			41.2%			ICU Level of Service			A			

# HCM Unsignalized Intersection Capacity Analysis

## 2: Line 6 & Langford Boulevard

Future Background 2031 AM Peak Hour Period

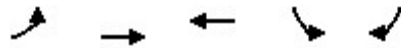


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	280	365	40	40	50
Future Volume (Veh/h)	5	280	365	40	40	50
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	5	308	401	44	44	55
<b>Pedestrians</b>						
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	445				741	423
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	445				741	423
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	100				88	91
cM capacity (veh/h)	1054				380	631
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>SB 1</b>		
Volume Total	5	308	445	99		
Volume Left	5	0	0	44		
Volume Right	0	0	44	55		
cSH	1054	1700	1700	488		
Volume to Capacity	0.00	0.18	0.26	0.20		
Queue Length 95th (m)	0.1	0.0	0.0	6.0		
Control Delay (s)	8.4	0.0	0.0	14.2		
Lane LOS	A			B		
Approach Delay (s)	0.1		0.0	14.2		
Approach LOS				B		
<b>Intersection Summary</b>						
Average Delay			1.7			
Intersection Capacity Utilization			33.6%	ICU Level of Service	A	
Analysis Period (min)			15			

# Queues

## 3: Line 6 & West Park Ave

Future Background 2031 AM Peak Hour Period



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations	↖	↑	↔	↘	↘
Traffic Volume (vph)	15	310	355	130	40
Future Volume (vph)	15	310	355	130	40
Lane Group Flow (vph)	17	352	483	148	45
Turn Type	Perm	NA	NA	Prot	Prot
Protected Phases		4	8	6	6
Permitted Phases	4				
Detector Phase	4	4	8	6	6
Switch Phase					
Minimum Initial (s)	25.0	25.0	25.0	10.0	10.0
Minimum Split (s)	30.7	30.7	30.7	20.0	20.0
Total Split (s)	56.0	56.0	56.0	24.0	24.0
Total Split (%)	70.0%	70.0%	70.0%	30.0%	30.0%
Yellow Time (s)	3.3	3.3	3.3	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	5.7	5.7	4.9	4.9
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Min	C-Min	C-Min	Max	Max
v/c Ratio	0.10	0.56	0.72	0.17	0.05
Control Delay	15.7	23.1	25.1	13.2	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.7	23.1	25.1	13.2	5.2
Queue Length 50th (m)	1.9	47.4	59.4	10.9	0.0
Queue Length 95th (m)	4.8	52.4	75.1	28.4	6.1
Internal Link Dist (m)		582.6	325.3	441.0	
Turn Bay Length (m)	110.0				
Base Capacity (vph)	290	1095	1136	882	835
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	0.06	0.32	0.43	0.17	0.05

### Intersection Summary

Cycle Length: 80

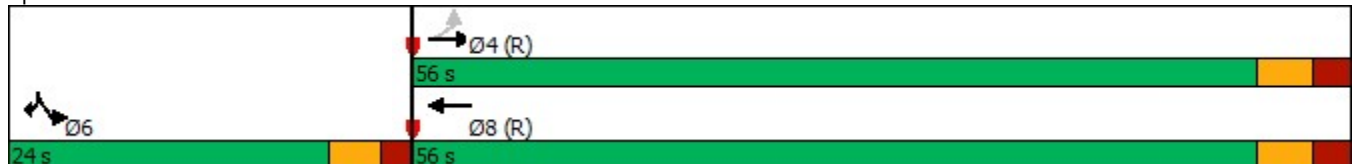
Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBT, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

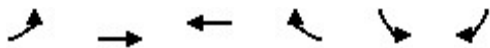
### Splits and Phases: 3: Line 6 & West Park Ave



# HCM Signalized Intersection Capacity Analysis

## 3: Line 6 & West Park Ave

Future Background 2031 AM Peak Hour Period






















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	15	310	355	70	130	40
Future Volume (vph)	15	310	355	70	130	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7		4.9	4.9
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1626	1743	1792		1752	1615
Flt Permitted	0.27	1.00	1.00		0.95	1.00
Satd. Flow (perm)	463	1743	1792		1752	1615
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	17	352	403	80	148	45
RTOR Reduction (vph)	0	0	15	0	0	22
Lane Group Flow (vph)	17	352	468	0	148	23
Heavy Vehicles (%)	11%	9%	3%	7%	3%	0%
Turn Type	Perm	NA	NA		Prot	Prot
Protected Phases		4	8		6	6
Permitted Phases	4					
Actuated Green, G (s)	29.1	29.1	29.1		40.3	40.3
Effective Green, g (s)	29.1	29.1	29.1		40.3	40.3
Actuated g/C Ratio	0.36	0.36	0.36		0.50	0.50
Clearance Time (s)	5.7	5.7	5.7		4.9	4.9
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	168	634	651		882	813
v/s Ratio Prot		0.20	c0.26		c0.08	0.01
v/s Ratio Perm	0.04					
v/c Ratio	0.10	0.56	0.72		0.17	0.03
Uniform Delay, d1	16.8	20.3	21.9		10.8	10.0
Progression Factor	1.00	1.00	0.92		1.00	1.00
Incremental Delay, d2	1.2	3.5	6.5		0.4	0.1
Delay (s)	18.0	23.8	26.6		11.2	10.1
Level of Service	B	C	C		B	B
Approach Delay (s)		23.5	26.6		10.9	
Approach LOS		C	C		B	
<b>Intersection Summary</b>						
HCM 2000 Control Delay			22.6		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.40			
Actuated Cycle Length (s)			80.0		Sum of lost time (s)	10.6
Intersection Capacity Utilization			40.1%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

# HCM Unsignalized Intersection Capacity Analysis

## 4: Brownlee Drive/Southfield Gate & Line 6












Future Background 2031 AM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	430	5	5	410	5	5	5	10	15	0	10
Future Volume (Veh/h)	5	430	5	5	410	5	5	5	10	15	0	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	467	5	5	446	5	5	5	11	16	0	11
Pedestrians												5
Lane Width (m)												3.6
Walking Speed (m/s)												1.2
Percent Blockage												0
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh		2			2							
Upstream signal (m)		349										
pX, platoon unblocked				0.89			0.89	0.89	0.89	0.89	0.89	
vC, conflicting volume	456			472			946	946	470	954	946	454
vC1, stage 1 conf vol							480	480		464	464	
vC2, stage 2 conf vol							467	466		490	482	
vCu, unblocked vol	456			344			878	876	341	886	876	454
tC, single (s)	4.1			4.3			7.3	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.3	5.5		6.1	5.5	
tF (s)	2.2			2.4			3.7	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			99	99	98	96	100	98
cM capacity (veh/h)	1111			1010			415	446	628	445	446	608
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	5	472	5	451	21	27						
Volume Left	5	0	5	0	5	16						
Volume Right	0	5	0	5	11	11						
cSH	1111	1700	1010	1700	515	500						
Volume to Capacity	0.00	0.28	0.00	0.27	0.04	0.05						
Queue Length 95th (m)	0.1	0.0	0.1	0.0	1.0	1.4						
Control Delay (s)	8.3	0.0	8.6	0.0	12.3	12.6						
Lane LOS	A		A		B	B						
Approach Delay (s)	0.1		0.1		12.3	12.6						
Approach LOS					B	B						
<b>Intersection Summary</b>												
Average Delay			0.7									
Intersection Capacity Utilization			32.9%		ICU Level of Service				A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 5: Golf Driveway Access & Line 6

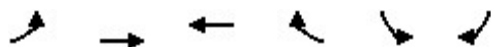
Future Background 2031 AM Peak Hour Period

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	450	0	0	420	0	0
Future Volume (Veh/h)	450	0	0	420	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	484	0	0	452	0	0
<b>Pedestrians</b>						
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)			346			
pX, platoon unblocked						
vC, conflicting volume			484		936	484
vC1, stage 1 conf vol					484	
vC2, stage 2 conf vol					452	
vCu, unblocked vol			484		936	484
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1089		509	587
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>		
Volume Total	484	0	452	0		
Volume Left	0	0	0	0		
Volume Right	0	0	0	0		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.28	0.00	0.27	0.00		
Queue Length 95th (m)	0.0	0.0	0.0	0.0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS				A		
Approach Delay (s)	0.0	0.0		0.0		
Approach LOS				A		
<b>Intersection Summary</b>						
Average Delay			0.0			
Intersection Capacity Utilization			27.0%	ICU Level of Service		A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 6: Line 6 & Adams Street

Future Background 2031 AM Peak Hour Period



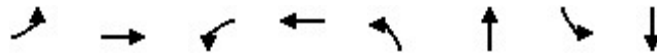
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	445	395	20	40	25
Future Volume (Veh/h)	5	445	395	20	40	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	5	478	425	22	43	27
Pedestrians					5	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh		2	2			
Upstream signal (m)			258			
pX, platoon unblocked						
vC, conflicting volume	452				929	441
vC1, stage 1 conf vol					441	
vC2, stage 2 conf vol					488	
vCu, unblocked vol	452				929	441
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				91	96
cM capacity (veh/h)	1115				503	618
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>SB 1</b>		
Volume Total	5	478	447	70		
Volume Left	5	0	0	43		
Volume Right	0	0	22	27		
cSH	1115	1700	1700	542		
Volume to Capacity	0.00	0.28	0.26	0.13		
Queue Length 95th (m)	0.1	0.0	0.0	3.5		
Control Delay (s)	8.2	0.0	0.0	12.6		
Lane LOS	A			B		
Approach Delay (s)	0.1		0.0	12.6		
Approach LOS				B		
<b>Intersection Summary</b>						
Average Delay			0.9			
Intersection Capacity Utilization			33.8%		ICU Level of Service	A
Analysis Period (min)			15			



Queues

7: Inverness Way/Melbourne Dr & Line 6

Future Background 2031 AM Peak Hour Period

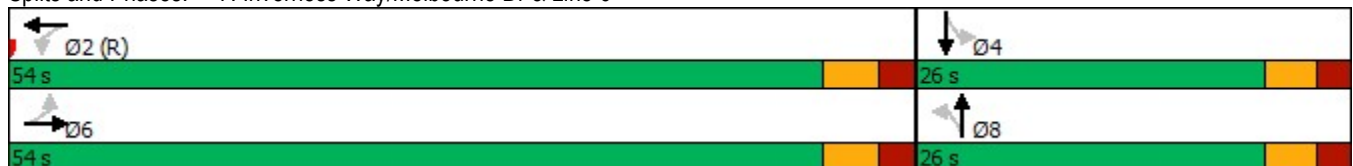


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗
Traffic Volume (vph)	75	395	5	290	35	40	140	40
Future Volume (vph)	75	395	5	290	35	40	140	40
Lane Group Flow (vph)	86	471	6	471	40	69	161	144
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		6		2		8		4
Permitted Phases	6		2		8		4	
Detector Phase	6	6	2	2	8	8	4	4
Switch Phase								
Minimum Initial (s)	25.0	25.0	25.0	25.0	10.0	10.0	10.0	10.0
Minimum Split (s)	30.5	30.5	30.5	30.5	21.0	21.0	21.0	21.0
Total Split (s)	54.0	54.0	54.0	54.0	26.0	26.0	26.0	26.0
Total Split (%)	67.5%	67.5%	67.5%	67.5%	32.5%	32.5%	32.5%	32.5%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.0	3.0	3.0	3.0
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.2	5.2	5.2	5.2
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	C-Min	C-Min	None	None	None	None
v/c Ratio	0.16	0.39	0.01	0.40	0.17	0.20	0.67	0.36
Control Delay	7.8	9.8	9.0	9.5	26.7	19.5	43.1	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.8	9.8	9.0	9.5	26.7	19.5	43.1	12.5
Queue Length 50th (m)	7.5	53.5	0.2	23.9	5.4	6.1	24.0	6.1
Queue Length 95th (m)	16.0	68.4	m1.5	66.7	12.4	14.8	39.3	18.4
Internal Link Dist (m)		233.8		288.6		331.7		165.8
Turn Bay Length (m)	50.0		50.0					
Base Capacity (vph)	534	1209	585	1182	310	465	322	498
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	0.16	0.39	0.01	0.40	0.13	0.15	0.50	0.29

Intersection Summary

Cycle Length: 80  
 Actuated Cycle Length: 80  
 Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated  
 m Volume for 95th percentile queue is metered by upstream signal.






















Splits and Phases: 7: Inverness Way/Melbourne Dr & Line 6



# HCM Signalized Intersection Capacity Analysis

## 7: Inverness Way/Melbourne Dr & Line 6

Future Background 2031 AM Peak Hour Period




















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	395	15	5	290	120	35	40	20	140	40	85
Future Volume (vph)	75	395	15	5	290	120	35	40	20	140	40	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		0.98	1.00	
Frt	1.00	0.99		1.00	0.96		1.00	0.95		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1650	1795		1805	1735		1752	1724		1658	1639	
Flt Permitted	0.46	1.00		0.46	1.00		0.65	1.00		0.71	1.00	
Satd. Flow (perm)	796	1795		871	1735		1195	1724		1243	1639	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	86	454	17	6	333	138	40	46	23	161	46	98
RTOR Reduction (vph)	0	1	0	0	15	0	0	19	0	0	79	0
Lane Group Flow (vph)	86	470	0	6	456	0	40	50	0	161	65	0
Confl. Peds. (#/hr)	5						5		10	10		
Heavy Vehicles (%)	9%	5%	13%	0%	5%	1%	3%	2%	6%	7%	0%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	53.8	53.8		53.8	53.8		15.5	15.5		15.5	15.5	
Effective Green, g (s)	53.8	53.8		53.8	53.8		15.5	15.5		15.5	15.5	
Actuated g/C Ratio	0.67	0.67		0.67	0.67		0.19	0.19		0.19	0.19	
Clearance Time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	535	1207		585	1166		231	334		240	317	
v/s Ratio Prot		0.26			c0.26			0.03			0.04	
v/s Ratio Perm	0.11			0.01			0.03			c0.13		
v/c Ratio	0.16	0.39		0.01	0.39		0.17	0.15		0.67	0.21	
Uniform Delay, d1	4.8	5.8		4.3	5.8		26.9	26.8		29.9	27.1	
Progression Factor	1.15	1.32		1.56	1.40		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.9		0.0	0.9		0.4	0.2		7.2	0.3	
Delay (s)	6.2	8.6		6.8	9.1		27.3	27.0		37.1	27.4	
Level of Service	A	A		A	A		C	C		D	C	
Approach Delay (s)		8.2			9.0			27.1			32.5	
Approach LOS		A			A			C			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			15.0				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			10.7		
Intersection Capacity Utilization			80.7%				ICU Level of Service			D		
Analysis Period (min)			15									

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 8: Barrow Ave & Line 6

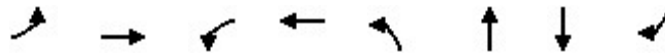
Future Background 2031 AM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	535	10	20	395	10	20	0	35	5	0	0
Future Volume (Veh/h)	15	535	10	20	395	10	20	0	35	5	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	19	669	12	25	494	12	25	0	44	6	0	0
Pedestrians												5
Lane Width (m)												3.6
Walking Speed (m/s)												1.2
Percent Blockage												0
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh		2			2							
Upstream signal (m)		313			286							
pX, platoon unblocked	0.99			0.92			0.93	0.93	0.92	0.93	0.93	0.99
vC, conflicting volume	511			681			1257	1274	675	1306	1274	505
vC1, stage 1 conf vol							713	713		555	555	
vC2, stage 2 conf vol							544	561		751	719	
vCu, unblocked vol	502			612			1216	1234	606	1269	1234	496
tC, single (s)	4.3			4.1			7.1	6.5	6.2	8.1	6.5	6.7
tC, 2 stage (s)							6.1	5.5		7.1	5.5	
tF (s)	2.4			2.2			3.5	4.0	3.3	4.4	4.0	3.8
p0 queue free %	98			97			93	100	90	97	100	100
cM capacity (veh/h)	959			901			339	343	457	200	335	482
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	19	681	25	506	69	6						
Volume Left	19	0	25	0	25	6						
Volume Right	0	12	0	12	44	0						
cSH	959	1700	901	1700	406	200						
Volume to Capacity	0.02	0.40	0.03	0.30	0.17	0.03						
Queue Length 95th (m)	0.5	0.0	0.7	0.0	4.8	0.7						
Control Delay (s)	8.8	0.0	9.1	0.0	15.7	23.5						
Lane LOS	A		A		C	C						
Approach Delay (s)	0.2		0.4		15.7	23.5						
Approach LOS					C	C						
<b>Intersection Summary</b>												
Average Delay			1.2									
Intersection Capacity Utilization			38.8%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues

9: Simcoe Road & Line 6

Future Background 2031 AM Peak Hour Period



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	415	25	5	55	195	200	135	235
Future Volume (vph)	415	25	5	55	195	200	135	235
Lane Group Flow (vph)	466	197	6	68	219	231	152	264
Turn Type	Perm	NA	Perm	NA	Perm	NA	NA	Perm
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)	25.0	25.0	25.0	25.0	24.0	24.0	24.0	24.0
Minimum Split (s)	30.5	30.5	30.5	30.5	29.5	29.5	29.5	29.5
Total Split (s)	49.0	49.0	49.0	49.0	31.0	31.0	31.0	31.0
Total Split (%)	61.3%	61.3%	61.3%	61.3%	38.8%	38.8%	38.8%	38.8%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio	0.81	0.25	0.01	0.09	0.44	0.32	0.20	0.33
Control Delay	22.7	2.0	9.4	10.2	22.3	19.1	17.8	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.7	2.0	9.4	10.2	22.3	19.1	17.8	4.0
Queue Length 50th (m)	35.1	2.4	0.5	5.4	24.5	24.2	15.1	0.0
Queue Length 95th (m)	48.1	5.3	2.0	10.0	51.4	48.3	32.1	15.3
Internal Link Dist (m)		261.7		146.8		405.2	164.8	
Turn Bay Length (m)	50.0		20.0		110.0			
Base Capacity (vph)	715	926	519	978	503	715	770	806
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	0.65	0.21	0.01	0.07	0.44	0.32	0.20	0.33

Intersection Summary

Cycle Length: 80

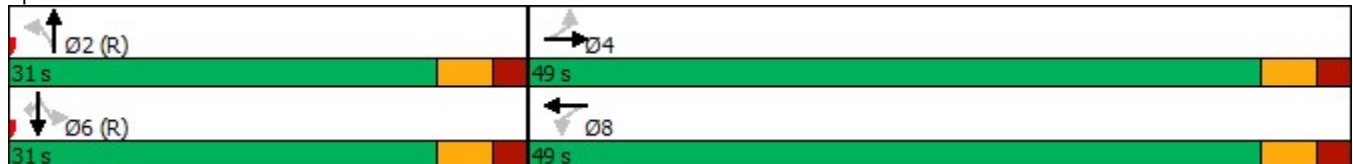
Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated





















Splits and Phases: 9: Simcoe Road & Line 6



# HCM Signalized Intersection Capacity Analysis

## 9: Simcoe Road & Line 6

Future Background 2031 AM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	415	25	150	5	55	5	195	200	5	0	135	235
Future Volume (vph)	415	25	150	5	55	5	195	200	5	0	135	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		5.5	5.5			5.5	5.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frbp, ped/bikes	1.00	0.98		1.00	1.00		1.00	1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.87		1.00	0.99		1.00	1.00			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1752	1562		1435	1793		1703	1679			1810	1538
Flt Permitted	0.71	1.00		0.63	1.00		0.66	1.00			1.00	1.00
Satd. Flow (perm)	1315	1562		957	1793		1184	1679			1810	1538
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)	466	28	169	6	62	6	219	225	6	0	152	264
RTOR Reduction (vph)	0	95	0	0	3	0	0	1	0	0	0	152
Lane Group Flow (vph)	466	102	0	6	65	0	219	230	0	0	152	112
Confl. Peds. (#/hr)			5	5					5	5		
Heavy Vehicles (%)	3%	0%	4%	25%	5%	0%	6%	13%	0%	0%	5%	5%
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	35.0	35.0		35.0	35.0		34.0	34.0			34.0	34.0
Effective Green, g (s)	35.0	35.0		35.0	35.0		34.0	34.0			34.0	34.0
Actuated g/C Ratio	0.44	0.44		0.44	0.44		0.42	0.42			0.42	0.42
Clearance Time (s)	5.5	5.5		5.5	5.5		5.5	5.5			5.5	5.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	575	683		418	784		503	713			769	653
v/s Ratio Prot		0.07			0.04			0.14			0.08	
v/s Ratio Perm	c0.35			0.01			c0.19					0.07
v/c Ratio	0.81	0.15		0.01	0.08		0.44	0.32			0.20	0.17
Uniform Delay, d1	19.6	13.5		12.7	13.1		16.2	15.3			14.4	14.3
Progression Factor	0.60	0.48		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	8.1	0.1		0.0	0.0		2.7	1.2			0.6	0.6
Delay (s)	19.9	6.6		12.8	13.2		19.0	16.5			15.0	14.8
Level of Service	B	A		B	B		B	B			B	B
Approach Delay (s)		16.0			13.1			17.7			14.9	
Approach LOS		B			B			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			16.1				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			11.0		
Intersection Capacity Utilization			83.4%				ICU Level of Service			E		
Analysis Period (min)			15									

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 10: Simcoe Road & Gibson Circle

Future Background 2031 AM Peak Hour Period



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	50	20	265	265	10
Future Volume (Veh/h)	25	50	20	265	265	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	34	68	27	363	363	14
Pedestrians	5			5		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	792	380	382			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	792	380	382			
tC, single (s)	6.5	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.3			
p0 queue free %	90	90	98			
cM capacity (veh/h)	340	657	1129			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	102	390	377			
Volume Left	34	27	0			
Volume Right	68	0	14			
cSH	501	1129	1700			
Volume to Capacity	0.20	0.02	0.22			
Queue Length 95th (m)	6.0	0.6	0.0			
Control Delay (s)	14.0	0.8	0.0			
Lane LOS	B	A				
Approach Delay (s)	14.0	0.8	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay	2.0					
Intersection Capacity Utilization	43.2%			ICU Level of Service	A	
Analysis Period (min)	15					

# HCM Unsignalized Intersection Capacity Analysis

## 11: Simcoe Road & Golfview Blvd

Future Background 2031 AM Peak Hour Period



















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	10	5	220	260	15
Future Volume (Veh/h)	25	10	5	220	260	15
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	28	11	6	244	289	17
<b>Pedestrians</b>						
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	554	298	306			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	554	298	306			
tC, single (s)	6.5	6.2	4.6			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.7			
p0 queue free %	94	99	99			
cM capacity (veh/h)	479	747	1026			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	39	250	306			
Volume Left	28	6	0			
Volume Right	11	0	17			
cSH	533	1026	1700			
Volume to Capacity	0.07	0.01	0.18			
Queue Length 95th (m)	1.9	0.1	0.0			
Control Delay (s)	12.3	0.3	0.0			
Lane LOS	B	A				
Approach Delay (s)	12.3	0.3	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			0.9			
Intersection Capacity Utilization			25.6%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 12: Canal Rd

Future Background 2031 AM Peak Hour Period










												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	155	35	0	0	20	30	0	0	0	65	5	190
Future Volume (vph)	155	35	0	0	20	30	0	0	0	65	5	190
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	185	42	0	0	24	36	0	0	0	77	6	226
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	227	60	0	309								
Volume Left (vph)	185	0	0	77								
Volume Right (vph)	0	36	0	226								
Hadj (s)	0.32	-0.18	0.00	-0.30								
Departure Headway (s)	5.0	4.8	5.0	4.3								
Degree Utilization, x	0.32	0.08	0.00	0.37								
Capacity (veh/h)	676	692	660	786								
Control Delay (s)	10.3	8.2	8.0	9.9								
Approach Delay (s)	10.3	8.2	0.0	9.9								
Approach LOS	B	A	A	A								
Intersection Summary												
Delay			9.9									
Level of Service			A									
Intersection Capacity Utilization			39.3%	ICU Level of Service	A							
Analysis Period (min)			15									



# HCM Unsignalized Intersection Capacity Analysis

## 13: Line 5 & Canal Rd










Future Background 2031 AM Peak Hour Period

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	80	35	0	120	120	95
Future Volume (Veh/h)	80	35	0	120	120	95
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	96	42	0	145	145	114
<b>Pedestrians</b>						
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	347	202	259			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	347	202	259			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	85	95	100			
cM capacity (veh/h)	654	844	1317			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	138	145	259			
Volume Left	96	0	0			
Volume Right	42	0	114			
cSH	702	1317	1700			
Volume to Capacity	0.20	0.00	0.15			
Queue Length 95th (m)	5.8	0.0	0.0			
Control Delay (s)	11.4	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	11.4	0.0	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			2.9			
Intersection Capacity Utilization			25.4%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis











## 14: Line 5 & 10 Sideroad

Future Background 2031 AM Peak Hour Period

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	150	105	15	270	95	15
Future Volume (Veh/h)	150	105	15	270	95	15
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	183	128	18	329	116	18
<b>Pedestrians</b>						
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			311		448	156
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			311		448	156
tC, single (s)			4.8		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.5		3.5	3.3
p0 queue free %			98		78	98
cM capacity (veh/h)			1050		535	869
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>	
Volume Total	122	189	128	219	134	
Volume Left	0	0	18	0	116	
Volume Right	0	128	0	0	18	
cSH	1700	1700	1050	1700	565	
Volume to Capacity	0.07	0.11	0.02	0.13	0.24	
Queue Length 95th (m)	0.0	0.0	0.4	0.0	7.3	
Control Delay (s)	0.0	0.0	1.3	0.0	13.4	
Lane LOS	A			B		
Approach Delay (s)	0.0		0.5		13.4	
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			2.5			
Intersection Capacity Utilization			31.5%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
 16: Line 10 & Line 5










Future Background 2031 AM Peak Hour Period

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	110	10	5	90	20	5
Future Volume (Veh/h)	110	10	5	90	20	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	116	11	5	95	21	5
<b>Pedestrians</b>						
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			127		226	122
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			127		226	122
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		97	99
cM capacity (veh/h)			1472		764	935
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	127	100	26			
Volume Left	0	5	21			
Volume Right	11	0	5			
cSH	1700	1472	791			
Volume to Capacity	0.07	0.00	0.03			
Queue Length 95th (m)	0.0	0.1	0.8			
Control Delay (s)	0.0	0.4	9.7			
Lane LOS		A	A			
Approach Delay (s)	0.0	0.4	9.7			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			1.2			
Intersection Capacity Utilization			18.8%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 18: Simcoe Road & Danube Lane










Future Background 2031 AM Peak Hour Period

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	45	180	5	20	250
Future Volume (Veh/h)	10	45	180	5	20	250
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)	11	49	196	5	22	272
<b>Pedestrians</b>						
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	514	198			201	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	514	198			201	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	94			98	
cM capacity (veh/h)	515	848			1383	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	60	201	294			
Volume Left	11	0	22			
Volume Right	49	5	0			
cSH	758	1700	1383			
Volume to Capacity	0.08	0.12	0.02			
Queue Length 95th (m)	2.1	0.0	0.4			
Control Delay (s)	10.2	0.0	0.7			
Lane LOS	B		A			
Approach Delay (s)	10.2	0.0	0.7			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			1.5			
Intersection Capacity Utilization			37.4%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 19: Simcoe Road & Jonkman Blvd













Future Background 2031 AM Peak Hour Period

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	95	285	5	30	265
Future Volume (Veh/h)	10	95	285	5	30	265
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)	11	103	310	5	33	288
<b>Pedestrians</b>						
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	666	312			315	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	666	312			315	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	86			97	
cM capacity (veh/h)	416	732			1257	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	114	315	321			
Volume Left	11	0	33			
Volume Right	103	5	0			
cSH	682	1700	1257			
Volume to Capacity	0.17	0.19	0.03			
Queue Length 95th (m)	4.8	0.0	0.6			
Control Delay (s)	11.3	0.0	1.0			
Lane LOS	B		A			
Approach Delay (s)	11.3	0.0	1.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			2.2			
Intersection Capacity Utilization			47.3%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 1: 10 Sideroad & Line 6

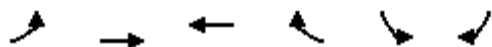
Future Background 2031 AM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	15	40	0	230	75	100	0	35	130	120	55	0
Future Volume (veh/h)	15	40	0	230	75	100	0	35	130	120	55	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	44	0	256	83	111	0	39	144	133	61	0
Approach Volume (veh/h)	61		450				183		194			
Crossing Volume (veh/h)	450				56		194			339		
High Capacity (veh/h)	971				1326		1190		1061			
High v/c (veh/h)	0.06				0.34		0.15		0.18			
Low Capacity (veh/h)	788				1107		984		868			
Low v/c (veh/h)	0.08				0.41		0.19		0.22			
<b>Intersection Summary</b>												
Maximum v/c High			0.34									
Maximum v/c Low			0.41									
Intersection Capacity Utilization			41.2%		ICU Level of Service				A			

# HCM Unsignalized Intersection Capacity Analysis

## 2: Line 6 & Langford Boulevard

Future Background 2031 AM Peak Hour Period

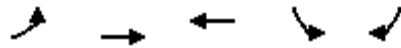


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	285	355	35	40	50
Future Volume (Veh/h)	5	285	355	35	40	50
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	5	313	390	38	44	55
<b>Pedestrians</b>						
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	428				732	409
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	428				732	409
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	100				89	91
cM capacity (veh/h)	1070				385	642
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>SB 1</b>		
Volume Total	5	313	428	99		
Volume Left	5	0	0	44		
Volume Right	0	0	38	55		
cSH	1070	1700	1700	495		
Volume to Capacity	0.00	0.18	0.25	0.20		
Queue Length 95th (m)	0.1	0.0	0.0	5.9		
Control Delay (s)	8.4	0.0	0.0	14.1		
Lane LOS	A			B		
Approach Delay (s)	0.1		0.0	14.1		
Approach LOS				B		
<b>Intersection Summary</b>						
Average Delay			1.7			
Intersection Capacity Utilization			32.8%	ICU Level of Service	A	
Analysis Period (min)			15			

# Queues

## 3: Line 6 & West Park Ave

Future Background 2031 AM Peak Hour Period



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations	↖	↑	↗	↖	↗
Traffic Volume (vph)	15	310	350	130	40
Future Volume (vph)	15	310	350	130	40
Lane Group Flow (vph)	17	352	478	148	45
Turn Type	Perm	NA	NA	Prot	Prot
Protected Phases		4	8	6	6
Permitted Phases	4				
Detector Phase	4	4	8	6	6
Switch Phase					
Minimum Initial (s)	25.0	25.0	25.0	10.0	10.0
Minimum Split (s)	30.7	30.7	30.7	20.0	20.0
Total Split (s)	30.7	30.7	30.7	20.9	20.9
Total Split (%)	59.5%	59.5%	59.5%	40.5%	40.5%
Yellow Time (s)	3.3	3.3	3.3	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	5.7	5.7	4.9	4.9
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Min	C-Min	C-Min	None	None
v/c Ratio	0.03	0.30	0.40	0.40	0.12
Control Delay	5.4	6.5	6.9	20.8	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	5.4	6.5	6.9	20.8	6.8
Queue Length 50th (m)	0.6	14.4	19.6	12.8	0.0
Queue Length 95th (m)	2.8	31.0	41.9	23.6	5.8
Internal Link Dist (m)		582.6	325.3	441.0	
Turn Bay Length (m)	110.0				
Base Capacity (vph)	533	1156	1197	543	531
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	0.03	0.30	0.40	0.27	0.08

### Intersection Summary

Cycle Length: 51.6

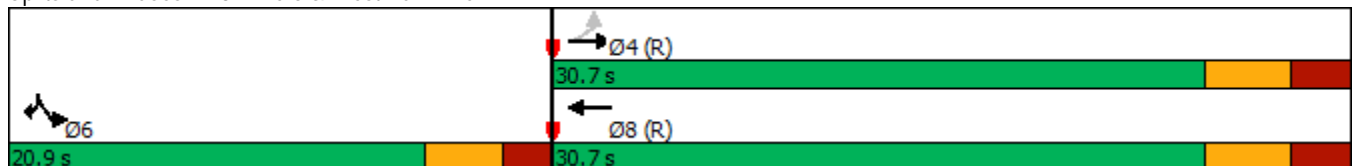
Actuated Cycle Length: 51.6

Offset: 20.9 (41%), Referenced to phase 4:EBTL and 8:WBT, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Splits and Phases: 3: Line 6 & West Park Ave

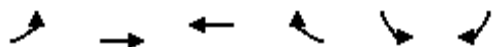




# HCM Signalized Intersection Capacity Analysis

## 3: Line 6 & West Park Ave

Future Background 2031 AM Peak Hour Period



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	15	310	350	70	130	40
Future Volume (vph)	15	310	350	70	130	40
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7		4.9	4.9
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1626	1743	1791		1752	1615
Flt Permitted	0.47	1.00	1.00		0.95	1.00
Satd. Flow (perm)	803	1743	1791		1752	1615
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	17	352	398	80	148	45
RTOR Reduction (vph)	0	0	10	0	0	37
Lane Group Flow (vph)	17	352	468	0	148	8
Heavy Vehicles (%)	11%	9%	3%	7%	3%	0%
Turn Type	Perm	NA	NA		Prot	Prot
Protected Phases		4	8		6	6
Permitted Phases	4					
Actuated Green, G (s)	32.1	32.1	32.1		8.9	8.9
Effective Green, g (s)	32.1	32.1	32.1		8.9	8.9
Actuated g/C Ratio	0.62	0.62	0.62		0.17	0.17
Clearance Time (s)	5.7	5.7	5.7		4.9	4.9
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	499	1084	1114		302	278
v/s Ratio Prot		0.20	c0.26		c0.08	0.00
v/s Ratio Perm	0.02					
v/c Ratio	0.03	0.32	0.42		0.49	0.03
Uniform Delay, d1	3.8	4.6	5.0		19.3	17.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.1	0.8	1.2		1.3	0.0
Delay (s)	3.9	5.4	6.2		20.6	17.8
Level of Service	A	A	A		C	B
Approach Delay (s)		5.3	6.2		19.9	
Approach LOS		A	A		B	




















### Intersection Summary

HCM 2000 Control Delay	8.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	51.6	Sum of lost time (s)	10.6
Intersection Capacity Utilization	39.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Unsignalized Intersection Capacity Analysis

## 4: Brownlee Drive/Southfield Gate & Line 6











Future Background 2031 AM Peak Hour Period

																								
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR												
Lane Configurations																								
Traffic Volume (veh/h)	5	430	5	5	405	5	5	5	10	15	0	10												
Future Volume (Veh/h)	5	430	5	5	405	5	5	5	10	15	0	10												
Sign Control	Free			Free			Stop			Stop														
Grade	0%			0%			0%			0%														
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92												
Hourly flow rate (vph)	5	467	5	5	440	5	5	5	11	16	0	11												
Pedestrians												5												
Lane Width (m)												3.6												
Walking Speed (m/s)												1.2												
Percent Blockage												0												
Right turn flare (veh)																								
Median type	TWLTL				TWLTL																			
Median storage (veh)	2				2																			
Upstream signal (m)	349																							
pX, platoon unblocked																								
vC, conflicting volume	450			472			940			940			470			948			940			448		
vC1, stage 1 conf vol							480			480						458			458					
vC2, stage 2 conf vol							461			460						490			482					
vCu, unblocked vol	450			472			940			940			470			948			940			448		
tC, single (s)	4.1			4.3			7.3			6.5			6.2			7.1			6.5			6.2		
tC, 2 stage (s)							6.3			5.5						6.1			5.5					
tF (s)	2.2			2.4			3.7			4.0			3.3			3.5			4.0			3.3		
p0 queue free %	100			100			99			99			98			96			100			98		
cM capacity (veh/h)	1116			1016			410			448			598			440			448			613		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1																		
Volume Total	5	472	5	445	21	27																		
Volume Left	5	0	5	0	5	16																		
Volume Right	0	5	0	5	11	11																		
cSH	1116	1700	1016	1700	503	497																		
Volume to Capacity	0.00	0.28	0.00	0.26	0.04	0.05																		
Queue Length 95th (m)	0.1	0.0	0.1	0.0	1.0	1.4																		
Control Delay (s)	8.2	0.0	8.6	0.0	12.5	12.7																		
Lane LOS	A		A		B		B																	
Approach Delay (s)	0.1		0.1		12.5		12.7																	
Approach LOS					B		B																	
Intersection Summary																								
Average Delay													0.7											
Intersection Capacity Utilization													32.9%	ICU Level of Service							A			
Analysis Period (min)													15											

# HCM Unsignalized Intersection Capacity Analysis

## 5: Golf Driveway Access & Line 6

Future Background 2031 AM Peak Hour Period

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	455	0	0	415	0	0
Future Volume (Veh/h)	455	0	0	415	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	489	0	0	446	0	0
<b>Pedestrians</b>						
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)			346			
<b>pX, platoon unblocked</b>						
vC, conflicting volume			489		935	489
vC1, stage 1 conf vol					489	
vC2, stage 2 conf vol					446	
vCu, unblocked vol			489		935	489
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1085		509	583
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>		
Volume Total	489	0	446	0		
Volume Left	0	0	0	0		
Volume Right	0	0	0	0		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.29	0.00	0.26	0.00		
Queue Length 95th (m)	0.0	0.0	0.0	0.0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS				A		
Approach Delay (s)	0.0	0.0		0.0		
Approach LOS				A		
<b>Intersection Summary</b>						
Average Delay			0.0			
Intersection Capacity Utilization			27.3%	ICU Level of Service		A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 6: Line 6 & Adams Street

Future Background 2031 AM Peak Hour Period

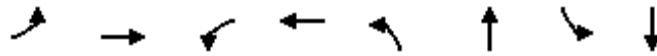


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	450	390	20	40	25
Future Volume (Veh/h)	5	450	390	20	40	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	5	484	419	22	43	27
Pedestrians					5	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh		2	2			
Upstream signal (m)			258			
pX, platoon unblocked						
vC, conflicting volume	446				929	435
vC1, stage 1 conf vol					435	
vC2, stage 2 conf vol					494	
vCu, unblocked vol	446				929	435
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				91	96
cM capacity (veh/h)	1120				503	623
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	5	484	441	70		
Volume Left	5	0	0	43		
Volume Right	0	0	22	27		
cSH	1120	1700	1700	543		
Volume to Capacity	0.00	0.28	0.26	0.13		
Queue Length 95th (m)	0.1	0.0	0.0	3.5		
Control Delay (s)	8.2	0.0	0.0	12.6		
Lane LOS	A			B		
Approach Delay (s)	0.1		0.0	12.6		
Approach LOS				B		
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			34.1%		ICU Level of Service	A
Analysis Period (min)			15			

# Queues

## 7: Inverness Way/Melbourne Dr & Line 6

Future Background 2031 AM Peak Hour Period



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↶	↷	↶	↷	↶	↷	↶	↷
Traffic Volume (vph)	75	400	5	290	35	40	140	40
Future Volume (vph)	75	400	5	290	35	40	140	40
Lane Group Flow (vph)	86	477	6	471	40	69	161	144
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		6		2		8		4
Permitted Phases	6		2		8		4	
Detector Phase	6	6	2	2	8	8	4	4
Switch Phase								
Minimum Initial (s)	25.0	25.0	25.0	25.0	10.0	10.0	10.0	10.0
Minimum Split (s)	30.5	30.5	30.5	30.5	21.0	21.0	21.0	21.0
Total Split (s)	30.5	30.5	30.5	30.5	21.2	21.2	21.2	21.2
Total Split (%)	59.0%	59.0%	59.0%	59.0%	41.0%	41.0%	41.0%	41.0%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.0	3.0	3.0	3.0
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.2	5.2	5.2	5.2
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	C-Min	C-Min	None	None	None	None
v/c Ratio	0.17	0.42	0.01	0.42	0.14	0.16	0.54	0.31
Control Delay	8.0	8.7	6.6	7.9	15.4	11.4	23.8	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.0	8.7	6.6	7.9	15.4	11.4	23.8	8.1
Queue Length 50th (m)	3.5	23.6	0.2	20.1	3.1	3.6	13.9	3.6
Queue Length 95th (m)	11.1	49.4	1.7	44.8	8.0	9.8	25.1	12.6
Internal Link Dist (m)		233.8		288.6		331.7		165.8
Turn Bay Length (m)	50.0		50.0					
Base Capacity (vph)	508	1140	550	1121	379	550	386	574
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	0.17	0.42	0.01	0.42	0.11	0.13	0.42	0.25

### Intersection Summary

Cycle Length: 51.7

Actuated Cycle Length: 51.7

Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated





















Splits and Phases: 7: Inverness Way/Melbourne Dr & Line 6



# HCM Signalized Intersection Capacity Analysis

## 7: Inverness Way/Melbourne Dr & Line 6

Future Background 2031 AM Peak Hour Period




















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	400	15	5	290	120	35	40	20	140	40	85
Future Volume (vph)	75	400	15	5	290	120	35	40	20	140	40	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	0.96		1.00	0.95		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1652	1795		1805	1737		1752	1728		1668	1639	
Flt Permitted	0.46	1.00		0.46	1.00		0.67	1.00		0.71	1.00	
Satd. Flow (perm)	802	1795		868	1737		1227	1728		1250	1639	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	86	460	17	6	333	138	40	46	23	161	46	98
RTOR Reduction (vph)	0	2	0	0	23	0	0	18	0	0	78	0
Lane Group Flow (vph)	86	475	0	6	448	0	40	51	0	161	66	0
Confl. Peds. (#/hr)	5						5		10	10		
Heavy Vehicles (%)	9%	5%	13%	0%	5%	1%	3%	2%	6%	7%	0%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	30.6	30.6		30.6	30.6		10.4	10.4		10.4	10.4	
Effective Green, g (s)	30.6	30.6		30.6	30.6		10.4	10.4		10.4	10.4	
Actuated g/C Ratio	0.59	0.59		0.59	0.59		0.20	0.20		0.20	0.20	
Clearance Time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	474	1062		513	1028		246	347		251	329	
v/s Ratio Prot		c0.26			0.26			0.03			0.04	
v/s Ratio Perm	0.11			0.01			0.03			c0.13		
v/c Ratio	0.18	0.45		0.01	0.44		0.16	0.15		0.64	0.20	
Uniform Delay, d1	4.8	5.9		4.3	5.8		17.1	17.0		18.9	17.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	1.4		0.0	1.3		0.3	0.2		5.5	0.3	
Delay (s)	5.7	7.2		4.4	7.1		17.4	17.2		24.4	17.5	
Level of Service	A	A		A	A		B	B		C	B	
Approach Delay (s)		7.0			7.1			17.3			21.2	
Approach LOS		A			A			B			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			10.8				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			51.7				Sum of lost time (s)			10.7		
Intersection Capacity Utilization			80.7%				ICU Level of Service				D	
Analysis Period (min)			15									

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 8: Barrow Ave & Line 6

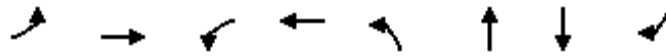
Future Background 2031 AM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	535	10	20	395	10	20	0	35	5	0	0
Future Volume (Veh/h)	15	535	10	20	395	10	20	0	35	5	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	19	669	12	25	494	12	25	0	44	6	0	0
Pedestrians												5
Lane Width (m)												3.6
Walking Speed (m/s)												1.2
Percent Blockage												0
Right turn flare (veh)												
Median type		TWLT			TWLT							
Median storage (veh)		2			2							
Upstream signal (m)		313			286							
pX, platoon unblocked				0.94			0.94	0.94	0.94	0.94	0.94	0.94
vC, conflicting volume	511			681			1257	1274	675	1306	1274	505
vC1, stage 1 conf vol							713	713		555	555	
vC2, stage 2 conf vol							544	561		751	719	
vCu, unblocked vol	511			633			1243	1261	627	1295	1261	505
tC, single (s)	4.3			4.1			7.1	6.5	6.2	8.1	6.5	6.7
tC, 2 stage (s)							6.1	5.5		7.1	5.5	
tF (s)	2.4			2.2			3.5	4.0	3.3	4.4	4.0	3.8
p0 queue free %	98			97			93	100	90	97	100	100
cM capacity (veh/h)	960			906			338	342	455	199	335	480
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	19	681	25	506	69	6						
Volume Left	19	0	25	0	25	6						
Volume Right	0	12	0	12	44	0						
cSH	960	1700	906	1700	404	199						
Volume to Capacity	0.02	0.40	0.03	0.30	0.17	0.03						
Queue Length 95th (m)	0.5	0.0	0.7	0.0	4.9	0.7						
Control Delay (s)	8.8	0.0	9.1	0.0	15.7	23.6						
Lane LOS	A		A		C	C						
Approach Delay (s)	0.2		0.4		15.7	23.6						
Approach LOS					C	C						
Intersection Summary												
Average Delay			1.2									
Intersection Capacity Utilization			38.8%	ICU Level of Service	A							
Analysis Period (min)			15									

# Queues

## 9: Simcoe Road & Line 6

Future Background 2031 AM Peak Hour Period



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗
Traffic Volume (vph)	415	25	5	55	195	200	135	235
Future Volume (vph)	415	25	5	55	195	200	135	235
Lane Group Flow (vph)	466	197	6	68	219	231	152	264
Turn Type	Perm	NA	Perm	NA	Perm	NA	NA	Perm
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)	25.0	25.0	25.0	25.0	24.0	24.0	24.0	24.0
Minimum Split (s)	30.5	30.5	30.5	30.5	29.5	29.5	29.5	29.5
Total Split (s)	30.5	30.5	30.5	30.5	29.5	29.5	29.5	29.5
Total Split (%)	50.8%	50.8%	50.8%	50.8%	49.2%	49.2%	49.2%	49.2%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio	0.85	0.26	0.02	0.09	0.46	0.34	0.21	0.34
Control Delay	34.0	4.1	10.6	10.3	17.3	14.2	12.8	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.0	4.1	10.6	10.3	17.3	14.2	12.8	3.3
Queue Length 50th (m)	46.5	1.9	0.4	4.2	17.9	17.6	11.1	0.0
Queue Length 95th (m)	#95.9	12.0	2.2	10.4	35.0	32.2	21.6	11.5
Internal Link Dist (m)		261.7		146.8		405.2	164.8	
Turn Bay Length (m)	50.0		20.0		110.0			
Base Capacity (vph)	547	750	399	751	473	673	724	773
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	0.85	0.26	0.02	0.09	0.46	0.34	0.21	0.34

### Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

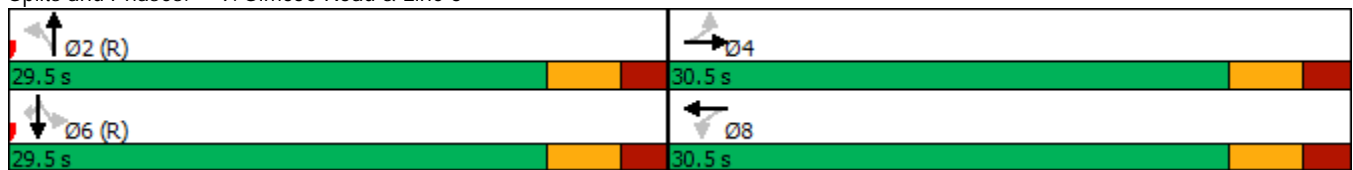
Natural Cycle: 60

Control Type: Actuated-Coordinated

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 9: Simcoe Road & Line 6

























# HCM Signalized Intersection Capacity Analysis

## 9: Simcoe Road & Line 6

Future Background 2031 AM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	415	25	150	5	55	5	195	200	5	0	135	235
Future Volume (vph)	415	25	150	5	55	5	195	200	5	0	135	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		5.5	5.5			5.5	5.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frbp, ped/bikes	1.00	0.98		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	0.87		1.00	0.99		1.00	1.00			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1752	1565		1437	1793		1703	1679			1810	1538
Flt Permitted	0.71	1.00		0.63	1.00		0.66	1.00			1.00	1.00
Satd. Flow (perm)	1315	1565		959	1793		1184	1679			1810	1538
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)	466	28	169	6	62	6	219	225	6	0	152	264
RTOR Reduction (vph)	0	99	0	0	4	0	0	2	0	0	0	158
Lane Group Flow (vph)	466	98	0	6	65	0	219	229	0	0	152	106
Confl. Peds. (#/hr)			5	5					5	5		
Heavy Vehicles (%)	3%	0%	4%	25%	5%	0%	6%	13%	0%	0%	5%	5%
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	25.0	25.0		25.0	25.0		24.0	24.0			24.0	24.0
Effective Green, g (s)	25.0	25.0		25.0	25.0		24.0	24.0			24.0	24.0
Actuated g/C Ratio	0.42	0.42		0.42	0.42		0.40	0.40			0.40	0.40
Clearance Time (s)	5.5	5.5		5.5	5.5		5.5	5.5			5.5	5.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	547	652		399	747		473	671			724	615
v/s Ratio Prot		0.06			0.04			0.14			0.08	
v/s Ratio Perm	c0.35			0.01			c0.19					0.07
v/c Ratio	0.85	0.15		0.02	0.09		0.46	0.34			0.21	0.17
Uniform Delay, d1	15.8	10.9		10.3	10.6		13.3	12.5			11.8	11.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	12.2	0.1		0.0	0.1		3.2	1.4			0.7	0.6
Delay (s)	28.0	11.0		10.3	10.6		16.5	13.9			12.4	12.2
Level of Service	C	B		B	B		B	B			B	B
Approach Delay (s)		22.9			10.6			15.2			12.3	
Approach LOS		C			B			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			17.4				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			60.0				Sum of lost time (s)			11.0		
Intersection Capacity Utilization			83.4%				ICU Level of Service			E		
Analysis Period (min)			15									

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 10: Simcoe Road & Gibson Circle

Future Background 2031 AM Peak Hour Period



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	50	20	265	265	10
Future Volume (Veh/h)	25	50	20	265	265	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	34	68	27	363	363	14
Pedestrians	5			5		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	792	380	382			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	792	380	382			
tC, single (s)	6.5	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.3			
p0 queue free %	90	90	98			
cM capacity (veh/h)	340	657	1129			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	102	390	377			
Volume Left	34	27	0			
Volume Right	68	0	14			
cSH	501	1129	1700			
Volume to Capacity	0.20	0.02	0.22			
Queue Length 95th (m)	6.0	0.6	0.0			
Control Delay (s)	14.0	0.8	0.0			
Lane LOS	B	A				
Approach Delay (s)	14.0	0.8	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			2.0			
Intersection Capacity Utilization			43.2%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 11: Simcoe Road & Golfview Blvd

Future Background 2031 AM Peak Hour Period



















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	10	5	220	260	15
Future Volume (Veh/h)	25	10	5	220	260	15
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	28	11	6	244	289	17
<b>Pedestrians</b>						
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	554	298	306			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	554	298	306			
tC, single (s)	6.5	6.2	4.6			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.7			
p0 queue free %	94	99	99			
cM capacity (veh/h)	479	747	1026			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	39	250	306			
Volume Left	28	6	0			
Volume Right	11	0	17			
cSH	533	1026	1700			
Volume to Capacity	0.07	0.01	0.18			
Queue Length 95th (m)	1.9	0.1	0.0			
Control Delay (s)	12.3	0.3	0.0			
Lane LOS	B	A				
Approach Delay (s)	12.3	0.3	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay	0.9					
Intersection Capacity Utilization	25.6%			ICU Level of Service	A	
Analysis Period (min)	15					

# HCM Unsignalized Intersection Capacity Analysis

## 12: Canal Rd

Future Background 2031 AM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	155	35	0	0	20	30	0	0	0	65	5	190
Future Volume (vph)	155	35	0	0	20	30	0	0	0	65	5	190
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	185	42	0	0	24	36	0	0	0	77	6	226
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	227	60	0	309								
Volume Left (vph)	185	0	0	77								
Volume Right (vph)	0	36	0	226								
Hadj (s)	0.32	-0.18	0.00	-0.30								
Departure Headway (s)	5.0	4.8	5.0	4.3								
Degree Utilization, x	0.32	0.08	0.00	0.37								
Capacity (veh/h)	676	692	660	786								
Control Delay (s)	10.3	8.2	8.0	9.9								
Approach Delay (s)	10.3	8.2	0.0	9.9								
Approach LOS	B	A	A	A								
Intersection Summary												
Delay			9.9									
Level of Service			A									
Intersection Capacity Utilization			39.3%		ICU Level of Service				A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 13: Line 5 & Canal Rd

Future Background 2031 AM Peak Hour Period












Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	80	35	0	110	115	95
Future Volume (Veh/h)	80	35	0	110	115	95
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	96	42	0	133	139	114
<b>Pedestrians</b>						
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	329	196	253			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	329	196	253			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	86	95	100			
cM capacity (veh/h)	670	850	1324			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	138	133	253			
Volume Left	96	0	0			
Volume Right	42	0	114			
cSH	716	1324	1700			
Volume to Capacity	0.19	0.00	0.15			
Queue Length 95th (m)	5.7	0.0	0.0			
Control Delay (s)	11.2	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	11.2	0.0	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			3.0			
Intersection Capacity Utilization			25.1%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 14: Line 5 & 10 Sideroad











Future Background 2031 AM Peak Hour Period

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	150	105	15	270	95	15
Future Volume (Veh/h)	150	105	15	270	95	15
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	183	128	18	329	116	18
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			311			156
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			311			156
tC, single (s)			4.8			6.9
tC, 2 stage (s)						
tF (s)			2.5			3.3
p0 queue free %			98			98
cM capacity (veh/h)			1050			869
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	122	189	128	219	134	
Volume Left	0	0	18	0	116	
Volume Right	0	128	0	0	18	
cSH	1700	1700	1050	1700	565	
Volume to Capacity	0.07	0.11	0.02	0.13	0.24	
Queue Length 95th (m)	0.0	0.0	0.4	0.0	7.3	
Control Delay (s)	0.0	0.0	1.3	0.0	13.4	
Lane LOS	A			B		
Approach Delay (s)	0.0		0.5	13.4		
Approach LOS				B		
Intersection Summary						
Average Delay			2.5			
Intersection Capacity Utilization			31.5%	ICU Level of Service		A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 16: Line 10 & Line 5










Future Background 2031 AM Peak Hour Period

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	110	10	5	90	20	5
Future Volume (Veh/h)	110	10	5	90	20	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	116	11	5	95	21	5
<b>Pedestrians</b>						
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			127			226
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			127			226
tC, single (s)			4.1			6.4
tC, 2 stage (s)						
tF (s)			2.2			3.5
p0 queue free %			100			97
cM capacity (veh/h)			1472			764
						935
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	127	100	26			
Volume Left	0	5	21			
Volume Right	11	0	5			
cSH	1700	1472	791			
Volume to Capacity	0.07	0.00	0.03			
Queue Length 95th (m)	0.0	0.1	0.8			
Control Delay (s)	0.0	0.4	9.7			
Lane LOS			A		A	
Approach Delay (s)	0.0	0.4	9.7			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			1.2			
Intersection Capacity Utilization			18.8%	ICU Level of Service		A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 18: Simcoe Road & Danube Lane

Future Background 2031 AM Peak Hour Period










						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	45	180	5	20	250
Future Volume (Veh/h)	10	45	180	5	20	250
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)	11	49	196	5	22	272
<b>Pedestrians</b>						
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	514	198			201	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	514	198			201	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	94			98	
cM capacity (veh/h)	515	848			1383	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	60	201	294			
Volume Left	11	0	22			
Volume Right	49	5	0			
cSH	758	1700	1383			
Volume to Capacity	0.08	0.12	0.02			
Queue Length 95th (m)	2.1	0.0	0.4			
Control Delay (s)	10.2	0.0	0.7			
Lane LOS	B		A			
Approach Delay (s)	10.2	0.0	0.7			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			1.5			
Intersection Capacity Utilization			37.4%	ICU Level of Service	A	
Analysis Period (min)			15			



# HCM Unsignalized Intersection Capacity Analysis

## 19: Simcoe Road & Jonkman Blvd













Future Background 2031 AM Peak Hour Period

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	95	285	5	30	265
Future Volume (Veh/h)	10	95	285	5	30	265
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)	11	103	310	5	33	288
<b>Pedestrians</b>						
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	666	312			315	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	666	312			315	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	86			97	
cM capacity (veh/h)	416	732			1257	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	114	315	321			
Volume Left	11	0	33			
Volume Right	103	5	0			
cSH	682	1700	1257			
Volume to Capacity	0.17	0.19	0.03			
Queue Length 95th (m)	4.8	0.0	0.6			
Control Delay (s)	11.3	0.0	1.0			
Lane LOS	B		A			
Approach Delay (s)	11.3	0.0	1.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			2.2			
Intersection Capacity Utilization			47.3%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 1: 10 Sideroad & Line 6

Future Background 2036 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	15	40	0	240	75	105	0	35	145	135	55	0
Future Volume (veh/h)	15	40	0	240	75	105	0	35	145	135	55	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	44	0	267	83	117	0	39	161	150	61	0
Approach Volume (veh/h)	61			467			200			211		
Crossing Volume (veh/h)	478			56			211			350		
High Capacity (veh/h)	950			1326			1174			1052		
High v/c (veh/h)	0.06			0.35			0.17			0.20		
Low Capacity (veh/h)	769			1107			970			860		
Low v/c (veh/h)	0.08			0.42			0.21			0.25		
<b>Intersection Summary</b>												
Maximum v/c High	0.35											
Maximum v/c Low	0.42											
Intersection Capacity Utilization	43.1%			ICU Level of Service				A				

# HCM Unsignalized Intersection Capacity Analysis

## 2: Line 6 & Langford Boulevard

Future Background 2036 AM Peak Hour

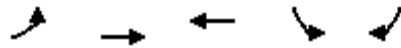


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↷	↷		↶	↷
Traffic Volume (veh/h)	5	315	370	35	40	50
Future Volume (Veh/h)	5	315	370	35	40	50
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	5	346	407	38	44	55
<b>Pedestrians</b>						
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	445				782	426
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	445				782	426
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	100				88	91
cM capacity (veh/h)	1054				360	628
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>SB 1</b>		
Volume Total	5	346	445	99		
Volume Left	5	0	0	44		
Volume Right	0	0	38	55		
cSH	1054	1700	1700	472		
Volume to Capacity	0.00	0.20	0.26	0.21		
Queue Length 95th (m)	0.1	0.0	0.0	6.3		
Control Delay (s)	8.4	0.0	0.0	14.6		
Lane LOS	A			B		
Approach Delay (s)	0.1		0.0	14.6		
Approach LOS				B		
<b>Intersection Summary</b>						
Average Delay			1.7			
Intersection Capacity Utilization			33.5%		ICU Level of Service	A
Analysis Period (min)			15			

# Queues

## 3: Line 6 & West Park Ave

Future Background 2036 AM Peak Hour



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations	↖	↑	↔	↘	↗
Traffic Volume (vph)	20	335	360	135	45
Future Volume (vph)	20	335	360	135	45
Lane Group Flow (vph)	23	381	494	153	51
Turn Type	Perm	NA	NA	Prot	Prot
Protected Phases		4	8	6	6
Permitted Phases	4				
Detector Phase	4	4	8	6	6
Switch Phase					
Minimum Initial (s)	25.0	25.0	25.0	10.0	10.0
Minimum Split (s)	30.7	30.7	30.7	20.0	20.0
Total Split (s)	30.7	30.7	30.7	20.9	20.9
Total Split (%)	59.5%	59.5%	59.5%	40.5%	40.5%
Yellow Time (s)	3.3	3.3	3.3	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	5.7	5.7	4.9	4.9
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Min	C-Min	C-Min	Max	Max
v/c Ratio	0.07	0.45	0.56	0.28	0.10
Control Delay	7.8	11.0	11.9	15.2	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	7.8	11.0	11.9	15.2	5.2
Queue Length 50th (m)	1.1	22.3	28.9	11.0	0.0
Queue Length 95th (m)	4.0	38.9	50.3	22.3	5.5
Internal Link Dist (m)		582.6	325.3	441.0	
Turn Bay Length (m)	110.0				
Base Capacity (vph)	330	844	881	543	535
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	0.07	0.45	0.56	0.28	0.10

### Intersection Summary

Cycle Length: 51.6

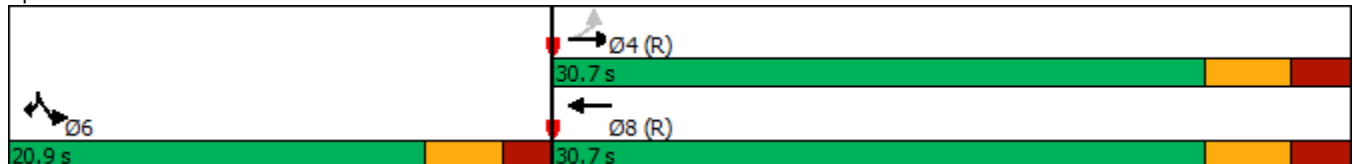
Actuated Cycle Length: 51.6

Offset: 20.9 (41%), Referenced to phase 4:EBTL and 8:WBT, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Splits and Phases: 3: Line 6 & West Park Ave



# HCM Signalized Intersection Capacity Analysis

## 3: Line 6 & West Park Ave

Future Background 2036 AM Peak Hour






















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	20	335	360	75	135	45
Future Volume (vph)	20	335	360	75	135	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7		4.9	4.9
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1626	1743	1790		1752	1615
Flt Permitted	0.40	1.00	1.00		0.95	1.00
Satd. Flow (perm)	682	1743	1790		1752	1615
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	23	381	409	85	153	51
RTOR Reduction (vph)	0	0	14	0	0	35
Lane Group Flow (vph)	23	381	480	0	153	16
Heavy Vehicles (%)	11%	9%	3%	7%	3%	0%
Turn Type	Perm	NA	NA		Prot	Prot
Protected Phases		4	8		6	6
Permitted Phases	4					
Actuated Green, G (s)	25.0	25.0	25.0		16.0	16.0
Effective Green, g (s)	25.0	25.0	25.0		16.0	16.0
Actuated g/C Ratio	0.48	0.48	0.48		0.31	0.31
Clearance Time (s)	5.7	5.7	5.7		4.9	4.9
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	330	844	867		543	500
v/s Ratio Prot		0.22	c0.27		c0.09	0.01
v/s Ratio Perm	0.03					
v/c Ratio	0.07	0.45	0.55		0.28	0.03
Uniform Delay, d1	7.1	8.8	9.4		13.5	12.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.4	1.7	2.5		1.3	0.1
Delay (s)	7.5	10.5	11.9		14.8	12.5
Level of Service	A	B	B		B	B
Approach Delay (s)		10.3	11.9		14.2	
Approach LOS		B	B		B	
<b>Intersection Summary</b>						
HCM 2000 Control Delay			11.8		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.45			
Actuated Cycle Length (s)			51.6		Sum of lost time (s)	10.6
Intersection Capacity Utilization			40.7%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

# HCM Unsignalized Intersection Capacity Analysis

## 4: Brownlee Drive/Southfield Gate & Line 6

Future Background 2036 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	460	5	5	420	5	5	5	10	15	0	10
Future Volume (Veh/h)	5	460	5	5	420	5	5	5	10	15	0	10
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	500	5	5	457	5	5	5	11	16	0	11
Pedestrians												5
Lane Width (m)												3.6
Walking Speed (m/s)												1.2
Percent Blockage												0
Right turn flare (veh)												
Median type	TWLTL				TWLTL							
Median storage veh	2				2							
Upstream signal (m)	349											
pX, platoon unblocked				0.99			0.99			0.99		
vC, conflicting volume	467			505			990			990		
vC1, stage 1 conf vol							512			512		
vC2, stage 2 conf vol							478			477		
vCu, unblocked vol	467			494			985			984		
tC, single (s)	4.1			4.3			7.3			6.5		
tC, 2 stage (s)							6.3			5.5		
tF (s)	2.2			2.4			3.7			4.0		
p0 queue free %	100			99			99			99		
cM capacity (veh/h)	1100			985			394			433		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	5	505	5	462	21	27						
Volume Left	5	0	5	0	5	16						
Volume Right	0	5	0	5	11	11						
cSH	1100	1700	985	1700	484	480						
Volume to Capacity	0.00	0.30	0.01	0.27	0.04	0.06						
Queue Length 95th (m)	0.1	0.0	0.1	0.0	1.1	1.4						
Control Delay (s)	8.3	0.0	8.7	0.0	12.8	12.9						
Lane LOS	A		A		B							
Approach Delay (s)	0.1		0.1		12.8							
Approach LOS					B							
<b>Intersection Summary</b>												
Average Delay			0.7									
Intersection Capacity Utilization			34.5%		ICU Level of Service		A					
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 5: Street A & Line 6

Future Background 2036 AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↖	↗	↖	↗
Traffic Volume (veh/h)	485	0	0	430	0	0
Future Volume (Veh/h)	485	0	0	430	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	522	0	0	462	0	0
<b>Pedestrians</b>						
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)			346			
pX, platoon unblocked						
vC, conflicting volume			522		984	522
vC1, stage 1 conf vol					522	
vC2, stage 2 conf vol					462	
vCu, unblocked vol			522		984	522
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1055		492	559
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>	<b>NB 2</b>	
Volume Total	522	0	462	0	0	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	0	
cSH	1700	1700	1700	1700	1700	
Volume to Capacity	0.31	0.00	0.27	0.34	0.48	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	
Lane LOS				A	A	
Approach Delay (s)	0.0	0.0		0.0		
Approach LOS				A		
<b>Intersection Summary</b>						
Average Delay			0.0			
Intersection Capacity Utilization			28.9%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 6: Line 6 & Adams Street

Future Background 2036 AM Peak Hour



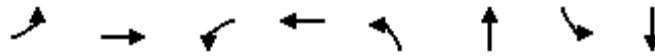
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	480	405	20	40	25
Future Volume (Veh/h)	5	480	405	20	40	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	5	516	435	22	43	27
Pedestrians					5	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh		2	2			
Upstream signal (m)			258			
pX, platoon unblocked						
vC, conflicting volume	462				977	451
vC1, stage 1 conf vol					451	
vC2, stage 2 conf vol					526	
vCu, unblocked vol	462				977	451
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				91	96
cM capacity (veh/h)	1105				486	610
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>SB 1</b>		
Volume Total	5	516	457	70		
Volume Left	5	0	0	43		
Volume Right	0	0	22	27		
cSH	1105	1700	1700	528		
Volume to Capacity	0.00	0.30	0.27	0.13		
Queue Length 95th (m)	0.1	0.0	0.0	3.6		
Control Delay (s)	8.3	0.0	0.0	12.9		
Lane LOS	A			B		
Approach Delay (s)	0.1		0.0	12.9		
Approach LOS				B		
<b>Intersection Summary</b>						
Average Delay			0.9			
Intersection Capacity Utilization			35.7%		ICU Level of Service	A
Analysis Period (min)			15			



Queues

7: Inverness Way/Melbourne Dr & Line 6

Future Background 2036 AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗
Traffic Volume (vph)	80	425	5	300	35	40	150	40
Future Volume (vph)	80	425	5	300	35	40	150	40
Lane Group Flow (vph)	92	506	6	494	40	69	172	149
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		6		2		8		4
Permitted Phases	6		2		8		4	
Detector Phase	6	6	2	2	8	8	4	4
Switch Phase								
Minimum Initial (s)	25.0	25.0	25.0	25.0	10.0	10.0	10.0	10.0
Minimum Split (s)	30.5	30.5	30.5	30.5	21.0	21.0	21.0	21.0
Total Split (s)	30.5	30.5	30.5	30.5	21.2	21.2	21.2	21.2
Total Split (%)	59.0%	59.0%	59.0%	59.0%	41.0%	41.0%	41.0%	41.0%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.0	3.0	3.0	3.0
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.2	5.2	5.2	5.2
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	C-Min	C-Min	None	None	None	None
v/c Ratio	0.19	0.45	0.01	0.44	0.14	0.16	0.57	0.31
Control Delay	8.4	9.2	6.6	8.3	15.2	11.3	24.4	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.4	9.2	6.6	8.3	15.2	11.3	24.4	7.9
Queue Length 50th (m)	4.0	26.3	0.2	22.0	3.1	3.5	14.8	3.5
Queue Length 95th (m)	12.0	53.4	1.7	47.8	8.0	9.8	26.8	12.8
Internal Link Dist (m)		233.8		288.7		331.6		165.8
Turn Bay Length (m)	50.0		50.0					
Base Capacity (vph)	484	1133	518	1114	377	550	386	577
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	0.19	0.45	0.01	0.44	0.11	0.13	0.45	0.26

Intersection Summary

Cycle Length: 51.7

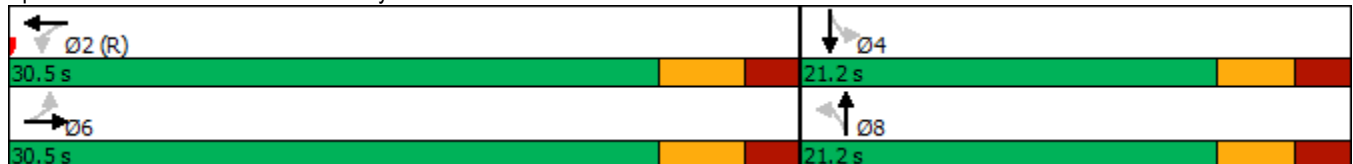
Actuated Cycle Length: 51.7

Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated





















Splits and Phases: 7: Inverness Way/Melbourne Dr & Line 6



# HCM Signalized Intersection Capacity Analysis

## 7: Inverness Way/Melbourne Dr & Line 6

Future Background 2036 AM Peak Hour




















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	425	15	5	300	130	35	40	20	150	40	90
Future Volume (vph)	80	425	15	5	300	130	35	40	20	150	40	90
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	0.95		1.00	0.95		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1652	1796		1805	1735		1752	1728		1668	1635	
Flt Permitted	0.44	1.00		0.43	1.00		0.66	1.00		0.71	1.00	
Satd. Flow (perm)	769	1796		823	1735		1222	1728		1250	1635	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	92	489	17	6	345	149	40	46	23	172	46	103
RTOR Reduction (vph)	0	2	0	0	24	0	0	18	0	0	82	0
Lane Group Flow (vph)	92	504	0	6	470	0	40	51	0	172	67	0
Confl. Peds. (#/hr)	5						5		10	10		
Heavy Vehicles (%)	9%	5%	13%	0%	5%	1%	3%	2%	6%	7%	0%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	30.4	30.4		30.4	30.4		10.6	10.6		10.6	10.6	
Effective Green, g (s)	30.4	30.4		30.4	30.4		10.6	10.6		10.6	10.6	
Actuated g/C Ratio	0.59	0.59		0.59	0.59		0.21	0.21		0.21	0.21	
Clearance Time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	452	1056		483	1020		250	354		256	335	
v/s Ratio Prot		c0.28			0.27			0.03			0.04	
v/s Ratio Perm	0.12			0.01			0.03			c0.14		
v/c Ratio	0.20	0.48		0.01	0.46		0.16	0.14		0.67	0.20	
Uniform Delay, d1	5.0	6.1		4.4	6.0		16.9	16.8		18.9	17.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	1.5		0.0	1.5		0.3	0.2		6.8	0.3	
Delay (s)	6.0	7.6		4.5	7.5		17.2	17.0		25.7	17.3	
Level of Service	A	A		A	A		B	B		C	B	
Approach Delay (s)		7.4			7.5			17.1			21.8	
Approach LOS		A			A			B			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			11.1				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			51.7			Sum of lost time (s)				10.7		
Intersection Capacity Utilization			81.8%			ICU Level of Service				D		
Analysis Period (min)			15									

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 8: Barrow Ave & Line 6

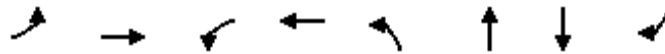
Future Background 2036 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	570	10	20	415	10	20	0	35	5	0	0
Future Volume (Veh/h)	15	570	10	20	415	10	20	0	35	5	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	19	712	12	25	519	12	25	0	44	6	0	0
Pedestrians												5
Lane Width (m)												3.6
Walking Speed (m/s)												1.2
Percent Blockage												0
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage (veh)		2			2							
Upstream signal (m)		313			286							
pX, platoon unblocked	0.98			0.92			0.93	0.93	0.92	0.93	0.93	0.98
vC, conflicting volume	536			724			1325	1342	718	1374	1342	530
vC1, stage 1 conf vol							756	756		580	580	
vC2, stage 2 conf vol							569	586		794	762	
vCu, unblocked vol	517			653			1265	1283	646	1317	1283	511
tC, single (s)	4.3			4.1			7.1	6.5	6.2	8.1	6.5	6.7
tC, 2 stage (s)							6.1	5.5		7.1	5.5	
tF (s)	2.4			2.2			3.5	4.0	3.3	4.4	4.0	3.8
p0 queue free %	98			97			92	100	90	97	100	100
cM capacity (veh/h)	936			864			322	327	430	186	319	467
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	19	724	25	531	69	6						
Volume Left	19	0	25	0	25	6						
Volume Right	0	12	0	12	44	0						
cSH	936	1700	864	1700	383	186						
Volume to Capacity	0.02	0.43	0.03	0.31	0.18	0.03						
Queue Length 95th (m)	0.5	0.0	0.7	0.0	5.2	0.8						
Control Delay (s)	8.9	0.0	9.3	0.0	16.4	25.0						
Lane LOS	A		A		C	C						
Approach Delay (s)	0.2		0.4		16.4	25.0						
Approach LOS					C	C						
<b>Intersection Summary</b>												
Average Delay			1.2									
Intersection Capacity Utilization			40.6%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues

9: Simcoe Road & Line 6

Future Background 2036 AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	445	25	5	55	200	205	140	250
Future Volume (vph)	445	25	5	55	200	205	140	250
Lane Group Flow (vph)	500	202	6	68	225	236	157	281
Turn Type	Perm	NA	Perm	NA	Perm	NA	NA	Perm
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)	25.0	25.0	25.0	25.0	24.0	24.0	24.0	24.0
Minimum Split (s)	30.5	30.5	30.5	30.5	29.5	29.5	29.5	29.5
Total Split (s)	49.0	49.0	49.0	49.0	31.0	31.0	31.0	31.0
Total Split (%)	61.3%	61.3%	61.3%	61.3%	38.8%	38.8%	38.8%	38.8%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio	0.84	0.25	0.01	0.08	0.47	0.34	0.21	0.35
Control Delay	31.8	3.2	9.0	9.6	24.0	20.2	18.8	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.8	3.2	9.0	9.6	24.0	20.2	18.8	4.2
Queue Length 50th (m)	64.0	2.3	0.5	5.1	26.8	26.2	16.6	0.0
Queue Length 95th (m)	91.3	10.9	2.0	10.0	53.2	49.3	33.2	15.8
Internal Link Dist (m)		261.6		146.8		400.7	164.9	
Turn Bay Length (m)	50.0		20.0		110.0			
Base Capacity (vph)	715	928	518	978	481	686	739	794
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	0.70	0.22	0.01	0.07	0.47	0.34	0.21	0.35

Intersection Summary

Cycle Length: 80

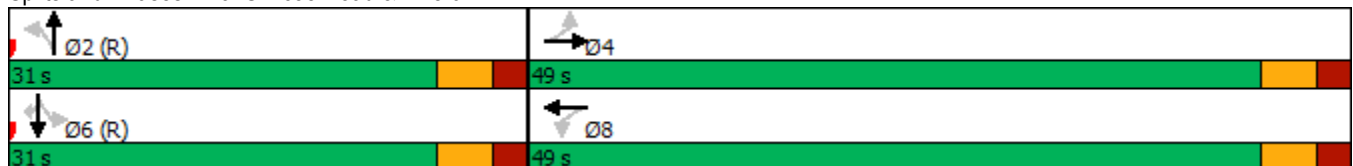
Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated





















Splits and Phases: 9: Simcoe Road & Line 6



# HCM Signalized Intersection Capacity Analysis

## 9: Simcoe Road & Line 6

Future Background 2036 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	445	25	155	5	55	5	200	205	5	0	140	250
Future Volume (vph)	445	25	155	5	55	5	200	205	5	0	140	250
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		5.5	5.5			5.5	5.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frbp, ped/bikes	1.00	0.98		1.00	1.00		1.00	1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.87		1.00	0.99		1.00	1.00			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1752	1561		1435	1793		1703	1679			1810	1538
Flt Permitted	0.71	1.00		0.63	1.00		0.66	1.00			1.00	1.00
Satd. Flow (perm)	1315	1561		953	1793		1178	1679			1810	1538
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)	500	28	174	6	62	6	225	230	6	0	157	281
RTOR Reduction (vph)	0	95	0	0	3	0	0	1	0	0	0	166
Lane Group Flow (vph)	500	107	0	6	65	0	225	235	0	0	157	115
Confl. Peds. (#/hr)			5	5					5	5		
Heavy Vehicles (%)	3%	0%	4%	25%	5%	0%	6%	13%	0%	0%	5%	5%
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	36.3	36.3		36.3	36.3		32.7	32.7			32.7	32.7
Effective Green, g (s)	36.3	36.3		36.3	36.3		32.7	32.7			32.7	32.7
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.41	0.41			0.41	0.41
Clearance Time (s)	5.5	5.5		5.5	5.5		5.5	5.5			5.5	5.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	596	708		432	813		481	686			739	628
v/s Ratio Prot		0.07			0.04			0.14			0.09	
v/s Ratio Perm	c0.38			0.01			c0.19					0.07
v/c Ratio	0.84	0.15		0.01	0.08		0.47	0.34			0.21	0.18
Uniform Delay, d1	19.3	12.8		12.0	12.4		17.3	16.3			15.3	15.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	10.1	0.1		0.0	0.0		3.2	1.4			0.7	0.6
Delay (s)	29.3	12.9		12.0	12.4		20.5	17.6			16.0	15.8
Level of Service	C	B		B	B		C	B			B	B
Approach Delay (s)		24.6			12.4			19.0			15.8	
Approach LOS		C			B			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			20.2				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			11.0		
Intersection Capacity Utilization			85.1%				ICU Level of Service			E		
Analysis Period (min)			15									

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 10: Simcoe Road & Gibson Circle

Future Background 2036 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	50	20	275	275	10
Future Volume (Veh/h)	25	50	20	275	275	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	34	68	27	377	377	14
Pedestrians	5			5		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	820	394	396			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	820	394	396			
tC, single (s)	6.5	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.3			
p0 queue free %	90	89	98			
cM capacity (veh/h)	327	645	1116			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	102	404	391			
Volume Left	34	27	0			
Volume Right	68	0	14			
cSH	487	1116	1700			
Volume to Capacity	0.21	0.02	0.23			
Queue Length 95th (m)	6.3	0.6	0.0			
Control Delay (s)	14.3	0.8	0.0			
Lane LOS	B	A				
Approach Delay (s)	14.3	0.8	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			2.0			
Intersection Capacity Utilization			43.7%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 11: Simcoe Road & Golfview Blvd

Future Background 2036 AM Peak Hour



















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	10	5	230	270	15
Future Volume (Veh/h)	25	10	5	230	270	15
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	28	11	6	256	300	17
<b>Pedestrians</b>						
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	576	308	317			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	576	308	317			
tC, single (s)	6.5	6.2	4.6			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.7			
p0 queue free %	94	99	99			
cM capacity (veh/h)	464	736	1016			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	39	262	317			
Volume Left	28	6	0			
Volume Right	11	0	17			
cSH	518	1016	1700			
Volume to Capacity	0.08	0.01	0.19			
Queue Length 95th (m)	1.9	0.1	0.0			
Control Delay (s)	12.5	0.3	0.0			
Lane LOS	B	A				
Approach Delay (s)	12.5	0.3	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			0.9			
Intersection Capacity Utilization			26.1%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 12: Canal Rd

Future Background 2036 AM Peak Hour










												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	160	35	0	0	20	35	0	0	0	70	5	195
Future Volume (vph)	160	35	0	0	20	35	0	0	0	70	5	195
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	190	42	0	0	24	42	0	0	0	83	6	232
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	232	66	0	321								
Volume Left (vph)	190	0	0	83								
Volume Right (vph)	0	42	0	232								
Hadj (s)	0.32	-0.19	0.00	-0.30								
Departure Headway (s)	5.1	4.8	5.1	4.4								
Degree Utilization, x	0.33	0.09	0.00	0.39								
Capacity (veh/h)	670	686	651	779								
Control Delay (s)	10.5	8.3	8.1	10.1								
Approach Delay (s)	10.5	8.3	0.0	10.1								
Approach LOS	B	A	A	B								
Intersection Summary												
Delay			10.1									
Level of Service			B									
Intersection Capacity Utilization			40.2%	ICU Level of Service	A							
Analysis Period (min)			15									



# HCM Unsignalized Intersection Capacity Analysis

## 13: Line 5 & Canal Rd










Future Background 2036 AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	80	35	0	115	120	95
Future Volume (Veh/h)	80	35	0	115	120	95
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	96	42	0	139	145	114
<b>Pedestrians</b>						
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	341	202	259			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	341	202	259			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	85	95	100			
cM capacity (veh/h)	659	844	1317			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	138	139	259			
Volume Left	96	0	0			
Volume Right	42	0	114			
cSH	706	1317	1700			
Volume to Capacity	0.20	0.00	0.15			
Queue Length 95th (m)	5.8	0.0	0.0			
Control Delay (s)	11.3	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	11.3	0.0	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			2.9			
Intersection Capacity Utilization			25.4%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis











## 14: Line 5 & 10 Sideroad

Future Background 2036 AM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	165	105	15	280	95	15
Future Volume (Veh/h)	165	105	15	280	95	15
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	201	128	18	341	116	18
<b>Pedestrians</b>						
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			329		472	164
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			329		472	164
tC, single (s)			4.8		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.5		3.5	3.3
p0 queue free %			98		78	98
cM capacity (veh/h)			1032		517	857
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>	
Volume Total	134	195	132	227	134	
Volume Left	0	0	18	0	116	
Volume Right	0	128	0	0	18	
cSH	1700	1700	1032	1700	546	
Volume to Capacity	0.08	0.11	0.02	0.13	0.25	
Queue Length 95th (m)	0.0	0.0	0.4	0.0	7.7	
Control Delay (s)	0.0	0.0	1.3	0.0	13.7	
Lane LOS	A			B		
Approach Delay (s)	0.0		0.5		13.7	
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			2.4			
Intersection Capacity Utilization			31.7%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
 16: Line 10 & Line 5

Future Background 2036 AM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	110	10	5	90	20	5
Future Volume (Veh/h)	110	10	5	90	20	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	116	11	5	95	21	5
<b>Pedestrians</b>						
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			127		226	122
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			127		226	122
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		97	99
cM capacity (veh/h)			1472		764	935
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	127	100	26			
Volume Left	0	5	21			
Volume Right	11	0	5			
cSH	1700	1472	791			
Volume to Capacity	0.07	0.00	0.03			
Queue Length 95th (m)	0.0	0.1	0.8			
Control Delay (s)	0.0	0.4	9.7			
Lane LOS		A	A			
Approach Delay (s)	0.0	0.4	9.7			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			1.2			
Intersection Capacity Utilization			18.8%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 17: Line 5 & Street A

Future Background 2036 AM Peak Hour












Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	115	95	0	0	0
Future Volume (Veh/h)	0	115	95	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	121	100	0	0	0
<b>Pedestrians</b>						
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	100				221	100
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	100				221	100
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1505				772	961
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>SB 1</b>			
Volume Total	121	100	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1505	1700	1700			
Volume to Capacity	0.00	0.06	0.18			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			0.0			
Intersection Capacity Utilization			9.4%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 18: Simcoe Road & Danube Lane










Future Background 2036 AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	45	190	5	20	260
Future Volume (Veh/h)	10	45	190	5	20	260
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)	11	49	207	5	22	283
<b>Pedestrians</b>						
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	536	210			212	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	536	210			212	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	94			98	
cM capacity (veh/h)	500	836			1370	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	60	212	305			
Volume Left	11	0	22			
Volume Right	49	5	0			
cSH	744	1700	1370			
Volume to Capacity	0.08	0.12	0.02			
Queue Length 95th (m)	2.1	0.0	0.4			
Control Delay (s)	10.3	0.0	0.7			
Lane LOS	B		A			
Approach Delay (s)	10.3	0.0	0.7			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			1.4			
Intersection Capacity Utilization			38.4%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 19: Simcoe Road & Jonkman Blvd










Future Background 2036 AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	95	285	5	30	265
Future Volume (Veh/h)	10	95	285	5	30	265
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)	11	103	310	5	33	288
<b>Pedestrians</b>						
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	666	312			315	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	666	312			315	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	86			97	
cM capacity (veh/h)	416	732			1257	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	114	315	321			
Volume Left	11	0	33			
Volume Right	103	5	0			
cSH	682	1700	1257			
Volume to Capacity	0.17	0.19	0.03			
Queue Length 95th (m)	4.8	0.0	0.6			
Control Delay (s)	11.3	0.0	1.0			
Lane LOS	B		A			
Approach Delay (s)	11.3	0.0	1.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			2.2			
Intersection Capacity Utilization			47.3%		ICU Level of Service	A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 20: Street A & Street B

















Future Background 2036 AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
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)	0	0	0	0	0	0
<b>Pedestrians</b>						
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	0	0				0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0				0
tC, single (s)	6.4	6.2				4.1
tC, 2 stage (s)						
tF (s)	3.5	3.3				2.2
p0 queue free %	100	100				100
cM capacity (veh/h)	1023	1085				1623
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	0	0	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1700			
Volume to Capacity	0.20	0.18	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			0.0			
Intersection Capacity Utilization			0.0%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 21: Street L & Street B

Future Background 2036 AM Peak Hour

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0	0	0	0	0	0	0
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	0			0			0	0	0	0	0	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			0			0	0	0	0	0	0
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1623			1623			1023	896	1085	1023	896	1085
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	0	0	0								
Volume Left	0	0	0	0								
Volume Right	0	0	0	0								
cSH	1700	1700	1700	1700								
Volume to Capacity	0.00	0.00	0.03	0.03								
Queue Length 95th (m)	0.0	0.0	0.0	0.0								
Control Delay (s)	0.0	0.0	0.0	0.0								
Lane LOS			A	A								
Approach Delay (s)	0.0	0.0	0.0	0.0								
Approach LOS			A	A								
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			0.0%		ICU Level of Service				A			
Analysis Period (min)			15									



# HCM Unsignalized Intersection Capacity Analysis

## 22: Street A & Street S/Street C

















Future Background 2036 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
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)	0	0	0	0	0	0	0	0	0	0	0	0
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	0	0	0	0	0	0	0			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	0	0	0	0	0	0			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	1023	896	1085	1023	896	1085	1623			1623		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	0	0	0								
Volume Left	0	0	0	0								
Volume Right	0	0	0	0								
cSH	1700	1700	1700	1700								
Volume to Capacity	0.03	0.10	0.00	0.00								
Queue Length 95th (m)	0.0	0.0	0.0	0.0								
Control Delay (s)	0.0	0.0	0.0	0.0								
Lane LOS	A	A										
Approach Delay (s)	0.0	0.0	0.0	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			0.0%		ICU Level of Service					A		
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 23: Street L & Street C

Future Background 2036 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0	0	0	0	0	0	0
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	0			0			0	0	0	0	0	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			0			0	0	0	0	0	0
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1623			1623			1023	896	1085	1023	896	1085
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	0	0	0								
Volume Left	0	0	0	0								
Volume Right	0	0	0	0								
cSH	1700	1700	1700	1700								
Volume to Capacity	0.00	0.00	0.03	0.01								
Queue Length 95th (m)	0.0	0.0	0.0	0.0								
Control Delay (s)	0.0	0.0	0.0	0.0								
Lane LOS			A	A								
Approach Delay (s)	0.0	0.0	0.0	0.0								
Approach LOS			A	A								
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			0.0%		ICU Level of Service				A			
Analysis Period (min)			15									










Intersection Sign configuration not allowed in HCM analysis.

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# HCM Unsignalized Intersection Capacity Analysis

## 25: Street A & Street Q













Future Background 2036 AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
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)	0	0	0	0	0	0
<b>Pedestrians</b>						
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	0	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0	0			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	1023	1085	1623			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	0	0	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1700			
Volume to Capacity	0.06	0.00	0.11			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay	0.0					
Intersection Capacity Utilization	13.3%			ICU Level of Service	A	
Analysis Period (min)	15					

# HCM Unsignalized Intersection Capacity Analysis

## 1: 10 Sideroad & Line 6

Future Background 2026 PM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	10	15	0	100	65	115	0	125	305	125	40	0
Future Volume (veh/h)	10	15	0	100	65	115	0	125	305	125	40	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	17	0	111	72	128	0	139	339	139	44	0
Approach Volume (veh/h)	28			311			478			183		
Crossing Volume (veh/h)	294			150			167			183		
High Capacity (veh/h)	1100			1232			1215			1200		
High v/c (veh/h)	0.03			0.25			0.39			0.15		
Low Capacity (veh/h)	903			1022			1007			993		
Low v/c (veh/h)	0.03			0.30			0.47			0.18		
<b>Intersection Summary</b>												
Maximum v/c High	0.39											
Maximum v/c Low	0.47											
Intersection Capacity Utilization	42.4%			ICU Level of Service				A				

# HCM Unsignalized Intersection Capacity Analysis

## 2: Line 6 & Langford Boulevard

Future Background 2026 PM Peak Hour Period

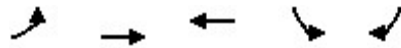


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	65	385	265	80	45	20
Future Volume (Veh/h)	65	385	265	80	45	20
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	71	423	291	88	49	22
<b>Pedestrians</b>						
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	379				900	335
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	379				900	335
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				83	97
cM capacity (veh/h)	1179				289	712
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>SB 1</b>		
Volume Total	71	423	379	71		
Volume Left	71	0	0	49		
Volume Right	0	0	88	22		
cSH	1179	1700	1700	354		
Volume to Capacity	0.06	0.25	0.22	0.20		
Queue Length 95th (m)	1.5	0.0	0.0	5.9		
Control Delay (s)	8.2	0.0	0.0	17.7		
Lane LOS	A			C		
Approach Delay (s)	1.2		0.0	17.7		
Approach LOS				C		
<b>Intersection Summary</b>						
Average Delay			2.0			
Intersection Capacity Utilization			36.1%	ICU Level of Service	A	
Analysis Period (min)			15			

Queues

3: Line 6 & West Park Ave

Future Background 2026 PM Peak Hour Period

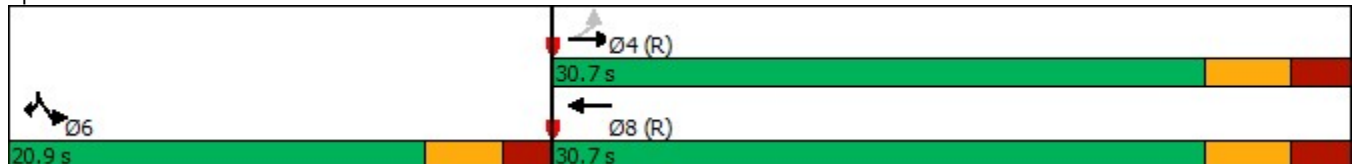


Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations	↖	↑	↗	↖	↗
Traffic Volume (vph)	40	385	325	125	20
Future Volume (vph)	40	385	325	125	20
Lane Group Flow (vph)	45	433	477	140	22
Turn Type	Perm	NA	NA	Prot	Prot
Protected Phases		4	8	6	6
Permitted Phases	4				
Detector Phase	4	4	8	6	6
Switch Phase					
Minimum Initial (s)	25.0	25.0	25.0	10.0	10.0
Minimum Split (s)	30.7	30.7	30.7	20.0	20.0
Total Split (s)	30.7	30.7	30.7	20.9	20.9
Total Split (%)	59.5%	59.5%	59.5%	40.5%	40.5%
Yellow Time (s)	3.3	3.3	3.3	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	5.7	5.7	4.9	4.9
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Min	C-Min	C-Min	None	None
v/c Ratio	0.08	0.34	0.39	0.38	0.06
Control Delay	5.5	6.5	6.5	20.6	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	5.5	6.5	6.5	20.6	8.2
Queue Length 50th (m)	1.5	18.2	18.6	12.0	0.0
Queue Length 95th (m)	5.5	37.6	40.0	23.1	4.2
Internal Link Dist (m)		582.6	325.3	441.0	
Turn Bay Length (m)	110.0				
Base Capacity (vph)	595	1266	1222	548	515
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	0.08	0.34	0.39	0.26	0.04

Intersection Summary

Cycle Length: 51.6  
 Actuated Cycle Length: 51.6  
 Offset: 20.9 (41%), Referenced to phase 4:EBTL and 8:WBT, Start of Green  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated

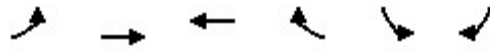
Splits and Phases: 3: Line 6 & West Park Ave



# HCM Signalized Intersection Capacity Analysis

## 3: Line 6 & West Park Ave

Future Background 2026 PM Peak Hour Period






















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	40	385	325	100	125	20
Future Volume (vph)	40	385	325	100	125	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7		4.9	4.9
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1800	1900	1815		1770	1615
Flt Permitted	0.47	1.00	1.00		0.95	1.00
Satd. Flow (perm)	893	1900	1815		1770	1615
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	45	433	365	112	140	22
RTOR Reduction (vph)	0	0	16	0	0	18
Lane Group Flow (vph)	45	433	461	0	140	4
Confl. Peds. (#/hr)	5			5		
Heavy Vehicles (%)	0%	0%	1%	0%	2%	0%
Turn Type	Perm	NA	NA		Prot	Prot
Protected Phases		4	8		6	6
Permitted Phases	4					
Actuated Green, G (s)	32.3	32.3	32.3		8.7	8.7
Effective Green, g (s)	32.3	32.3	32.3		8.7	8.7
Actuated g/C Ratio	0.63	0.63	0.63		0.17	0.17
Clearance Time (s)	5.7	5.7	5.7		4.9	4.9
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	558	1189	1136		298	272
v/s Ratio Prot		0.23	c0.25		c0.08	0.00
v/s Ratio Perm	0.05					
v/c Ratio	0.08	0.36	0.41		0.47	0.01
Uniform Delay, d1	3.8	4.7	4.8		19.4	17.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.3	0.9	1.1		1.2	0.0
Delay (s)	4.1	5.5	5.9		20.5	17.9
Level of Service	A	A	A		C	B
Approach Delay (s)		5.4	5.9		20.2	
Approach LOS		A	A		C	
<b>Intersection Summary</b>						
HCM 2000 Control Delay			7.8		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.42			
Actuated Cycle Length (s)			51.6		Sum of lost time (s)	10.6
Intersection Capacity Utilization			50.4%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						



# HCM Unsignalized Intersection Capacity Analysis

## 4: Brownlee Drive/Southfield Gate & Line 6

Future Background 2026 PM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	485	10	10	415	15	5	5	5	5	0	5
Future Volume (Veh/h)	15	485	10	10	415	15	5	5	5	5	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	539	11	11	461	17	6	6	6	6	0	6
Pedestrians		10			10						10	
Lane Width (m)		3.6			3.6						3.6	
Walking Speed (m/s)		1.2			1.2						1.2	
Percent Blockage		1			1						1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage (veh)		2			2							
Upstream signal (m)		349										
pX, platoon unblocked												
vC, conflicting volume	488			550			1078	1088	554	1094	1086	490
vC1, stage 1 conf vol							578	578		502	502	
vC2, stage 2 conf vol							499	510		592	584	
vCu, unblocked vol	488			550			1078	1088	554	1094	1086	490
tC, single (s)	4.1			4.2			7.1	6.5	6.5	7.1	6.5	6.7
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.3			3.5	4.0	3.5	3.5	4.0	3.8
p0 queue free %	98			99			98	98	99	98	100	99
cM capacity (veh/h)	1077			981			393	397	486	382	398	485
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	17	550	11	478	18	12						
Volume Left	17	0	11	0	6	6						
Volume Right	0	11	0	17	6	6						
cSH	1077	1700	981	1700	421	427						
Volume to Capacity	0.02	0.32	0.01	0.28	0.04	0.03						
Queue Length 95th (m)	0.4	0.0	0.3	0.0	1.1	0.7						
Control Delay (s)	8.4	0.0	8.7	0.0	13.9	13.7						
Lane LOS	A		A		B	B						
Approach Delay (s)	0.3		0.2		13.9	13.7						
Approach LOS					B	B						
<b>Intersection Summary</b>												
Average Delay			0.6									
Intersection Capacity Utilization			39.0%		ICU Level of Service				A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 5: Golf Driveway Access & Line 6

Future Background 2026 PM Peak Hour Period

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↖	↗	↘	↘
Traffic Volume (veh/h)	495	0	0	440	0	0
Future Volume (Veh/h)	495	0	0	440	0	0
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)	538	0	0	478	0	0
<b>Pedestrians</b>						
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)			346			
pX, platoon unblocked						
vC, conflicting volume			538		1016	538
vC1, stage 1 conf vol					538	
vC2, stage 2 conf vol					478	
vCu, unblocked vol			538		1016	538
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1040		482	547
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>		
Volume Total	538	0	478	0		
Volume Left	0	0	0	0		
Volume Right	0	0	0	0		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.32	0.00	0.28	0.00		
Queue Length 95th (m)	0.0	0.0	0.0	0.0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS				A		
Approach Delay (s)	0.0	0.0		0.0		
Approach LOS				A		
<b>Intersection Summary</b>						
Average Delay			0.0			
Intersection Capacity Utilization			29.4%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 6: Line 6 & Adams Street

Future Background 2026 PM Peak Hour Period

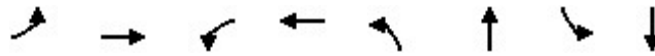


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	465	430	70	35	10
Future Volume (Veh/h)	30	465	430	70	35	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	33	517	478	78	39	11
Pedestrians					5	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh		2	2			
Upstream signal (m)			258			
pX, platoon unblocked	0.90				0.90	0.90
vC, conflicting volume	561				1105	522
vC1, stage 1 conf vol					522	
vC2, stage 2 conf vol					583	
vCu, unblocked vol	458				1062	414
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	97				91	98
cM capacity (veh/h)	985				441	576
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>SB 1</b>		
Volume Total	33	517	556	50		
Volume Left	33	0	0	39		
Volume Right	0	0	78	11		
cSH	985	1700	1700	465		
Volume to Capacity	0.03	0.30	0.33	0.11		
Queue Length 95th (m)	0.8	0.0	0.0	2.9		
Control Delay (s)	8.8	0.0	0.0	13.7		
Lane LOS	A			B		
Approach Delay (s)	0.5		0.0	13.7		
Approach LOS				B		
<b>Intersection Summary</b>						
Average Delay			0.8			
Intersection Capacity Utilization			37.0%		ICU Level of Service	A
Analysis Period (min)			15			

# Queues

## 7: Inverness Way/Melbourne Dr & Line 6

Future Background 2026 PM Peak Hour Period



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↶	↷	↶	↷	↶	↷	↶	↷
Traffic Volume (vph)	80	385	10	435	20	20	95	30
Future Volume (vph)	80	385	10	435	20	20	95	30
Lane Group Flow (vph)	90	472	11	613	22	28	107	85
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		6		2		8		4
Permitted Phases	6		2		8		4	
Detector Phase	6	6	2	2	8	8	4	4
Switch Phase								
Minimum Initial (s)	25.0	25.0	25.0	25.0	10.0	10.0	10.0	10.0
Minimum Split (s)	30.5	30.5	30.5	30.5	21.0	21.0	21.0	21.0
Total Split (s)	30.5	30.5	30.5	30.5	21.2	21.2	21.2	21.2
Total Split (%)	59.0%	59.0%	59.0%	59.0%	41.0%	41.0%	41.0%	41.0%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.0	3.0	3.0	3.0
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.2	5.2	5.2	5.2
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	C-Min	C-Min	None	None	None	None
v/c Ratio	0.20	0.39	0.02	0.51	0.08	0.07	0.36	0.20
Control Delay	7.9	7.6	6.1	8.8	15.3	12.9	19.9	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.9	7.6	6.1	8.8	15.3	12.9	19.9	9.3
Queue Length 50th (m)	3.4	20.0	0.4	27.8	1.8	1.8	9.2	2.8
Queue Length 95th (m)	12.6	48.8	2.5	69.1	5.4	5.8	17.5	9.9
Internal Link Dist (m)		233.8		288.6		331.7		165.8
Turn Bay Length (m)	50.0		50.0					
Base Capacity (vph)	453	1215	577	1206	410	573	421	561
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	0.20	0.39	0.02	0.51	0.05	0.05	0.25	0.15

### Intersection Summary

Cycle Length: 51.7

Actuated Cycle Length: 51.7

Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated





















Splits and Phases: 7: Inverness Way/Melbourne Dr & Line 6



# HCM Signalized Intersection Capacity Analysis

## 7: Inverness Way/Melbourne Dr & Line 6

Future Background 2026 PM Peak Hour Period




















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	385	35	10	435	110	20	20	5	95	30	45
Future Volume (vph)	80	385	35	10	435	110	20	20	5	95	30	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.97		1.00	0.97		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1801	1856		1800	1829		1795	1839		1752	1702	
Flt Permitted	0.37	1.00		0.47	1.00		0.70	1.00		0.74	1.00	
Satd. Flow (perm)	693	1856		885	1829		1326	1839		1363	1702	
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)	90	433	39	11	489	124	22	22	6	107	34	51
RTOR Reduction (vph)	0	5	0	0	13	0	0	5	0	0	42	0
Lane Group Flow (vph)	90	467	0	11	600	0	22	23	0	107	43	0
Confl. Peds. (#/hr)	5		5	5		5	5					5
Heavy Vehicles (%)	0%	1%	0%	0%	0%	1%	0%	0%	0%	3%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	31.6	31.6		31.6	31.6		9.4	9.4		9.4	9.4	
Effective Green, g (s)	31.6	31.6		31.6	31.6		9.4	9.4		9.4	9.4	
Actuated g/C Ratio	0.61	0.61		0.61	0.61		0.18	0.18		0.18	0.18	
Clearance Time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	423	1134		540	1117		241	334		247	309	
v/s Ratio Prot		0.25			c0.33			0.01			0.03	
v/s Ratio Perm	0.13			0.01			0.02			c0.08		
v/c Ratio	0.21	0.41		0.02	0.54		0.09	0.07		0.43	0.14	
Uniform Delay, d1	4.5	5.2		4.0	5.8		17.6	17.5		18.8	17.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	1.1		0.1	1.9		0.2	0.1		1.2	0.2	
Delay (s)	5.6	6.3		4.0	7.7		17.8	17.6		20.0	18.0	
Level of Service	A	A		A	A		B	B		C	B	
Approach Delay (s)		6.2			7.6			17.7			19.1	
Approach LOS		A			A			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			9.0			HCM 2000 Level of Service				A		
HCM 2000 Volume to Capacity ratio			0.51									
Actuated Cycle Length (s)			51.7			Sum of lost time (s)				10.7		
Intersection Capacity Utilization			76.8%			ICU Level of Service				D		
Analysis Period (min)			15									

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 8: Barrow Ave & Line 6

Future Background 2026 PM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	460	20	45	540	5	10	0	25	10	0	10
Future Volume (Veh/h)	0	460	20	45	540	5	10	0	25	10	0	10
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	529	23	52	621	6	11	0	29	11	0	11
Pedestrians							5			5		
Lane Width (m)							3.6			3.6		
Walking Speed (m/s)							1.2			1.2		
Percent Blockage							0			0		
Right turn flare (veh)												
Median type	TWLTL				TWLTL							
Median storage veh	2				2							
Upstream signal (m)	313				286							
pX, platoon unblocked				0.97			0.97			0.97		
vC, conflicting volume	632			557			1282			1282		
vC1, stage 1 conf vol							546			546		
vC2, stage 2 conf vol							736			736		
vCu, unblocked vol	632			528			1275			1275		
tC, single (s)	4.1			4.1			7.1			6.5		
tC, 2 stage (s)							6.1			5.5		
tF (s)	2.2			2.2			3.5			4.0		
p0 queue free %	100			95			97			100		
cM capacity (veh/h)	956			1014			325			341		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	0	552	52	627	40	22						
Volume Left	0	0	52	0	11	11						
Volume Right	0	23	0	6	29	11						
cSH	1700	1700	1014	1700	459	378						
Volume to Capacity	0.00	0.32	0.05	0.37	0.09	0.06						
Queue Length 95th (m)	0.0	0.0	1.3	0.0	2.3	1.5						
Control Delay (s)	0.0	0.0	8.7	0.0	13.6	15.1						
Lane LOS			A		B		C					
Approach Delay (s)	0.0		0.7		13.6		15.1					
Approach LOS					B		C					
<b>Intersection Summary</b>												
Average Delay			1.0									
Intersection Capacity Utilization			45.4%		ICU Level of Service		A					
Analysis Period (min)			15									

# Queues

## 9: Simcoe Road & Line 6

Future Background 2026 PM Peak Hour Period



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	265	90	35	200	240	5	155	400
Future Volume (vph)	265	90	35	200	240	5	155	400
Lane Group Flow (vph)	285	280	43	215	280	0	172	430
Turn Type	Perm	NA	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4	8		2		6	
Permitted Phases	4			2		6		6
Detector Phase	4	4	8	2	2	6	6	6
Switch Phase								
Minimum Initial (s)	25.0	25.0	25.0	24.0	24.0	24.0	24.0	24.0
Minimum Split (s)	30.5	30.5	30.5	29.5	29.5	29.5	29.5	29.5
Total Split (s)	30.5	30.5	30.5	29.5	29.5	29.5	29.5	29.5
Total Split (%)	50.8%	50.8%	50.8%	49.2%	49.2%	49.2%	49.2%	49.2%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	C-Min	C-Min	C-Min	C-Min	C-Min
v/c Ratio	0.49	0.34	0.06	0.44	0.37		0.23	0.48
Control Delay	16.5	5.8	9.9	16.7	14.0		13.0	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	16.5	5.8	9.9	16.7	14.0		13.0	3.5
Queue Length 50th (m)	23.2	6.6	2.5	17.4	21.2		12.6	0.0
Queue Length 95th (m)	43.1	19.9	7.5	34.3	37.9		24.4	14.8
Internal Link Dist (m)		261.7	146.8		405.2		164.8	
Turn Bay Length (m)	50.0			110.0				
Base Capacity (vph)	577	820	778	488	756		738	897
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	0.49	0.34	0.06	0.44	0.37		0.23	0.48

### Intersection Summary

Cycle Length: 60

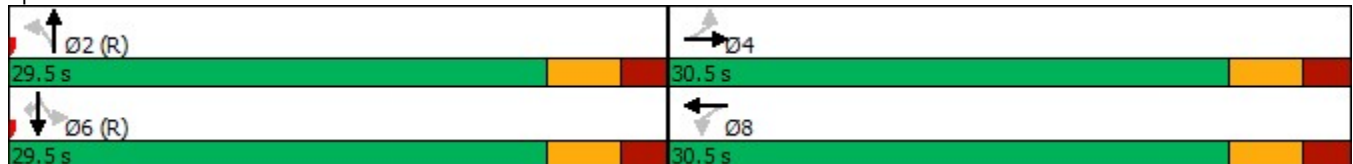
Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Splits and Phases: 9: Simcoe Road & Line 6



# HCM Signalized Intersection Capacity Analysis

## 9: Simcoe Road & Line 6

Future Background 2026 PM Peak Hour Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	265	90	170	0	35	5	200	240	20	5	155	400
Future Volume (vph)	265	90	170	0	35	5	200	240	20	5	155	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5		5.5	5.5			5.5	5.5
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.90			0.98		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1805	1714			1860		1787	1878			1861	1599
Flt Permitted	0.73	1.00			1.00		0.65	1.00			0.99	1.00
Satd. Flow (perm)	1385	1714			1860		1220	1878			1846	1599
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)	285	97	183	0	38	5	215	258	22	5	167	430
RTOR Reduction (vph)	0	107	0	0	3	0	0	5	0	0	0	258
Lane Group Flow (vph)	285	173	0	0	40	0	215	275	0	0	172	172
Heavy Vehicles (%)	0%	0%	0%	0%	0%	3%	1%	0%	0%	0%	2%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	25.0	25.0			25.0		24.0	24.0			24.0	24.0
Effective Green, g (s)	25.0	25.0			25.0		24.0	24.0			24.0	24.0
Actuated g/C Ratio	0.42	0.42			0.42		0.40	0.40			0.40	0.40
Clearance Time (s)	5.5	5.5			5.5		5.5	5.5			5.5	5.5
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	577	714			775		488	751			738	639
v/s Ratio Prot		0.10			0.02			0.15				
v/s Ratio Perm	c0.21						c0.18				0.09	0.11
v/c Ratio	0.49	0.24			0.05		0.44	0.37			0.23	0.27
Uniform Delay, d1	12.9	11.4			10.4		13.1	12.7			11.9	12.1
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	0.7	0.2			0.0		2.9	1.4			0.7	1.0
Delay (s)	13.5	11.5			10.5		16.0	14.0			12.6	13.1
Level of Service	B	B			B		B	B			B	B
Approach Delay (s)		12.5			10.5			14.9			13.0	
Approach LOS		B			B			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			13.3				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			60.0				Sum of lost time (s)			11.0		
Intersection Capacity Utilization			79.4%				ICU Level of Service				D	
Analysis Period (min)			15									
c Critical Lane Group												



# HCM Unsignalized Intersection Capacity Analysis

## 10: Simcoe Road & Gibson Circle

Future Background 2026 PM Peak Hour Period



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	5	25	405	205	25
Future Volume (Veh/h)	15	5	25	405	205	25
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	18	6	29	476	241	29
Pedestrians	10			5		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	1			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	800	270	280			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	800	270	280			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	99	98			
cM capacity (veh/h)	346	763	1283			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	24	505	270			
Volume Left	18	29	0			
Volume Right	6	0	29			
cSH	401	1283	1700			
Volume to Capacity	0.06	0.02	0.16			
Queue Length 95th (m)	1.5	0.6	0.0			
Control Delay (s)	14.5	0.7	0.0			
Lane LOS	B	A				
Approach Delay (s)	14.5	0.7	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			0.9			
Intersection Capacity Utilization			50.2%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 11: Simcoe Road & Golfview Blvd

Future Background 2026 PM Peak Hour Period



















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	5	10	390	185	25
Future Volume (Veh/h)	20	5	10	390	185	25
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)	22	5	11	424	201	27
Pedestrians	10			5		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	1			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	670	230	238			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	670	230	238			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	99	99			
cM capacity (veh/h)	418	805	1330			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	27	435	228			
Volume Left	22	11	0			
Volume Right	5	0	27			
cSH	459	1330	1700			
Volume to Capacity	0.06	0.01	0.13			
Queue Length 95th (m)	1.5	0.2	0.0			
Control Delay (s)	13.3	0.3	0.0			
Lane LOS	B	A				
Approach Delay (s)	13.3	0.3	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			0.7			
Intersection Capacity Utilization			40.1%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 12: Canal Rd










Future Background 2026 PM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	280	45	0	5	55	115	5	5	0	45	5	85
Future Volume (vph)	280	45	0	5	55	115	5	5	0	45	5	85
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	341	55	0	6	67	140	6	6	0	55	6	104
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	396	213	12	165								
Volume Left (vph)	341	6	6	55								
Volume Right (vph)	0	140	0	104								
Hadj (s)	0.22	-0.37	0.10	-0.31								
Departure Headway (s)	4.8	4.5	5.7	5.0								
Degree Utilization, x	0.53	0.27	0.02	0.23								
Capacity (veh/h)	715	754	530	641								
Control Delay (s)	13.2	9.1	8.9	9.6								
Approach Delay (s)	13.2	9.1	8.9	9.6								
Approach LOS	B	A	A	A								
Intersection Summary												
Delay			11.3									
Level of Service			B									
Intersection Capacity Utilization			47.0%		ICU Level of Service				A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 13: Line 5 & Canal Rd










Future Background 2026 PM Peak Hour Period

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	120	5	15	205	50	95
Future Volume (Veh/h)	120	5	15	205	50	95
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	138	6	17	236	57	109
<b>Pedestrians</b>						
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	382	112	166			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	382	112	166			
tC, single (s)	6.5	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.3			
p0 queue free %	77	99	99			
cM capacity (veh/h)	604	947	1382			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	144	253	166			
Volume Left	138	17	0			
Volume Right	6	0	109			
cSH	613	1382	1700			
Volume to Capacity	0.23	0.01	0.10			
Queue Length 95th (m)	7.3	0.3	0.0			
Control Delay (s)	12.7	0.6	0.0			
Lane LOS	B	A				
Approach Delay (s)	12.7	0.6	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			3.5			
Intersection Capacity Utilization			36.8%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 14: Line 5 & 10 Sideroad

Future Background 2026 PM Peak Hour Period

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	125	400	20	125	85	30
Future Volume (Veh/h)	125	400	20	125	85	30
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	139	444	22	139	94	33
<b>Pedestrians</b>						
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			583			292
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			583			292
tC, single (s)			4.1			7.0
tC, 2 stage (s)						
tF (s)			2.2			3.3
p0 queue free %			98			95
cM capacity (veh/h)			1001			696
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>	
Volume Total	93	490	68	93	127	
Volume Left	0	0	22	0	94	
Volume Right	0	444	0	0	33	
cSH	1700	1700	1001	1700	540	
Volume to Capacity	0.05	0.29	0.02	0.05	0.24	
Queue Length 95th (m)	0.0	0.0	0.5	0.0	7.3	
Control Delay (s)	0.0	0.0	2.9	0.0	13.7	
Lane LOS	A			B		
Approach Delay (s)	0.0		1.2	13.7		
Approach LOS				B		
<b>Intersection Summary</b>						
Average Delay			2.2			
Intersection Capacity Utilization			32.1%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 16: Line 10 & Line 5










Future Background 2026 PM Peak Hour Period

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖	↘	
Traffic Volume (veh/h)	120	25	0	105	10	5
Future Volume (Veh/h)	120	25	0	105	10	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	133	28	0	117	11	6
<b>Pedestrians</b>						
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			161			147
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			161			147
tC, single (s)			4.1			6.2
tC, 2 stage (s)						
tF (s)			2.2			3.3
p0 queue free %			100			99
cM capacity (veh/h)			1430			905
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	161	117	17			
Volume Left	0	0	11			
Volume Right	28	0	6			
cSH	1700	1430	783			
Volume to Capacity	0.09	0.00	0.02			
Queue Length 95th (m)	0.0	0.0	0.5			
Control Delay (s)	0.0	0.0	9.7			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	9.7			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			0.6			
Intersection Capacity Utilization			17.8%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis










## 18: Simcoe Road & Danube Lane

Future Background 2026 PM Peak Hour Period

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	25	375	25	60	130
Future Volume (Veh/h)	5	25	375	25	60	130
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)	5	27	408	27	65	141
<b>Pedestrians</b>						
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	692	422			435	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	692	422			435	
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	96			94	
cM capacity (veh/h)	389	636			1135	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	32	435	206			
Volume Left	5	0	65			
Volume Right	27	27	0			
cSH	579	1700	1135			
Volume to Capacity	0.06	0.26	0.06			
Queue Length 95th (m)	1.4	0.0	1.5			
Control Delay (s)	11.6	0.0	3.0			
Lane LOS	B		A			
Approach Delay (s)	11.6	0.0	3.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			1.5			
Intersection Capacity Utilization			44.7%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
 19: Simcoe Road & Jonkman Blvd

Future Background 2026 PM Peak Hour Period













						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	5	60	400	25	95	225
Future Volume (vph)	5	60	400	25	95	225
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	65	435	27	103	245
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total (vph)	70	462	348			
Volume Left (vph)	5	0	103			
Volume Right (vph)	65	27	0			
Hadj (s)	-0.54	-0.04	0.06			
Departure Headway (s)	5.1	4.4	4.6			
Degree Utilization, x	0.10	0.57	0.45			
Capacity (veh/h)	607	794	751			
Control Delay (s)	8.7	13.2	11.4			
Approach Delay (s)	8.7	13.2	11.4			
Approach LOS	A	B	B			
<b>Intersection Summary</b>						
Delay			12.1			
Level of Service			B			
Intersection Capacity Utilization			53.6%	ICU Level of Service		A
Analysis Period (min)			15			



# HCM Unsignalized Intersection Capacity Analysis

## 1: 10 Sideroad & Line 6

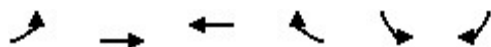
Future Background 2031 PM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	10	35	0	140	135	165	0	125	345	140	40	0
Future Volume (veh/h)	10	35	0	140	135	165	0	125	345	140	40	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	39	0	156	150	183	0	139	383	156	44	0
Approach Volume (veh/h)	50			489			522			200		
Crossing Volume (veh/h)	356			150			206			306		
High Capacity (veh/h)	1047			1232			1179			1089		
High v/c (veh/h)	0.05			0.40			0.44			0.18		
Low Capacity (veh/h)	856			1022			974			893		
Low v/c (veh/h)	0.06			0.48			0.54			0.22		
<b>Intersection Summary</b>												
Maximum v/c High	0.44											
Maximum v/c Low	0.54											
Intersection Capacity Utilization	48.8%			ICU Level of Service				A				

# HCM Unsignalized Intersection Capacity Analysis

## 2: Line 6 & Langford Boulevard

Future Background 2031 PM Peak Hour Period

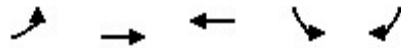


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	65	460	425	80	45	20
Future Volume (Veh/h)	65	460	425	80	45	20
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	71	505	467	88	49	22
<b>Pedestrians</b>						
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	555				1158	511
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	555				1158	511
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				76	96
cM capacity (veh/h)	1015				201	567
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>SB 1</b>		
Volume Total	71	505	555	71		
Volume Left	71	0	0	49		
Volume Right	0	0	88	22		
cSH	1015	1700	1700	251		
Volume to Capacity	0.07	0.30	0.33	0.28		
Queue Length 95th (m)	1.8	0.0	0.0	9.0		
Control Delay (s)	8.8	0.0	0.0	24.9		
Lane LOS	A			C		
Approach Delay (s)	1.1		0.0	24.9		
Approach LOS				C		
<b>Intersection Summary</b>						
Average Delay			2.0			
Intersection Capacity Utilization			44.5%	ICU Level of Service	A	
Analysis Period (min)			15			

# Queues

## 3: Line 6 & West Park Ave

Future Background 2031 PM Peak Hour Period



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations	↖	↑	↔	↘	↘
Traffic Volume (vph)	50	450	475	145	30
Future Volume (vph)	50	450	475	145	30
Lane Group Flow (vph)	56	506	658	163	34
Turn Type	Perm	NA	NA	Prot	Prot
Protected Phases		4	8	6	6
Permitted Phases	4				
Detector Phase	4	4	8	6	6
Switch Phase					
Minimum Initial (s)	25.0	25.0	25.0	10.0	10.0
Minimum Split (s)	30.7	30.7	30.7	20.0	20.0
Total Split (s)	30.7	30.7	30.7	20.9	20.9
Total Split (%)	59.5%	59.5%	59.5%	40.5%	40.5%
Yellow Time (s)	3.3	3.3	3.3	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	5.7	5.7	4.9	4.9
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Min	C-Min	C-Min	None	None
v/c Ratio	0.13	0.40	0.54	0.43	0.09
Control Delay	6.7	7.4	8.8	21.0	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	6.7	7.4	8.8	21.0	7.1
Queue Length 50th (m)	2.0	22.4	31.3	14.2	0.0
Queue Length 95th (m)	7.4	48.1	69.1	25.7	4.9
Internal Link Dist (m)		582.6	325.3	441.0	
Turn Bay Length (m)	110.0				
Base Capacity (vph)	426	1253	1217	548	524
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	0.13	0.40	0.54	0.30	0.06

### Intersection Summary

Cycle Length: 51.6

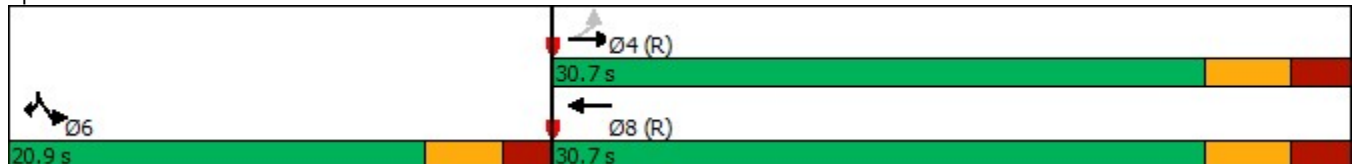
Actuated Cycle Length: 51.6

Offset: 20.9 (41%), Referenced to phase 4:EBTL and 8:WBT, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Splits and Phases: 3: Line 6 & West Park Ave



# HCM Signalized Intersection Capacity Analysis

## 3: Line 6 & West Park Ave

Future Background 2031 PM Peak Hour Period






















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	50	450	475	110	145	30
Future Volume (vph)	50	450	475	110	145	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7		4.9	4.9
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1802	1900	1828		1770	1615
Flt Permitted	0.34	1.00	1.00		0.95	1.00
Satd. Flow (perm)	647	1900	1828		1770	1615
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	56	506	534	124	163	34
RTOR Reduction (vph)	0	0	12	0	0	28
Lane Group Flow (vph)	56	506	646	0	163	6
Confl. Peds. (#/hr)	5			5		
Heavy Vehicles (%)	0%	0%	1%	0%	2%	0%
Turn Type	Perm	NA	NA		Prot	Prot
Protected Phases		4	8		6	6
Permitted Phases	4					
Actuated Green, G (s)	31.9	31.9	31.9		9.1	9.1
Effective Green, g (s)	31.9	31.9	31.9		9.1	9.1
Actuated g/C Ratio	0.62	0.62	0.62		0.18	0.18
Clearance Time (s)	5.7	5.7	5.7		4.9	4.9
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	399	1174	1130		312	284
v/s Ratio Prot		0.27	c0.35		c0.09	0.00
v/s Ratio Perm	0.09					
v/c Ratio	0.14	0.43	0.57		0.52	0.02
Uniform Delay, d1	4.1	5.1	5.8		19.3	17.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.7	1.2	2.1		1.6	0.0
Delay (s)	4.9	6.3	7.9		20.9	17.6
Level of Service	A	A	A		C	B
Approach Delay (s)		6.1	7.9		20.3	
Approach LOS		A	A		C	
<b>Intersection Summary</b>						
HCM 2000 Control Delay			8.9		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.56			
Actuated Cycle Length (s)			51.6		Sum of lost time (s)	10.6
Intersection Capacity Utilization			58.7%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

# HCM Unsignalized Intersection Capacity Analysis

## 4: Brownlee Drive/Southfield Gate & Line 6











Future Background 2031 PM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	570	10	10	575	15	5	5	5	5	0	5
Future Volume (Veh/h)	15	570	10	10	575	15	5	5	5	5	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	633	11	11	639	17	6	6	6	6	0	6
Pedestrians		10			10						10	
Lane Width (m)		3.6			3.6						3.6	
Walking Speed (m/s)		1.2			1.2						1.2	
Percent Blockage		1			1						1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh		2			2							
Upstream signal (m)		349										
pX, platoon unblocked				0.95			0.95	0.95	0.95	0.95	0.95	
vC, conflicting volume	666			644			1350	1360	648	1366	1358	668
vC1, stage 1 conf vol							672	672		680	680	
vC2, stage 2 conf vol							677	688		686	678	
vCu, unblocked vol	666			599			1342	1353	604	1358	1350	668
tC, single (s)	4.1			4.2			7.1	6.5	6.5	7.1	6.5	6.7
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.3			3.5	4.0	3.5	3.5	4.0	3.8
p0 queue free %	98			99			98	98	99	98	100	98
cM capacity (veh/h)	925			893			316	328	432	310	330	378
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	17	644	11	656	18	12						
Volume Left	17	0	11	0	6	6						
Volume Right	0	11	0	17	6	6						
cSH	925	1700	893	1700	352	341						
Volume to Capacity	0.02	0.38	0.01	0.39	0.05	0.04						
Queue Length 95th (m)	0.4	0.0	0.3	0.0	1.3	0.9						
Control Delay (s)	9.0	0.0	9.1	0.0	15.8	15.9						
Lane LOS	A		A		C	C						
Approach Delay (s)	0.2		0.1		15.8	15.9						
Approach LOS					C	C						
<b>Intersection Summary</b>												
Average Delay			0.5									
Intersection Capacity Utilization			44.0%		ICU Level of Service				A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 5: Golf Driveway Access & Line 6

Future Background 2031 PM Peak Hour Period

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	580	0	0	600	0	0
Future Volume (Veh/h)	580	0	0	600	0	0
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)	630	0	0	652	0	0
<b>Pedestrians</b>						
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)			346			
pX, platoon unblocked					0.87	
vC, conflicting volume			630		1282	630
vC1, stage 1 conf vol					630	
vC2, stage 2 conf vol					652	
vCu, unblocked vol			630		1250	630
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			962		398	485
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>		
Volume Total	630	0	652	0		
Volume Left	0	0	0	0		
Volume Right	0	0	0	0		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.37	0.00	0.38	0.00		
Queue Length 95th (m)	0.0	0.0	0.0	0.0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS				A		
Approach Delay (s)	0.0	0.0		0.0		
Approach LOS				A		
<b>Intersection Summary</b>						
Average Delay			0.0			
Intersection Capacity Utilization			34.9%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 6: Line 6 & Adams Street

Future Background 2031 PM Peak Hour Period

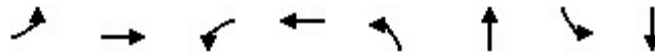


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	550	590	70	35	10
Future Volume (Veh/h)	30	550	590	70	35	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	33	611	656	78	39	11
Pedestrians					5	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh		2	2			
Upstream signal (m)			258			
pX, platoon unblocked	0.74				0.74	0.74
vC, conflicting volume	739				1377	700
vC1, stage 1 conf vol					700	
vC2, stage 2 conf vol					677	
vCu, unblocked vol	474				1334	422
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	96				89	98
cM capacity (veh/h)	800				358	470
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>SB 1</b>		
Volume Total	33	611	734	50		
Volume Left	33	0	0	39		
Volume Right	0	0	78	11		
cSH	800	1700	1700	378		
Volume to Capacity	0.04	0.36	0.43	0.13		
Queue Length 95th (m)	1.0	0.0	0.0	3.6		
Control Delay (s)	9.7	0.0	0.0	16.0		
Lane LOS	A			C		
Approach Delay (s)	0.5		0.0	16.0		
Approach LOS				C		
<b>Intersection Summary</b>						
Average Delay			0.8			
Intersection Capacity Utilization			45.4%		ICU Level of Service	A
Analysis Period (min)			15			

# Queues

## 7: Inverness Way/Melbourne Dr & Line 6

Future Background 2031 PM Peak Hour Period



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗
Traffic Volume (vph)	100	450	10	580	20	20	120	30
Future Volume (vph)	100	450	10	580	20	20	120	30
Lane Group Flow (vph)	112	545	11	787	22	28	135	101
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		6		2		8		4
Permitted Phases	6		2		8		4	
Detector Phase	6	6	2	2	8	8	4	4
Switch Phase								
Minimum Initial (s)	25.0	25.0	25.0	25.0	10.0	10.0	10.0	10.0
Minimum Split (s)	30.5	30.5	30.5	30.5	21.0	21.0	21.0	21.0
Total Split (s)	30.5	30.5	30.5	30.5	21.2	21.2	21.2	21.2
Total Split (%)	59.0%	59.0%	59.0%	59.0%	41.0%	41.0%	41.0%	41.0%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.0	3.0	3.0	3.0
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.2	5.2	5.2	5.2
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	C-Min	C-Min	None	None	None	None
v/c Ratio	0.37	0.45	0.02	0.66	0.07	0.07	0.44	0.23
Control Delay	12.7	8.5	6.3	13.2	14.9	12.6	21.3	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.7	8.5	6.3	13.2	14.9	12.6	21.3	8.6
Queue Length 50th (m)	4.9	25.0	0.4	43.6	1.8	1.8	11.8	2.7
Queue Length 95th (m)	#21.3	59.6	2.5	#125.0	5.4	5.8	21.4	10.6
Internal Link Dist (m)		233.8		288.6		331.7		165.8
Turn Bay Length (m)	50.0		50.0					
Base Capacity (vph)	302	1205	503	1199	404	573	421	566
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	0.37	0.45	0.02	0.66	0.05	0.05	0.32	0.18

### Intersection Summary

Cycle Length: 51.7

Actuated Cycle Length: 51.7

Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

### Splits and Phases: 7: Inverness Way/Melbourne Dr & Line 6


























# HCM Signalized Intersection Capacity Analysis

## 7: Inverness Way/Melbourne Dr & Line 6

Future Background 2031 PM Peak Hour Period




















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	450	35	10	580	120	20	20	5	120	30	60
Future Volume (vph)	100	450	35	10	580	120	20	20	5	120	30	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	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		0.99	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.97		1.00	0.97		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1803	1859		1801	1840		1795	1839		1752	1681	
Flt Permitted	0.25	1.00		0.41	1.00		0.69	1.00		0.74	1.00	
Satd. Flow (perm)	467	1859		779	1840		1307	1839		1363	1681	
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)	112	506	39	11	652	135	22	22	6	135	34	67
RTOR Reduction (vph)	0	4	0	0	11	0	0	5	0	0	54	0
Lane Group Flow (vph)	112	541	0	11	776	0	22	23	0	135	47	0
Confl. Peds. (#/hr)	5		5	5		5	5					5
Heavy Vehicles (%)	0%	1%	0%	0%	0%	1%	0%	0%	0%	3%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	31.3	31.3		31.3	31.3		9.7	9.7		9.7	9.7	
Effective Green, g (s)	31.3	31.3		31.3	31.3		9.7	9.7		9.7	9.7	
Actuated g/C Ratio	0.61	0.61		0.61	0.61		0.19	0.19		0.19	0.19	
Clearance Time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	282	1125		471	1113		245	345		255	315	
v/s Ratio Prot		0.29			c0.42			0.01			0.03	
v/s Ratio Perm	0.24			0.01			0.02			c0.10		
v/c Ratio	0.40	0.48		0.02	0.70		0.09	0.07		0.53	0.15	
Uniform Delay, d1	5.3	5.7		4.1	7.0		17.4	17.3		18.9	17.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.1	1.5		0.1	3.6		0.2	0.1		2.0	0.2	
Delay (s)	9.4	7.2		4.2	10.6		17.5	17.4		20.9	17.8	
Level of Service	A	A		A	B		B	B		C	B	
Approach Delay (s)		7.5			10.5			17.4			19.6	
Approach LOS		A			B			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			10.8				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			51.7				Sum of lost time (s)			10.7		
Intersection Capacity Utilization			86.2%				ICU Level of Service			E		
Analysis Period (min)			15									

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 8: Barrow Ave & Line 6

Future Background 2031 PM Peak Hour Period

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	0	550	20	45	695	5	10	0	25	10	0	10	
Future Volume (Veh/h)	0	550	20	45	695	5	10	0	25	10	0	10	
Sign Control	Free			Free			Stop			Stop			
Grade	0%			0%			0%			0%			
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	
Hourly flow rate (vph)	0	632	23	52	799	6	11	0	29	11	0	11	
Pedestrians							5			5			
Lane Width (m)							3.6			3.6			
Walking Speed (m/s)							1.2			1.2			
Percent Blockage							0			0			
Right turn flare (veh)													
Median type	TWLTL				TWLTL								
Median storage veh	2				2								
Upstream signal (m)	313				286								
pX, platoon unblocked	0.99			0.90			0.91	0.91	0.90	0.91	0.91	0.99	
vC, conflicting volume	810			660			1562	1562	648	1572	1571	807	
vC1, stage 1 conf vol							648	648		911	911		
vC2, stage 2 conf vol							914	914		661	660		
vCu, unblocked vol	801			570			1535	1535	557	1546	1544	797	
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2	
tC, 2 stage (s)							6.1	5.5		6.1	5.5		
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3	
p0 queue free %	100			94			96	100	94	96	100	97	
cM capacity (veh/h)	817			911			257	279	480	245	268	383	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1							
Volume Total	0	655	52	805	40	22							
Volume Left	0	0	52	0	11	11							
Volume Right	0	23	0	6	29	11							
cSH	1700	1700	911	1700	387	299							
Volume to Capacity	0.00	0.39	0.06	0.47	0.10	0.07							
Queue Length 95th (m)	0.0	0.0	1.5	0.0	2.7	1.9							
Control Delay (s)	0.0	0.0	9.2	0.0	15.4	18.0							
Lane LOS			A		C	C							
Approach Delay (s)	0.0		0.6		15.4	18.0							
Approach LOS					C	C							
Intersection Summary													
Average Delay			0.9										
Intersection Capacity Utilization			47.4%		ICU Level of Service			A					
Analysis Period (min)			15										

Queues

9: Simcoe Road & Line 6

Future Background 2031 PM Peak Hour Period



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	325	105	40	245	290	5	180	505
Future Volume (vph)	325	105	40	245	290	5	180	505
Lane Group Flow (vph)	349	312	48	263	339	0	199	543
Turn Type	Perm	NA	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4	8		2		6	
Permitted Phases	4			2		6		6
Detector Phase	4	4	8	2	2	6	6	6
Switch Phase								
Minimum Initial (s)	25.0	25.0	25.0	24.0	24.0	24.0	24.0	24.0
Minimum Split (s)	30.5	30.5	30.5	29.5	29.5	29.5	29.5	29.5
Total Split (s)	30.5	30.5	30.5	29.5	29.5	29.5	29.5	29.5
Total Split (%)	50.8%	50.8%	50.8%	49.2%	49.2%	49.2%	49.2%	49.2%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	C-Min	C-Min	C-Min	C-Min	C-Min
v/c Ratio	0.61	0.38	0.06	0.55	0.45		0.27	0.56
Control Delay	19.2	6.7	10.0	19.3	15.2		13.4	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	19.2	6.7	10.0	19.3	15.2		13.4	4.0
Queue Length 50th (m)	30.1	9.2	2.9	22.5	26.8		14.9	0.0
Queue Length 95th (m)	55.2	23.8	8.1	43.8	46.6		27.9	16.4
Internal Link Dist (m)		261.7	146.8		405.2		164.8	
Turn Bay Length (m)	50.0			110.0				
Base Capacity (vph)	574	821	779	476	756		738	965
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	0.61	0.38	0.06	0.55	0.45		0.27	0.56

Intersection Summary

Cycle Length: 60

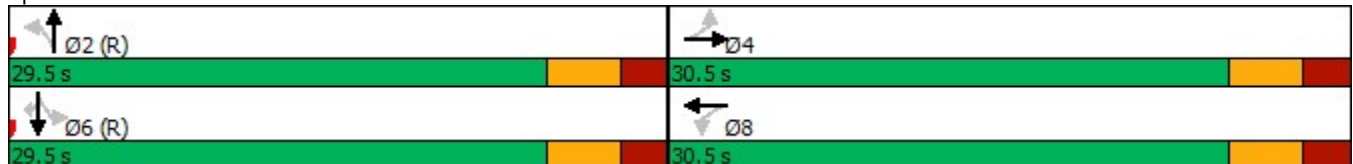
Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated





















Splits and Phases: 9: Simcoe Road & Line 6



# HCM Signalized Intersection Capacity Analysis

## 9: Simcoe Road & Line 6

Future Background 2031 PM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	325	105	185	0	40	5	245	290	25	5	180	505
Future Volume (vph)	325	105	185	0	40	5	245	290	25	5	180	505
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5		5.5	5.5			5.5	5.5
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.90			0.98		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1805	1718			1864		1787	1877			1861	1599
Flt Permitted	0.73	1.00			1.00		0.63	1.00			0.99	1.00
Satd. Flow (perm)	1379	1718			1864		1190	1877			1846	1599
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)	349	113	199	0	43	5	263	312	27	5	194	543
RTOR Reduction (vph)	0	106	0	0	3	0	0	5	0	0	0	326
Lane Group Flow (vph)	349	206	0	0	45	0	263	334	0	0	199	217
Heavy Vehicles (%)	0%	0%	0%	0%	0%	3%	1%	0%	0%	0%	2%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	25.0	25.0			25.0		24.0	24.0			24.0	24.0
Effective Green, g (s)	25.0	25.0			25.0		24.0	24.0			24.0	24.0
Actuated g/C Ratio	0.42	0.42			0.42		0.40	0.40			0.40	0.40
Clearance Time (s)	5.5	5.5			5.5		5.5	5.5			5.5	5.5
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	574	715			776		476	750			738	639
v/s Ratio Prot		0.12			0.02			0.18				
v/s Ratio Perm	c0.25						c0.22				0.11	0.14
v/c Ratio	0.61	0.29			0.06		0.55	0.44			0.27	0.34
Uniform Delay, d1	13.7	11.6			10.5		13.9	13.1			12.1	12.5
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	1.8	0.2			0.0		4.6	1.9			0.9	1.4
Delay (s)	15.5	11.8			10.5		18.4	15.0			13.0	13.9
Level of Service	B	B			B		B	B			B	B
Approach Delay (s)		13.8			10.5			16.5			13.7	
Approach LOS		B			B			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			14.5				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			60.0				Sum of lost time (s)			11.0		
Intersection Capacity Utilization			85.9%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Unsignalized Intersection Capacity Analysis

## 10: Simcoe Road & Gibson Circle

Future Background 2031 PM Peak Hour Period



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	5	25	505	245	25
Future Volume (Veh/h)	15	5	25	505	245	25
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	18	6	29	594	288	29
Pedestrians	10			5		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	1			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	964	318	327			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	964	318	327			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	99	98			
cM capacity (veh/h)	276	719	1234			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	24	623	317			
Volume Left	18	29	0			
Volume Right	6	0	29			
cSH	327	1234	1700			
Volume to Capacity	0.07	0.02	0.19			
Queue Length 95th (m)	1.9	0.6	0.0			
Control Delay (s)	16.9	0.6	0.0			
Lane LOS	C	A				
Approach Delay (s)	16.9	0.6	0.0			
Approach LOS	C					
<b>Intersection Summary</b>						
Average Delay			0.8			
Intersection Capacity Utilization			57.3%	ICU Level of Service	B	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 11: Simcoe Road & Golfview Blvd

Future Background 2031 PM Peak Hour Period



















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	5	10	490	225	25
Future Volume (Veh/h)	20	5	10	490	225	25
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)	22	5	11	533	245	27
Pedestrians	10			5		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	1			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	824	274	282			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	824	274	282			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	99	99			
cM capacity (veh/h)	340	760	1281			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	27	544	272			
Volume Left	22	11	0			
Volume Right	5	0	27			
cSH	379	1281	1700			
Volume to Capacity	0.07	0.01	0.16			
Queue Length 95th (m)	1.8	0.2	0.0			
Control Delay (s)	15.2	0.3	0.0			
Lane LOS	C	A				
Approach Delay (s)	15.2	0.3	0.0			
Approach LOS	C					
<b>Intersection Summary</b>						
Average Delay			0.7			
Intersection Capacity Utilization			45.3%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 12: Canal Rd










Future Background 2031 PM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	350	45	0	5	55	145	5	5	0	60	5	110
Future Volume (vph)	350	45	0	5	55	145	5	5	0	60	5	110
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	427	55	0	6	67	177	6	6	0	73	6	134
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	482	250	12	213								
Volume Left (vph)	427	6	6	73								
Volume Right (vph)	0	177	0	134								
Hadj (s)	0.22	-0.40	0.10	-0.31								
Departure Headway (s)	5.1	4.8	6.3	5.4								
Degree Utilization, x	0.68	0.33	0.02	0.32								
Capacity (veh/h)	685	702	478	598								
Control Delay (s)	18.4	10.2	9.4	11.0								
Approach Delay (s)	18.4	10.2	9.4	11.0								
Approach LOS	C	B	A	B								
Intersection Summary												
Delay			14.5									
Level of Service			B									
Intersection Capacity Utilization			55.4%	ICU Level of Service	B							
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 13: Line 5 & Canal Rd

Future Background 2031 PM Peak Hour Period










						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	160	5	15	235	60	110
Future Volume (Veh/h)	160	5	15	235	60	110
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	184	6	17	270	69	126
<b>Pedestrians</b>						
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	436	132	195			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	436	132	195			
tC, single (s)	6.5	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.3			
p0 queue free %	67	99	99			
cM capacity (veh/h)	561	923	1349			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	190	287	195			
Volume Left	184	17	0			
Volume Right	6	0	126			
cSH	568	1349	1700			
Volume to Capacity	0.33	0.01	0.11			
Queue Length 95th (m)	11.7	0.3	0.0			
Control Delay (s)	14.5	0.6	0.0			
Lane LOS	B	A				
Approach Delay (s)	14.5	0.6	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			4.3			
Intersection Capacity Utilization			40.5%	ICU Level of Service	A	
Analysis Period (min)			15			



# HCM Unsignalized Intersection Capacity Analysis











## 14: Line 5 & 10 Sideroad

Future Background 2031 PM Peak Hour Period

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	440	160	20	165	105	30
Future Volume (Veh/h)	440	160	20	165	105	30
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	489	178	22	183	117	33
<b>Pedestrians</b>						
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			667		714	334
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			667		714	334
tC, single (s)			4.1		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		67	95
cM capacity (veh/h)			932		351	654
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>	
Volume Total	326	341	83	122	150	
Volume Left	0	0	22	0	117	
Volume Right	0	178	0	0	33	
cSH	1700	1700	932	1700	391	
Volume to Capacity	0.19	0.20	0.02	0.07	0.38	
Queue Length 95th (m)	0.0	0.0	0.6	0.0	14.1	
Control Delay (s)	0.0	0.0	2.5	0.0	19.8	
Lane LOS	A			C		
Approach Delay (s)	0.0		1.0		19.8	
Approach LOS					C	
<b>Intersection Summary</b>						
Average Delay			3.1			
Intersection Capacity Utilization			34.5%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
 16: Line 10 & Line 5










Future Background 2031 PM Peak Hour Period

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	155	25	0	125	10	5
Future Volume (Veh/h)	155	25	0	125	10	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	172	28	0	139	11	6
<b>Pedestrians</b>						
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			200		325	186
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			200		325	186
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		98	99
cM capacity (veh/h)			1384		673	861
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	200	139	17			
Volume Left	0	0	11			
Volume Right	28	0	6			
cSH	1700	1384	729			
Volume to Capacity	0.12	0.00	0.02			
Queue Length 95th (m)	0.0	0.0	0.6			
Control Delay (s)	0.0	0.0	10.1			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	10.1			
Approach LOS			B			
<b>Intersection Summary</b>						
Average Delay			0.5			
Intersection Capacity Utilization			19.7%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 18: Simcoe Road & Danube Lane










Future Background 2031 PM Peak Hour Period

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	25	475	25	60	170
Future Volume (Veh/h)	5	25	475	25	60	170
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)	5	27	516	27	65	185
<b>Pedestrians</b>						
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	844	530			543	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	844	530			543	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	95			94	
cM capacity (veh/h)	315	553			1036	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	32	543	250			
Volume Left	5	0	65			
Volume Right	27	27	0			
cSH	495	1700	1036			
Volume to Capacity	0.06	0.32	0.06			
Queue Length 95th (m)	1.7	0.0	1.6			
Control Delay (s)	12.8	0.0	2.7			
Lane LOS	B		A			
Approach Delay (s)	12.8	0.0	2.7			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			1.3			
Intersection Capacity Utilization			52.1%		ICU Level of Service	A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 19: Simcoe Road & Jonkman Blvd













Future Background 2031 PM Peak Hour Period

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	60	500	25	95	265
Future Volume (Veh/h)	5	60	500	25	95	265
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)	5	65	543	27	103	288
<b>Pedestrians</b>						
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	1050	556			570	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1050	556			570	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	88			90	
cM capacity (veh/h)	228	534			1013	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	70	570	391			
Volume Left	5	0	103			
Volume Right	65	27	0			
cSH	487	1700	1013			
Volume to Capacity	0.14	0.34	0.10			
Queue Length 95th (m)	4.0	0.0	2.7			
Control Delay (s)	13.6	0.0	3.2			
Lane LOS	B		A			
Approach Delay (s)	13.6	0.0	3.2			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			2.1			
Intersection Capacity Utilization			61.0%		ICU Level of Service	B
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 1: 10 Sideroad & Line 6

Future Background 2036 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	10	35	0	160	135	190	0	80	370	145	40	0
Future Volume (veh/h)	10	35	0	160	135	190	0	80	370	145	40	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	39	0	178	150	211	0	89	411	161	44	0
Approach Volume (veh/h)	50			539			500			205		
Crossing Volume (veh/h)	383			100			211			328		
High Capacity (veh/h)	1025			1281			1174			1070		
High v/c (veh/h)	0.05			0.42			0.43			0.19		
Low Capacity (veh/h)	836			1067			970			877		
Low v/c (veh/h)	0.06			0.51			0.52			0.23		
<b>Intersection Summary</b>												
Maximum v/c High	0.43											
Maximum v/c Low	0.52											
Intersection Capacity Utilization	50.1%			ICU Level of Service				A				

# HCM Unsignalized Intersection Capacity Analysis

## 2: Line 6 & Langford Boulevard

Future Background 2036 PM Peak Hour

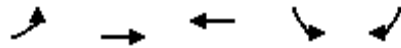


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	65	485	465	80	45	20
Future Volume (Veh/h)	65	485	465	80	45	20
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	71	533	511	88	49	22
<b>Pedestrians</b>						
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	599				1230	555
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	599				1230	555
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				73	96
cM capacity (veh/h)	978				181	535
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>SB 1</b>		
Volume Total	71	533	599	71		
Volume Left	71	0	0	49		
Volume Right	0	0	88	22		
cSH	978	1700	1700	228		
Volume to Capacity	0.07	0.31	0.35	0.31		
Queue Length 95th (m)	1.9	0.0	0.0	10.2		
Control Delay (s)	9.0	0.0	0.0	27.8		
Lane LOS	A			D		
Approach Delay (s)	1.1		0.0	27.8		
Approach LOS				D		
<b>Intersection Summary</b>						
Average Delay			2.0			
Intersection Capacity Utilization			46.6%		ICU Level of Service	A
Analysis Period (min)			15			

# Queues

## 3: Line 6 & West Park Ave

Future Background 2036 PM Peak Hour



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations	↖	↗	↔	↘	↙
Traffic Volume (vph)	50	480	515	150	30
Future Volume (vph)	50	480	515	150	30
Lane Group Flow (vph)	56	539	714	169	34
Turn Type	Perm	NA	NA	Prot	Prot
Protected Phases		4	8	6	6
Permitted Phases	4				
Detector Phase	4	4	8	6	6
Switch Phase					
Minimum Initial (s)	25.0	25.0	25.0	10.0	10.0
Minimum Split (s)	30.7	30.7	30.7	20.0	20.0
Total Split (s)	30.7	30.7	30.7	20.9	20.9
Total Split (%)	59.5%	59.5%	59.5%	40.5%	40.5%
Yellow Time (s)	3.3	3.3	3.3	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	5.7	5.7	4.9	4.9
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Min	C-Min	C-Min	Max	Max
v/c Ratio	0.29	0.59	0.79	0.31	0.06
Control Delay	13.1	12.8	19.4	15.5	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.1	12.8	19.4	15.5	5.9
Queue Length 50th (m)	3.0	34.6	50.5	12.3	0.0
Queue Length 95th (m)	10.2	58.5	#106.9	24.8	4.6
Internal Link Dist (m)		582.6	325.3	441.0	
Turn Bay Length (m)	110.0				
Base Capacity (vph)	191	920	901	548	524
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	0.29	0.59	0.79	0.31	0.06

### Intersection Summary

Cycle Length: 51.6

Actuated Cycle Length: 51.6

Offset: 20.9 (41%), Referenced to phase 4:EBTL and 8:WBT, Start of Green

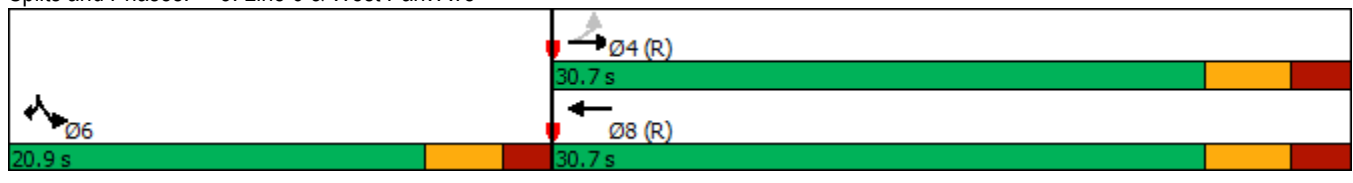
Natural Cycle: 60

Control Type: Actuated-Coordinated

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Line 6 & West Park Ave



# HCM Signalized Intersection Capacity Analysis

## 3: Line 6 & West Park Ave

Future Background 2036 PM Peak Hour






















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	50	480	515	120	150	30
Future Volume (vph)	50	480	515	120	150	30
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7		4.9	4.9
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1802	1900	1828		1770	1615
Flt Permitted	0.21	1.00	1.00		0.95	1.00
Satd. Flow (perm)	395	1900	1828		1770	1615
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	56	539	579	135	169	34
RTOR Reduction (vph)	0	0	16	0	0	23
Lane Group Flow (vph)	56	539	698	0	169	11
Confl. Peds. (#/hr)	5			5		
Heavy Vehicles (%)	0%	0%	1%	0%	2%	0%
Turn Type	Perm	NA	NA		Prot	Prot
Protected Phases		4	8		6	6
Permitted Phases	4					
Actuated Green, G (s)	25.0	25.0	25.0		16.0	16.0
Effective Green, g (s)	25.0	25.0	25.0		16.0	16.0
Actuated g/C Ratio	0.48	0.48	0.48		0.31	0.31
Clearance Time (s)	5.7	5.7	5.7		4.9	4.9
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	191	920	885		548	500
v/s Ratio Prot		0.28	c0.38		c0.10	0.01
v/s Ratio Perm	0.14					
v/c Ratio	0.29	0.59	0.79		0.31	0.02
Uniform Delay, d1	8.0	9.6	11.1		13.6	12.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.9	2.7	7.0		1.5	0.1
Delay (s)	11.9	12.3	18.1		15.0	12.4
Level of Service	B	B	B		B	B
Approach Delay (s)		12.3	18.1		14.6	
Approach LOS		B	B		B	
<b>Intersection Summary</b>						
HCM 2000 Control Delay			15.3		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.60			
Actuated Cycle Length (s)			51.6		Sum of lost time (s)	10.6
Intersection Capacity Utilization			58.7%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						



# HCM Unsignalized Intersection Capacity Analysis

## 4: Brownlee Drive/Southfield Gate & Line 6












Future Background 2036 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	605	10	10	625	15	5	5	5	5	0	5
Future Volume (Veh/h)	15	605	10	10	625	15	5	5	5	5	0	5
Sign Control	Free				Free		Stop				Stop	
Grade	0%				0%		0%				0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	672	11	11	694	17	6	6	6	6	0	6
Pedestrians	10				10						10	
Lane Width (m)	3.6				3.6						3.6	
Walking Speed (m/s)	1.2				1.2						1.2	
Percent Blockage	1				1						1	
Right turn flare (veh)												
Median type	TWLTL				TWLTL							
Median storage (veh)	2				2							
Upstream signal (m)	349											
pX, platoon unblocked			0.83				0.83		0.83		0.83	
vC, conflicting volume	721		683				1444		1454		688	
vC1, stage 1 conf vol							712		712		734	
vC2, stage 2 conf vol							732		743		725	
vCu, unblocked vol	721		514				1432		1445		519	
tC, single (s)	4.1		4.2				7.1		6.5		6.5	
tC, 2 stage (s)							6.1		5.5		6.1	
tF (s)	2.2		2.3				3.5		4.0		3.5	
p0 queue free %	98		99				98		98		99	
cM capacity (veh/h)	883		838				291		301		422	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	17	683	11	711	18	12						
Volume Left	17	0	11	0	6	6						
Volume Right	0	11	0	17	6	6						
cSH	883	1700	838	1700	329	315						
Volume to Capacity	0.02	0.40	0.01	0.42	0.05	0.04						
Queue Length 95th (m)	0.5	0.0	0.3	0.0	1.4	0.9						
Control Delay (s)	9.2	0.0	9.4	0.0	16.6	16.9						
Lane LOS	A		A		C	C						
Approach Delay (s)	0.2		0.1		16.6	16.9						
Approach LOS					C	C						
<b>Intersection Summary</b>												
Average Delay			0.5									
Intersection Capacity Utilization			46.7%		ICU Level of Service				A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 5: Street A & Line 6

Future Background 2036 PM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	615	0	0	650	0	0
Future Volume (Veh/h)	615	0	0	650	0	0
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)	668	0	0	707	0	0
<b>Pedestrians</b>						
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)			346			
pX, platoon unblocked					0.82	
vC, conflicting volume			668	1375		668
vC1, stage 1 conf vol			668			
vC2, stage 2 conf vol			707			
vCu, unblocked vol			668	1347		668
tC, single (s)			4.1	6.4		6.2
tC, 2 stage (s)			5.4			
tF (s)			2.2	3.5		3.3
p0 queue free %			100	100		100
cM capacity (veh/h)			931	370		462
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	
Volume Total	668	0	707	0	0	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	0	
cSH	1700	1700	1700	1700	1700	
Volume to Capacity	0.39	0.00	0.42	0.34	0.48	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	
Lane LOS				A	A	
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS				A		
<b>Intersection Summary</b>						
Average Delay			0.0			
Intersection Capacity Utilization			37.5%	ICU Level of Service		A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 6: Line 6 & Adams Street

Future Background 2036 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	585	640	70	35	10
Future Volume (Veh/h)	30	585	640	70	35	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	33	650	711	78	39	11
Pedestrians					5	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh		2	2			
Upstream signal (m)			258			
pX, platoon unblocked	0.74				0.74	0.74
vC, conflicting volume	794				1471	755
vC1, stage 1 conf vol					755	
vC2, stage 2 conf vol					716	
vCu, unblocked vol	551				1461	499
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	96				88	97
cM capacity (veh/h)	751				333	427
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>SB 1</b>		
Volume Total	33	650	789	50		
Volume Left	33	0	0	39		
Volume Right	0	0	78	11		
cSH	751	1700	1700	350		
Volume to Capacity	0.04	0.38	0.46	0.14		
Queue Length 95th (m)	1.1	0.0	0.0	4.0		
Control Delay (s)	10.0	0.0	0.0	17.0		
Lane LOS	B			C		
Approach Delay (s)	0.5		0.0	17.0		
Approach LOS				C		
<b>Intersection Summary</b>						
Average Delay			0.8			
Intersection Capacity Utilization			48.0%		ICU Level of Service	A
Analysis Period (min)			15			

# Queues

## 7: Inverness Way/Melbourne Dr & Line 6

Future Background 2036 PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗
Traffic Volume (vph)	105	480	10	625	20	20	125	30
Future Volume (vph)	105	480	10	625	20	20	125	30
Lane Group Flow (vph)	118	578	11	848	22	28	140	107
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		6		2		8		4
Permitted Phases	6		2		8		4	
Detector Phase	6	6	2	2	8	8	4	4
Switch Phase								
Minimum Initial (s)	25.0	25.0	25.0	25.0	10.0	10.0	10.0	10.0
Minimum Split (s)	30.5	30.5	30.5	30.5	26.2	26.2	26.2	26.2
Total Split (s)	53.8	53.8	53.8	53.8	26.2	26.2	26.2	26.2
Total Split (%)	67.3%	67.3%	67.3%	67.3%	32.8%	32.8%	32.8%	32.8%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.0	3.0	3.0	3.0
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.2	5.2	5.2	5.2
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Min	Min	C-Min	C-Min	None	None	None	None
v/c Ratio	0.37	0.45	0.02	0.67	0.10	0.08	0.58	0.30
Control Delay	10.9	7.7	5.6	11.3	25.9	21.5	38.7	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.9	7.7	5.6	11.3	25.9	21.5	38.7	12.9
Queue Length 50th (m)	6.5	33.3	0.5	61.4	3.0	3.0	21.0	4.7
Queue Length 95th (m)	22.5	70.9	2.6	133.2	8.2	8.7	34.5	15.8
Internal Link Dist (m)		233.8		288.7		331.6		165.8
Turn Bay Length (m)	50.0		50.0					
Base Capacity (vph)	315	1281	514	1271	340	487	357	492
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	0.37	0.45	0.02	0.67	0.06	0.06	0.39	0.22

### Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated





















Splits and Phases: 7: Inverness Way/Melbourne Dr & Line 6



# HCM Signalized Intersection Capacity Analysis

## 7: Inverness Way/Melbourne Dr & Line 6

Future Background 2036 PM Peak Hour




















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	480	35	10	625	130	20	20	5	125	30	65
Future Volume (vph)	105	480	35	10	625	130	20	20	5	125	30	65
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	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		0.99	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.97		1.00	0.97		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1802	1860		1799	1839		1790	1839		1752	1671	
Flt Permitted	0.24	1.00		0.40	1.00		0.69	1.00		0.74	1.00	
Satd. Flow (perm)	458	1860		749	1839		1296	1839		1363	1671	
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)	118	539	39	11	702	146	22	22	6	140	34	73
RTOR Reduction (vph)	0	3	0	0	8	0	0	5	0	0	60	0
Lane Group Flow (vph)	118	576	0	11	841	0	22	23	0	140	47	0
Confl. Peds. (#/hr)	5		5	5		5	5					5
Heavy Vehicles (%)	0%	1%	0%	0%	0%	1%	0%	0%	0%	3%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	55.0	55.0		55.0	55.0		14.3	14.3		14.3	14.3	
Effective Green, g (s)	55.0	55.0		55.0	55.0		14.3	14.3		14.3	14.3	
Actuated g/C Ratio	0.69	0.69		0.69	0.69		0.18	0.18		0.18	0.18	
Clearance Time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	314	1278		514	1264		231	328		243	298	
v/s Ratio Prot		0.31			c0.46			0.01			0.03	
v/s Ratio Perm	0.26			0.01			0.02			c0.10		
v/c Ratio	0.38	0.45		0.02	0.66		0.10	0.07		0.58	0.16	
Uniform Delay, d1	5.3	5.7		4.0	7.2		27.4	27.3		30.1	27.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.3		0.1	2.8		0.2	0.1		3.3	0.2	
Delay (s)	6.0	5.9		4.0	10.0		27.6	27.4		33.4	28.0	
Level of Service	A	A		A	A		C	C		C	C	
Approach Delay (s)		5.9			9.9			27.5			31.0	
Approach LOS		A			A			C			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			11.7			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)				10.7		
Intersection Capacity Utilization			89.4%			ICU Level of Service				E		
Analysis Period (min)			15									

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 8: Barrow Ave & Line 6

Future Background 2036 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	585	20	45	745	5	10	0	25	10	0	10
Future Volume (Veh/h)	0	585	20	45	745	5	10	0	25	10	0	10
Sign Control	Free		Free				Stop				Stop	
Grade	0%		0%				0%				0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	672	23	52	856	6	11	0	29	11	0	11
Pedestrians							5				5	
Lane Width (m)							3.6				3.6	
Walking Speed (m/s)							1.2				1.2	
Percent Blockage							0				0	
Right turn flare (veh)												
Median type	TWLTL				TWLTL							
Median storage (veh)	2				2							
Upstream signal (m)	313				286							
pX, platoon unblocked	0.97		0.88		0.89		0.89		0.88		0.89	
vC, conflicting volume	867		700		1660		1660		688		1669	
vC1, stage 1 conf vol					688		688		968		968	
vC2, stage 2 conf vol					971		971		701		700	
vCu, unblocked vol	848		591		1606		1606		578		1616	
tC, single (s)	4.1		4.1		7.1		6.5		6.2		7.1	
tC, 2 stage (s)					6.1		5.5		6.1		5.5	
tF (s)	2.2		2.2		3.5		4.0		3.3		3.5	
p0 queue free %	100		94		95		100		94		95	
cM capacity (veh/h)	772		872		237		260		455		226	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	0	695	52	862	40	22						
Volume Left	0	0	52	0	11	11						
Volume Right	0	23	0	6	29	11						
cSH	1700	1700	872	1700	363	276						
Volume to Capacity	0.00	0.41	0.06	0.51	0.11	0.08						
Queue Length 95th (m)	0.0	0.0	1.5	0.0	2.9	2.1						
Control Delay (s)	0.0	0.0	9.4	0.0	16.1	19.2						
Lane LOS			A		C		C					
Approach Delay (s)	0.0		0.5		16.1		19.2					
Approach LOS					C		C					
<b>Intersection Summary</b>												
Average Delay			0.9									
Intersection Capacity Utilization			49.5%		ICU Level of Service		A					
Analysis Period (min)			15									

Queues

9: Simcoe Road & Line 6

Future Background 2036 PM Peak Hour



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	350	110	40	260	305	5	185	540
Future Volume (vph)	350	110	40	260	305	5	185	540
Lane Group Flow (vph)	376	322	48	280	355	0	204	581
Turn Type	Perm	NA	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4	8		2		6	
Permitted Phases	4			2		6		6
Detector Phase	4	4	8	2	2	6	6	6
Switch Phase								
Minimum Initial (s)	25.0	25.0	25.0	24.0	24.0	24.0	24.0	24.0
Minimum Split (s)	30.5	30.5	30.5	29.5	29.5	29.5	29.5	29.5
Total Split (s)	30.5	30.5	30.5	29.5	29.5	29.5	29.5	29.5
Total Split (%)	50.8%	50.8%	50.8%	49.2%	49.2%	49.2%	49.2%	49.2%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	C-Min	C-Min	C-Min	C-Min	C-Min
v/c Ratio	0.66	0.39	0.06	0.59	0.47		0.28	0.59
Control Delay	20.7	7.1	10.0	20.4	15.5		13.4	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	20.7	7.1	10.0	20.4	15.5		13.4	4.1
Queue Length 50th (m)	33.4	10.2	2.9	24.5	28.4		15.3	0.0
Queue Length 95th (m)	61.0	25.5	8.1	47.4	49.1		28.5	16.8
Internal Link Dist (m)		261.6	146.8		400.7		164.9	
Turn Bay Length (m)	50.0			110.0				
Base Capacity (vph)	574	820	779	474	756		738	988
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	0.66	0.39	0.06	0.59	0.47		0.28	0.59

Intersection Summary

Cycle Length: 60

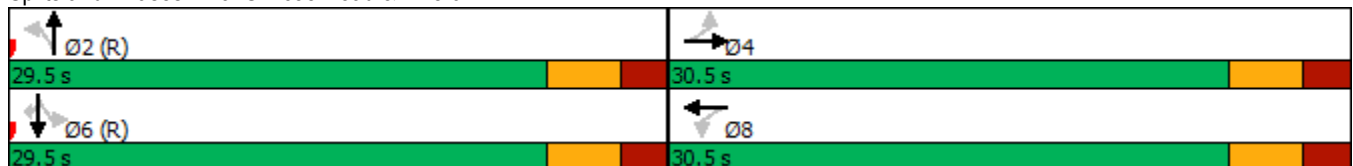
Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated





















Splits and Phases: 9: Simcoe Road & Line 6



# HCM Signalized Intersection Capacity Analysis

## 9: Simcoe Road & Line 6

Future Background 2036 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	350	110	190	0	40	5	260	305	25	5	185	540
Future Volume (vph)	350	110	190	0	40	5	260	305	25	5	185	540
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5		5.5	5.5			5.5	5.5
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.90			0.98		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1805	1719			1864		1787	1878			1861	1599
Flt Permitted	0.73	1.00			1.00		0.63	1.00			0.99	1.00
Satd. Flow (perm)	1379	1719			1864		1185	1878			1846	1599
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)	376	118	204	0	43	5	280	328	27	5	199	581
RTOR Reduction (vph)	0	104	0	0	3	0	0	5	0	0	0	349
Lane Group Flow (vph)	376	218	0	0	45	0	280	350	0	0	204	232
Heavy Vehicles (%)	0%	0%	0%	0%	0%	3%	1%	0%	0%	0%	2%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	25.0	25.0			25.0		24.0	24.0			24.0	24.0
Effective Green, g (s)	25.0	25.0			25.0		24.0	24.0			24.0	24.0
Actuated g/C Ratio	0.42	0.42			0.42		0.40	0.40			0.40	0.40
Clearance Time (s)	5.5	5.5			5.5		5.5	5.5			5.5	5.5
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	574	716			776		474	751			738	639
v/s Ratio Prot		0.13			0.02			0.19				
v/s Ratio Perm	c0.27						c0.24				0.11	0.15
v/c Ratio	0.66	0.30			0.06		0.59	0.47			0.28	0.36
Uniform Delay, d1	14.0	11.7			10.5		14.1	13.3			12.1	12.6
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	2.7	0.2			0.0		5.3	2.1			0.9	1.6
Delay (s)	16.7	11.9			10.5		19.5	15.4			13.1	14.2
Level of Service	B	B			B		B	B			B	B
Approach Delay (s)		14.5			10.5			17.2			13.9	
Approach LOS		B			B			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			15.0				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			60.0				Sum of lost time (s)			11.0		
Intersection Capacity Utilization			88.0%				ICU Level of Service				E	
Analysis Period (min)			15									
c Critical Lane Group												



# HCM Unsignalized Intersection Capacity Analysis

## 10: Simcoe Road & Gibson Circle

Future Background 2036 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	5	25	535	255	25
Future Volume (Veh/h)	15	5	25	535	255	25
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	18	6	29	629	300	29
Pedestrians	10			5		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	1			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1012	330	339			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1012	330	339			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	99	98			
cM capacity (veh/h)	259	708	1221			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	24	658	329			
Volume Left	18	29	0			
Volume Right	6	0	29			
cSH	308	1221	1700			
Volume to Capacity	0.08	0.02	0.19			
Queue Length 95th (m)	2.0	0.6	0.0			
Control Delay (s)	17.7	0.6	0.0			
Lane LOS	C	A				
Approach Delay (s)	17.7	0.6	0.0			
Approach LOS	C					
<b>Intersection Summary</b>						
Average Delay				0.8		
Intersection Capacity Utilization				59.4%	ICU Level of Service	B
Analysis Period (min)				15		

# HCM Unsignalized Intersection Capacity Analysis

## 11: Simcoe Road & Golfview Blvd

Future Background 2036 PM Peak Hour



















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	5	10	520	235	25
Future Volume (Veh/h)	20	5	10	520	235	25
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)	22	5	11	565	255	27
Pedestrians	10			5		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	1			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	866	284	292			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	866	284	292			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	99	99			
cM capacity (veh/h)	321	751	1271			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	27	576	282			
Volume Left	22	11	0			
Volume Right	5	0	27			
cSH	359	1271	1700			
Volume to Capacity	0.08	0.01	0.17			
Queue Length 95th (m)	1.9	0.2	0.0			
Control Delay (s)	15.8	0.3	0.0			
Lane LOS	C	A				
Approach Delay (s)	15.8	0.3	0.0			
Approach LOS	C					
<b>Intersection Summary</b>						
Average Delay			0.6			
Intersection Capacity Utilization			46.9%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 12: Canal Rd










Future Background 2036 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	370	45	0	5	55	155	5	5	0	65	5	115
Future Volume (vph)	370	45	0	5	55	155	5	5	0	65	5	115
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	451	55	0	6	67	189	6	6	0	79	6	140
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	506	262	12	225								
Volume Left (vph)	451	6	6	79								
Volume Right (vph)	0	189	0	140								
Hadj (s)	0.22	-0.41	0.10	-0.30								
Departure Headway (s)	5.2	4.9	6.5	5.5								
Degree Utilization, x	0.73	0.36	0.02	0.35								
Capacity (veh/h)	677	689	465	586								
Control Delay (s)	20.8	10.6	9.6	11.5								
Approach Delay (s)	20.8	10.6	9.6	11.5								
Approach LOS	C	B	A	B								
Intersection Summary												
Delay			15.9									
Level of Service			C									
Intersection Capacity Utilization			57.9%	ICU Level of Service	B							
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis











## 13: Line 5 & Canal Rd

Future Background 2036 PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	160	5	15	255	65	110
Future Volume (Veh/h)	160	5	15	255	65	110
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	184	6	17	293	75	126
<b>Pedestrians</b>						
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	465	138	201			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	465	138	201			
tC, single (s)	6.5	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.3			
p0 queue free %	66	99	99			
cM capacity (veh/h)	540	916	1342			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	190	310	201			
Volume Left	184	17	0			
Volume Right	6	0	126			
cSH	547	1342	1700			
Volume to Capacity	0.35	0.01	0.12			
Queue Length 95th (m)	12.4	0.3	0.0			
Control Delay (s)	15.1	0.5	0.0			
Lane LOS	C	A				
Approach Delay (s)	15.1	0.5	0.0			
Approach LOS	C					
<b>Intersection Summary</b>						
Average Delay			4.3			
Intersection Capacity Utilization			41.5%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
 14: Line 5 & 10 Sideroad











Future Background 2036 PM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	420	160	20	185	105	30
Future Volume (Veh/h)	420	160	20	185	105	30
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	467	178	22	206	117	33
<b>Pedestrians</b>						
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			645		703	322
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			645		703	322
tC, single (s)			4.1		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		67	95
cM capacity (veh/h)			950		357	664
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	311	334	91	137	150	
Volume Left	0	0	22	0	117	
Volume Right	0	178	0	0	33	
cSH	1700	1700	950	1700	397	
Volume to Capacity	0.18	0.20	0.02	0.08	0.38	
Queue Length 95th (m)	0.0	0.0	0.6	0.0	13.8	
Control Delay (s)	0.0	0.0	2.3	0.0	19.4	
Lane LOS	A			C		
Approach Delay (s)	0.0		0.9		19.4	
Approach LOS	C					
<b>Intersection Summary</b>						
Average Delay			3.1			
Intersection Capacity Utilization			35.0%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 16: Line 10 & Line 5

Future Background 2036 PM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	155	25	0	125	10	5
Future Volume (Veh/h)	155	25	0	125	10	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	172	28	0	139	11	6
<b>Pedestrians</b>						
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			200		325	186
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			200		325	186
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		98	99
cM capacity (veh/h)			1384		673	861
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	200	139	17			
Volume Left	0	0	11			
Volume Right	28	0	6			
cSH	1700	1384	729			
Volume to Capacity	0.12	0.00	0.02			
Queue Length 95th (m)	0.0	0.0	0.6			
Control Delay (s)	0.0	0.0	10.1			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	10.1			
Approach LOS			B			
<b>Intersection Summary</b>						
Average Delay			0.5			
Intersection Capacity Utilization			19.7%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 17: Line 5 & Street A

Future Background 2036 PM Peak Hour












Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	160	125	0	0	0
Future Volume (Veh/h)	0	160	125	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	178	139	0	0	0
<b>Pedestrians</b>						
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	139				317	139
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	139				317	139
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1457				680	915
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>SB 1</b>			
Volume Total	178	139	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1457	1700	1700			
Volume to Capacity	0.00	0.08	0.18			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			0.0			
Intersection Capacity Utilization			11.8%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 18: Simcoe Road & Danube Lane










Future Background 2036 PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	25	505	25	60	180
Future Volume (Veh/h)	5	25	505	25	60	180
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)	5	27	549	27	65	196
<b>Pedestrians</b>						
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	888	562			576	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	888	562			576	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	95			94	
cM capacity (veh/h)	296	530			1007	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	32	576	261			
Volume Left	5	0	65			
Volume Right	27	27	0			
cSH	472	1700	1007			
Volume to Capacity	0.07	0.34	0.06			
Queue Length 95th (m)	1.7	0.0	1.7			
Control Delay (s)	13.2	0.0	2.7			
Lane LOS	B		A			
Approach Delay (s)	13.2	0.0	2.7			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			1.3			
Intersection Capacity Utilization			54.2%	ICU Level of Service	A	
Analysis Period (min)			15			



HCM Unsignalized Intersection Capacity Analysis  
 19: Simcoe Road & Jonkman Blvd










Future Background 2036 PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	60	495	25	95	265
Future Volume (Veh/h)	5	60	495	25	95	265
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)	5	65	538	27	103	288
<b>Pedestrians</b>						
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	1046	552			565	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1046	552			565	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	88			90	
cM capacity (veh/h)	230	538			1017	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	70	565	391			
Volume Left	5	0	103			
Volume Right	65	27	0			
cSH	491	1700	1017			
Volume to Capacity	0.14	0.33	0.10			
Queue Length 95th (m)	4.0	0.0	2.7			
Control Delay (s)	13.6	0.0	3.2			
Lane LOS	B		A			
Approach Delay (s)	13.6	0.0	3.2			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			2.1			
Intersection Capacity Utilization			60.8%	ICU Level of Service	B	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 20: Street A & Street B

















Future Background 2036 PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
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)	0	0	0	0	0	0
<b>Pedestrians</b>						
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	0	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			0	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	1023	1085			1623	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	0	0	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1700			
Volume to Capacity	0.20	0.18	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			0.0			
Intersection Capacity Utilization			0.0%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 21: Street L & Street B

















Future Background 2036 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0	0	0	0	0	0	0
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	0			0			0	0	0	0	0	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			0			0	0	0	0	0	0
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1623			1623			1023	896	1085	1023	896	1085
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	0	0	0								
Volume Left	0	0	0	0								
Volume Right	0	0	0	0								
cSH	1700	1700	1700	1700								
Volume to Capacity	0.00	0.00	0.03	0.03								
Queue Length 95th (m)	0.0	0.0	0.0	0.0								
Control Delay (s)	0.0	0.0	0.0	0.0								
Lane LOS			A	A								
Approach Delay (s)	0.0	0.0	0.0	0.0								
Approach LOS			A	A								
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			0.0%		ICU Level of Service				A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 22: Street A & Street S/Street C

















Future Background 2036 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
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)	0	0	0	0	0	0	0	0	0	0	0	0
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	0	0	0	0	0	0	0			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	0	0	0	0	0	0			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	1023	896	1085	1023	896	1085	1623			1623		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	0	0	0								
Volume Left	0	0	0	0								
Volume Right	0	0	0	0								
cSH	1700	1700	1700	1700								
Volume to Capacity	0.03	0.10	0.00	0.00								
Queue Length 95th (m)	0.0	0.0	0.0	0.0								
Control Delay (s)	0.0	0.0	0.0	0.0								
Lane LOS	A	A										
Approach Delay (s)	0.0	0.0	0.0	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			0.0%		ICU Level of Service					A		
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 23: Street L & Street C










Future Background 2036 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0	0	0	0	0	0	0
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	0			0			0	0	0	0	0	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			0			0	0	0	0	0	0
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1623			1623			1023	896	1085	1023	896	1085
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	0	0	0								
Volume Left	0	0	0	0								
Volume Right	0	0	0	0								
cSH	1700	1700	1700	1700								
Volume to Capacity	0.00	0.00	0.03	0.01								
Queue Length 95th (m)	0.0	0.0	0.0	0.0								
Control Delay (s)	0.0	0.0	0.0	0.0								
Lane LOS			A	A								
Approach Delay (s)	0.0	0.0	0.0	0.0								
Approach LOS			A	A								
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			0.0%		ICU Level of Service				A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 24: Street A










Future Background 2036 PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
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)	0	0	0	0	0	0
<b>Pedestrians</b>						
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	0	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			0	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	1023	1085			1623	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	0	0	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1700			
Volume to Capacity	0.03	0.05	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			0.0			
Intersection Capacity Utilization			13.3%	ICU Level of Service		A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 25: Street A & Street Q













Future Background 2036 PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
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)	0	0	0	0	0	0
<b>Pedestrians</b>						
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	0	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0	0			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	1023	1085	1623			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	0	0	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1700			
Volume to Capacity	0.06	0.00	0.11			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay	0.0					
Intersection Capacity Utilization	13.3%			ICU Level of Service	A	
Analysis Period (min)	15					

# HCM Unsignalized Intersection Capacity Analysis

## 1: 10 Sideroad & Line 6

Future Total 2026 AM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	10	15	0	220	35	125	0	35	110	110	55	0
Future Volume (veh/h)	10	15	0	220	35	125	0	35	110	110	55	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	17	0	244	39	139	0	39	122	122	61	0
Approach Volume (veh/h)	28			422			161			183		
Crossing Volume (veh/h)	427			50			150			283		
High Capacity (veh/h)	989			1332			1232			1109		
High v/c (veh/h)	0.03			0.32			0.13			0.16		
Low Capacity (veh/h)	804			1113			1022			911		
Low v/c (veh/h)	0.03			0.38			0.16			0.20		
<b>Intersection Summary</b>												
Maximum v/c High	0.32											
Maximum v/c Low	0.38											
Intersection Capacity Utilization	39.5%			ICU Level of Service				A				



# HCM Unsignalized Intersection Capacity Analysis

## 2: Line 6 & Langford Boulevard

Future Total 2026 AM Peak Hour Period

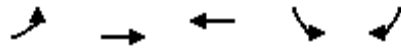


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	230	330	35	40	50
Future Volume (Veh/h)	5	230	330	35	40	50
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	5	253	363	38	44	55
Pedestrians						
Lane 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	401				645	382
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	401				645	382
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	100				90	92
cM capacity (veh/h)	1096				433	665
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	5	253	401	99		
Volume Left	5	0	0	44		
Volume Right	0	0	38	55		
cSH	1096	1700	1700	537		
Volume to Capacity	0.00	0.15	0.24	0.18		
Queue Length 95th (m)	0.1	0.0	0.0	5.4		
Control Delay (s)	8.3	0.0	0.0	13.2		
Lane LOS	A			B		
Approach Delay (s)	0.2		0.0	13.2		
Approach LOS				B		
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization			31.4%		ICU Level of Service	A
Analysis Period (min)			15			

# Queues

## 3: Line 6 & West Park Ave

Future Total 2026 AM Peak Hour Period



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	11	295	500	148	40
v/c Ratio	0.03	0.35	0.57	0.27	0.08
Control Delay	7.4	9.8	11.7	15.1	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	7.4	9.8	11.7	15.1	5.7
Queue Length 50th (m)	0.5	16.3	28.3	10.6	0.0
Queue Length 95th (m)	2.5	29.2	50.0	21.6	5.0
Internal Link Dist (m)		582.6	325.3	441.0	
Turn Bay Length (m)	110.0				
Base Capacity (vph)	326	844	878	543	528
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	0.03	0.35	0.57	0.27	0.08

### Intersection Summary

# HCM Signalized Intersection Capacity Analysis

## 3: Line 6 & West Park Ave

Future Total 2026 AM Peak Hour Period






















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	260	330	110	130	35
Future Volume (vph)	10	260	330	110	130	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7		4.9	4.9
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1626	1743	1765		1752	1615
Flt Permitted	0.39	1.00	1.00		0.95	1.00
Satd. Flow (perm)	673	1743	1765		1752	1615
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	11	295	375	125	148	40
RTOR Reduction (vph)	0	0	23	0	0	28
Lane Group Flow (vph)	11	295	477	0	148	12
Heavy Vehicles (%)	11%	9%	3%	7%	3%	0%
Turn Type	Perm	NA	NA		Prot	Prot
Protected Phases		4	8		6	6
Permitted Phases	4					
Actuated Green, G (s)	25.0	25.0	25.0		16.0	16.0
Effective Green, g (s)	25.0	25.0	25.0		16.0	16.0
Actuated g/C Ratio	0.48	0.48	0.48		0.31	0.31
Clearance Time (s)	5.7	5.7	5.7		4.9	4.9
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	326	844	855		543	500
v/s Ratio Prot		0.17	c0.27		c0.08	0.01
v/s Ratio Perm	0.02					
v/c Ratio	0.03	0.35	0.56		0.27	0.02
Uniform Delay, d1	7.0	8.3	9.4		13.4	12.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.2	1.1	2.6		1.2	0.1
Delay (s)	7.2	9.4	12.0		14.7	12.5
Level of Service	A	A	B		B	B
Approach Delay (s)		9.3	12.0		14.2	
Approach LOS		A	B		B	

Intersection Summary			
HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	51.6	Sum of lost time (s)	10.6
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Unsignalized Intersection Capacity Analysis

## 4: Brownlee Drive/Southfield Gate & Line 6












Future Total 2026 AM Peak Hour Period

																				
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR								
Lane Configurations																				
Traffic Volume (veh/h)	5	380	5	5	425	5	5	5	10	15	0	10								
Future Volume (Veh/h)	5	380	5	5	425	5	5	5	10	15	0	10								
Sign Control	Free		Free				Stop				Stop									
Grade	0%		0%				0%				0%									
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92								
Hourly flow rate (vph)	5	413	5	5	462	5	5	5	11	16	0	11								
Pedestrians												5								
Lane Width (m)												3.6								
Walking Speed (m/s)												1.2								
Percent Blockage												0								
Right turn flare (veh)																				
Median type	TWLTL				TWLTL															
Median storage (veh)	2				2															
Upstream signal (m)	349																			
pX, platoon unblocked																				
vC, conflicting volume	472				418				908		908		416		916		908		470	
vC1, stage 1 conf vol									426		426				480		480			
vC2, stage 2 conf vol									483		482				436		428			
vCu, unblocked vol	472				418				908		908		416		916		908		470	
tC, single (s)	4.1				4.3				7.3		6.5		6.2		7.1		6.5		6.2	
tC, 2 stage (s)									6.3		5.5				6.1		5.5			
tF (s)	2.2				2.4				3.7		4.0		3.3		3.5		4.0		3.3	
p0 queue free %	100				100				99		99		98		96		100		98	
cM capacity (veh/h)	1096				1065				419		457		641		452		457		596	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1														
Volume Total	5	418	5	467	21	27														
Volume Left	5	0	5	0	5	16														
Volume Right	0	5	0	5	11	11														
cSH	1096	1700	1065	1700	525	501														
Volume to Capacity	0.00	0.25	0.00	0.27	0.04	0.05														
Queue Length 95th (m)	0.1	0.0	0.1	0.0	1.0	1.4														
Control Delay (s)	8.3	0.0	8.4	0.0	12.1	12.6														
Lane LOS	A		A		B		B													
Approach Delay (s)	0.1		0.1		12.1		12.6													
Approach LOS					B		B													
Intersection Summary																				
Average Delay			0.7																	
Intersection Capacity Utilization			32.7%		ICU Level of Service				A											
Analysis Period (min)			15																	

# HCM Unsignalized Intersection Capacity Analysis

## 5: Golf Driveway Access & Line 6

Future Total 2026 AM Peak Hour Period

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	355	50	75	320	115	220
Future Volume (Veh/h)	355	50	75	320	115	220
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	382	54	81	344	124	237
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)			346			
pX, platoon unblocked						
vC, conflicting volume			436			915 409
vC1, stage 1 conf vol					409	
vC2, stage 2 conf vol					506	
vCu, unblocked vol			436			915 409
tC, single (s)			4.1			6.4 6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2			3.5 3.3
p0 queue free %			93			75 63
cM capacity (veh/h)			1134			489 647
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	
Volume Total	436	81	344	124	237	
Volume Left	0	81	0	124	0	
Volume Right	54	0	0	0	237	
cSH	1700	1134	1700	489	647	
Volume to Capacity	0.26	0.07	0.20	0.25	0.37	
Queue Length 95th (m)	0.0	1.8	0.0	8.0	13.4	
Control Delay (s)	0.0	8.4	0.0	14.9	13.7	
Lane LOS	A		B		B	
Approach Delay (s)	0.0	1.6			14.1	
Approach LOS					B	
Intersection Summary						
Average Delay			4.7			
Intersection Capacity Utilization			42.2%	ICU Level of Service		A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 6: Line 6 & Adams Street

Future Total 2026 AM Peak Hour Period

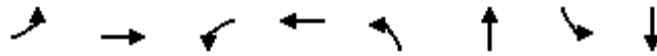


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	570	370	20	40	25
Future Volume (Veh/h)	5	570	370	20	40	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	5	613	398	22	43	27
Pedestrians					5	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh		2	2			
Upstream signal (m)			258			
pX, platoon unblocked						
vC, conflicting volume	425				1037	414
vC1, stage 1 conf vol					414	
vC2, stage 2 conf vol					623	
vCu, unblocked vol	425				1037	414
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				91	96
cM capacity (veh/h)	1140				460	640
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>SB 1</b>		
Volume Total	5	613	420	70		
Volume Left	5	0	0	43		
Volume Right	0	0	22	27		
cSH	1140	1700	1700	516		
Volume to Capacity	0.00	0.36	0.25	0.14		
Queue Length 95th (m)	0.1	0.0	0.0	3.7		
Control Delay (s)	8.2	0.0	0.0	13.1		
Lane LOS	A			B		
Approach Delay (s)	0.1		0.0	13.1		
Approach LOS				B		
<b>Intersection Summary</b>						
Average Delay			0.9			
Intersection Capacity Utilization			40.4%		ICU Level of Service	A
Analysis Period (min)			15			

# Queues

## 7: Inverness Way/Melbourne Dr & Line 6

Future Total 2026 AM Peak Hour Period























Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	98	603	6	437	40	69	132	149
v/c Ratio	0.18	0.52	0.01	0.38	0.14	0.17	0.46	0.33
Control Delay	7.7	9.7	6.4	7.2	16.0	11.9	22.1	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.7	9.7	6.4	7.2	16.0	11.9	22.1	8.4
Queue Length 50th (m)	3.8	30.8	0.2	16.6	3.2	3.7	11.5	3.7
Queue Length 95th (m)	12.3	68.8	1.7	40.2	8.0	9.8	20.9	12.8
Internal Link Dist (m)		233.8		288.6		331.7		165.8
Turn Bay Length (m)	50.0		50.0					
Base Capacity (vph)	549	1158	450	1137	377	550	386	577
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	0.18	0.52	0.01	0.38	0.11	0.13	0.34	0.26

### Intersection Summary

# HCM Signalized Intersection Capacity Analysis

## 7: Inverness Way/Melbourne Dr & Line 6

Future Total 2026 AM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	510	15	5	265	115	35	40	20	115	40	90
Future Volume (vph)	85	510	15	5	265	115	35	40	20	115	40	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	1.00		1.00	0.95		1.00	0.95		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1651	1798		1805	1734		1752	1728		1668	1635	
Flt Permitted	0.49	1.00		0.37	1.00		0.66	1.00		0.71	1.00	
Satd. Flow (perm)	853	1798		699	1734		1222	1728		1250	1635	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	98	586	17	6	305	132	40	46	23	132	46	103
RTOR Reduction (vph)	0	2	0	0	23	0	0	19	0	0	83	0
Lane Group Flow (vph)	98	601	0	6	414	0	40	50	0	132	66	0
Confl. Peds. (#/hr)	5						5		10	10		
Heavy Vehicles (%)	9%	5%	13%	0%	5%	1%	3%	2%	6%	7%	0%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	31.1	31.1		31.1	31.1		9.9	9.9		9.9	9.9	
Effective Green, g (s)	31.1	31.1		31.1	31.1		9.9	9.9		9.9	9.9	
Actuated g/C Ratio	0.60	0.60		0.60	0.60		0.19	0.19		0.19	0.19	
Clearance Time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	513	1081		420	1043		234	330		239	313	
v/s Ratio Prot		c0.33			0.24			0.03			0.04	
v/s Ratio Perm	0.11			0.01			0.03			c0.11		
v/c Ratio	0.19	0.56		0.01	0.40		0.17	0.15		0.55	0.21	
Uniform Delay, d1	4.6	6.2		4.1	5.4		17.5	17.4		18.9	17.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	2.1		0.1	1.1		0.3	0.2		2.7	0.3	
Delay (s)	5.5	8.2		4.2	6.5		17.8	17.6		21.6	17.9	
Level of Service	A	A		A	A		B	B		C	B	
Approach Delay (s)		7.8			6.5			17.7			19.7	
Approach LOS		A			A			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			10.3				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			51.7				Sum of lost time (s)			10.7		
Intersection Capacity Utilization			85.7%				ICU Level of Service			E		
Analysis Period (min)			15									




















c Critical Lane Group



# HCM Unsignalized Intersection Capacity Analysis

## 8: Barrow Ave & Line 6

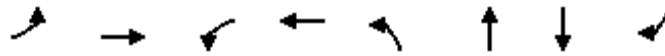
Future Total 2026 AM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	620	10	20	365	10	20	0	35	5	0	0
Future Volume (Veh/h)	15	620	10	20	365	10	20	0	35	5	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	19	775	12	25	456	12	25	0	44	6	0	0
Pedestrians												5
Lane Width (m)												3.6
Walking Speed (m/s)												1.2
Percent Blockage												0
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage (veh)		2			2							
Upstream signal (m)		313			286							
pX, platoon unblocked				0.84			0.84	0.84	0.84	0.84	0.84	0.84
vC, conflicting volume	473			787			1325	1342	781	1374	1342	467
vC1, stage 1 conf vol							819	819		517	517	
vC2, stage 2 conf vol							506	523		857	825	
vCu, unblocked vol	473			652			1292	1312	644	1350	1312	467
tC, single (s)	4.3			4.1			7.1	6.5	6.2	8.1	6.5	6.7
tC, 2 stage (s)							6.1	5.5		7.1	5.5	
tF (s)	2.4			2.2			3.5	4.0	3.3	4.4	4.0	3.8
p0 queue free %	98			97			92	100	89	96	100	100
cM capacity (veh/h)	992			794			307	312	396	171	300	506
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	19	787	25	468	69	6						
Volume Left	19	0	25	0	25	6						
Volume Right	0	12	0	12	44	0						
cSH	992	1700	794	1700	358	171						
Volume to Capacity	0.02	0.46	0.03	0.28	0.19	0.04						
Queue Length 95th (m)	0.5	0.0	0.8	0.0	5.6	0.9						
Control Delay (s)	8.7	0.0	9.7	0.0	17.4	26.9						
Lane LOS	A		A		C	D						
Approach Delay (s)	0.2		0.5		17.4	26.9						
Approach LOS					C	D						
<b>Intersection Summary</b>												
Average Delay			1.3									
Intersection Capacity Utilization			43.2%		ICU Level of Service				A			
Analysis Period (min)			15									

# Queues

## 9: Simcoe Road & Line 6

Future Total 2026 AM Peak Hour Period



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	489	269	6	57	191	203	124	270
v/c Ratio	0.88	0.35	0.02	0.08	0.39	0.30	0.17	0.35
Control Delay	37.8	8.3	10.6	10.1	15.9	13.7	12.4	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.8	8.3	10.6	10.1	15.9	13.7	12.4	3.3
Queue Length 50th (m)	49.8	11.1	0.4	3.4	15.1	15.1	8.9	0.0
Queue Length 95th (m)	#102.0	25.0	2.2	9.0	29.8	28.5	18.2	11.6
Internal Link Dist (m)		261.7		146.8		400.8	164.8	
Turn Bay Length (m)	50.0		20.0		110.0			
Base Capacity (vph)	553	770	364	749	485	673	724	777
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	0.88	0.35	0.02	0.08	0.39	0.30	0.17	0.35

### Intersection Summary

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

# HCM Signalized Intersection Capacity Analysis

## 9: Simcoe Road & Line 6

Future Total 2026 AM Peak Hour Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	435	115	125	5	45	5	170	175	5	0	110	240
Future Volume (vph)	435	115	125	5	45	5	170	175	5	0	110	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		5.5	5.5			5.5	5.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frbp, ped/bikes	1.00	0.99		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	0.92		1.00	0.98		1.00	1.00			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1752	1693		1438	1790		1703	1678			1810	1538
Flt Permitted	0.72	1.00		0.58	1.00		0.68	1.00			1.00	1.00
Satd. Flow (perm)	1328	1693		875	1790		1214	1678			1810	1538
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)	489	129	140	6	51	6	191	197	6	0	124	270
RTOR Reduction (vph)	0	65	0	0	4	0	0	2	0	0	0	162
Lane Group Flow (vph)	489	204	0	6	54	0	191	201	0	0	124	108
Confl. Peds. (#/hr)			5	5					5	5		
Heavy Vehicles (%)	3%	0%	4%	25%	5%	0%	6%	13%	0%	0%	5%	5%
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	25.0	25.0		25.0	25.0		24.0	24.0			24.0	24.0
Effective Green, g (s)	25.0	25.0		25.0	25.0		24.0	24.0			24.0	24.0
Actuated g/C Ratio	0.42	0.42		0.42	0.42		0.40	0.40			0.40	0.40
Clearance Time (s)	5.5	5.5		5.5	5.5		5.5	5.5			5.5	5.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	553	705		364	745		485	671			724	615
v/s Ratio Prot		0.12			0.03			0.12			0.07	
v/s Ratio Perm	c0.37			0.01			c0.16					0.07
v/c Ratio	0.88	0.29		0.02	0.07		0.39	0.30			0.17	0.18
Uniform Delay, d1	16.2	11.6		10.3	10.5		12.8	12.3			11.6	11.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	15.5	0.2		0.0	0.0		2.4	1.1			0.5	0.6
Delay (s)	31.7	11.8		10.3	10.6		15.2	13.4			12.1	12.2
Level of Service	C	B		B	B		B	B			B	B
Approach Delay (s)		24.6			10.5			14.3			12.2	
Approach LOS		C			B			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			18.5				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			60.0				Sum of lost time (s)			11.0		
Intersection Capacity Utilization			74.6%				ICU Level of Service			D		
Analysis Period (min)			15									

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 10: Simcoe Road & Gibson Circle










Future Total 2026 AM Peak Hour Period



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	50	20	215	215	10
Future Volume (Veh/h)	25	50	20	215	215	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	34	68	27	295	295	14
Pedestrians	5			5		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	656	312	314			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	656	312	314			
tC, single (s)	6.5	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.3			
p0 queue free %	92	91	98			
cM capacity (veh/h)	410	718	1197			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	102	322	309			
Volume Left	34	27	0			
Volume Right	68	0	14			
cSH	574	1197	1700			
Volume to Capacity	0.18	0.02	0.18			
Queue Length 95th (m)	5.1	0.6	0.0			
Control Delay (s)	12.6	0.9	0.0			
Lane LOS	B	A				
Approach Delay (s)	12.6	0.9	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay	2.1					
Intersection Capacity Utilization	40.7%			ICU Level of Service	A	
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis  
 11: Simcoe Road & Golfview Blvd

















Future Total 2026 AM Peak Hour Period

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	10	5	170	210	15
Future Volume (Veh/h)	25	10	5	170	210	15
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	28	11	6	189	233	17
<b>Pedestrians</b>						
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	442	242	250			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	442	242	250			
tC, single (s)	6.5	6.2	4.6			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.7			
p0 queue free %	95	99	99			
cM capacity (veh/h)	557	802	1081			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	39	195	250			
Volume Left	28	6	0			
Volume Right	11	0	17			
cSH	609	1081	1700			
Volume to Capacity	0.06	0.01	0.15			
Queue Length 95th (m)	1.6	0.1	0.0			
Control Delay (s)	11.3	0.3	0.0			
Lane LOS	B	A				
Approach Delay (s)	11.3	0.3	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			1.0			
Intersection Capacity Utilization			23.0%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 12: Canal Rd










Future Total 2026 AM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	115	35	0	0	20	20	0	0	0	50	5	155
Future Volume (vph)	115	35	0	0	20	20	0	0	0	50	5	155
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	137	42	0	0	24	24	0	0	0	60	6	185
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	179	48	0	251								
Volume Left (vph)	137	0	0	60								
Volume Right (vph)	0	24	0	185								
Hadj (s)	0.31	-0.15	0.00	-0.31								
Departure Headway (s)	4.8	4.5	4.8	4.2								
Degree Utilization, x	0.24	0.06	0.00	0.29								
Capacity (veh/h)	704	733	710	820								
Control Delay (s)	9.4	7.8	7.8	8.8								
Approach Delay (s)	9.4	7.8	0.0	8.8								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			8.9									
Level of Service			A									
Intersection Capacity Utilization			34.1%	ICU Level of Service	A							
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis










## 13: Line 5 & Canal Rd

Future Total 2026 AM Peak Hour Period

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	65	35	0	85	100	75
Future Volume (Veh/h)	65	35	0	85	100	75
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	78	42	0	102	120	90
<b>Pedestrians</b>						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	267	165	210			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	267	165	210			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	95	100			
cM capacity (veh/h)	727	885	1373			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	120	102	210			
Volume Left	78	0	0			
Volume Right	42	0	90			
cSH	775	1373	1700			
Volume to Capacity	0.15	0.00	0.12			
Queue Length 95th (m)	4.4	0.0	0.0			
Control Delay (s)	10.5	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	10.5	0.0	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			2.9			
Intersection Capacity Utilization			22.3%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
 14: Line 5 & 10 Sideroad










Future Total 2026 AM Peak Hour Period

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	130	120	15	260	190	15
Future Volume (Veh/h)	130	120	15	260	190	15
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	159	146	18	317	232	18
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				305	426	152
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				305	426	152
tC, single (s)				4.8	6.8	6.9
tC, 2 stage (s)						
tF (s)				2.5	3.5	3.3
p0 queue free %				98	58	98
cM capacity (veh/h)				1056	552	873
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	106	199	124	211	250	
Volume Left	0	0	18	0	232	
Volume Right	0	146	0	0	18	
cSH	1700	1700	1056	1700	567	
Volume to Capacity	0.06	0.12	0.02	0.12	0.44	
Queue Length 95th (m)	0.0	0.0	0.4	0.0	17.9	
Control Delay (s)	0.0	0.0	1.4	0.0	16.3	
Lane LOS				A	C	
Approach Delay (s)	0.0		0.5		16.3	
Approach LOS					C	
Intersection Summary						
Average Delay				4.8		
Intersection Capacity Utilization				36.5%	ICU Level of Service	A
Analysis Period (min)				15		



HCM Unsignalized Intersection Capacity Analysis  
 16: Line 10 & Line 5

Future Total 2026 AM Peak Hour Period

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	125	10	5	185	20	5
Future Volume (Veh/h)	125	10	5	185	20	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	132	11	5	195	21	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			143			138
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			143			138
tC, single (s)			4.1			6.2
tC, 2 stage (s)						
tF (s)			2.2			3.3
p0 queue free %			100			99
cM capacity (veh/h)			1452			916
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	143	200	26			
Volume Left	0	5	21			
Volume Right	11	0	5			
cSH	1700	1452	693			
Volume to Capacity	0.08	0.00	0.04			
Queue Length 95th (m)	0.0	0.1	0.9			
Control Delay (s)	0.0	0.2	10.4			
Lane LOS			A		B	
Approach Delay (s)	0.0	0.2	10.4			
Approach LOS			B			
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			23.8%		ICU Level of Service	A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 17: Line 5 & Street A

Future Total 2026 AM Peak Hour Period












Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	100	75	0	0	115
Future Volume (Veh/h)	30	100	75	0	0	115
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	32	105	79	0	0	121
<b>Pedestrians</b>						
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	79				248	79
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	79				248	79
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				100	88
cM capacity (veh/h)	1532				729	987
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>SB 1</b>			
Volume Total	137	79	121			
Volume Left	32	0	0			
Volume Right	0	0	121			
cSH	1532	1700	987			
Volume to Capacity	0.02	0.05	0.12			
Queue Length 95th (m)	0.5	0.0	3.3			
Control Delay (s)	1.9	0.0	9.2			
Lane LOS	A		A			
Approach Delay (s)	1.9	0.0	9.2			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			4.0			
Intersection Capacity Utilization			27.4%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 18: Simcoe Road & Danube Lane










Future Total 2026 AM Peak Hour Period

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	45	130	5	20	200
Future Volume (Veh/h)	10	45	130	5	20	200
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)	11	49	141	5	22	217
<b>Pedestrians</b>						
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	404	144			146	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	404	144			146	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	95			98	
cM capacity (veh/h)	597	909			1448	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	60	146	239			
Volume Left	11	0	22			
Volume Right	49	5	0			
cSH	830	1700	1448			
Volume to Capacity	0.07	0.09	0.02			
Queue Length 95th (m)	1.9	0.0	0.4			
Control Delay (s)	9.7	0.0	0.8			
Lane LOS	A		A			
Approach Delay (s)	9.7	0.0	0.8			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			1.7			
Intersection Capacity Utilization			32.1%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 19: Simcoe Road & Jonkman Blvd













Future Total 2026 AM Peak Hour Period

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	95	235	5	30	215
Future Volume (Veh/h)	10	95	235	5	30	215
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)	11	103	255	5	33	234
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	558	258			260	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	558	258			260	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	87			97	
cM capacity (veh/h)	482	786			1316	
<b>Direction, Lane #</b>						
	WB 1	NB 1	SB 1			
Volume Total	114	260	267			
Volume Left	11	0	33			
Volume Right	103	5	0			
cSH	741	1700	1316			
Volume to Capacity	0.15	0.15	0.03			
Queue Length 95th (m)	4.3	0.0	0.6			
Control Delay (s)	10.7	0.0	1.2			
Lane LOS	B		A			
Approach Delay (s)	10.7	0.0	1.2			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			2.4			
Intersection Capacity Utilization			42.1%		ICU Level of Service	A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 1: 10 Sideroad & Line 6

Future Total 2031 AM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	15	40	0	255	75	145	0	35	140	135	55	0
Future Volume (veh/h)	15	40	0	255	75	145	0	35	140	135	55	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	44	0	283	83	161	0	39	156	150	61	0
Approach Volume (veh/h)	61		527				195		211			
Crossing Volume (veh/h)	494				56		211		366			
High Capacity (veh/h)	938				1326		1174		1039			
High v/c (veh/h)	0.07				0.40		0.17		0.20			
Low Capacity (veh/h)	758				1107		970		848			
Low v/c (veh/h)	0.08				0.48		0.20		0.25			
<b>Intersection Summary</b>												
Maximum v/c High			0.40									
Maximum v/c Low			0.48									
Intersection Capacity Utilization			43.8%		ICU Level of Service			A				

# HCM Unsignalized Intersection Capacity Analysis

## 2: Line 6 & Langford Boulevard

Future Total 2031 AM Peak Hour Period

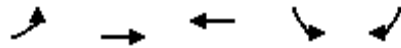


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	310	425	35	40	50
Future Volume (Veh/h)	5	310	425	35	40	50
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	5	341	467	38	44	55
Pedestrians						
Lane 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	505				837	486
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	505				837	486
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	100				87	91
cM capacity (veh/h)	1001				334	581
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	5	341	505	99		
Volume Left	5	0	0	44		
Volume Right	0	0	38	55		
cSH	1001	1700	1700	437		
Volume to Capacity	0.00	0.20	0.30	0.23		
Queue Length 95th (m)	0.1	0.0	0.0	6.9		
Control Delay (s)	8.6	0.0	0.0	15.6		
Lane LOS	A			C		
Approach Delay (s)	0.1		0.0	15.6		
Approach LOS				C		
Intersection Summary						
Average Delay			1.7			
Intersection Capacity Utilization			36.4%		ICU Level of Service	A
Analysis Period (min)			15			

# Queues

## 3: Line 6 & West Park Ave

Future Total 2031 AM Peak Hour Period



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	17	381	608	176	45
v/c Ratio	0.07	0.45	0.69	0.32	0.08
Control Delay	8.1	11.0	14.8	15.7	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	8.1	11.0	14.8	15.7	5.4
Queue Length 50th (m)	0.8	22.3	39.1	12.8	0.0
Queue Length 95th (m)	3.4	38.9	67.9	25.3	5.3
Internal Link Dist (m)		582.6	325.3	441.0	
Turn Bay Length (m)	110.0				
Base Capacity (vph)	247	844	879	543	531
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	0.07	0.45	0.69	0.32	0.08

### Intersection Summary

# HCM Signalized Intersection Capacity Analysis

## 3: Line 6 & West Park Ave

Future Total 2031 AM Peak Hour Period






















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	15	335	420	115	155	40
Future Volume (vph)	15	335	420	115	155	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7		4.9	4.9
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1626	1743	1776		1752	1615
Flt Permitted	0.30	1.00	1.00		0.95	1.00
Satd. Flow (perm)	510	1743	1776		1752	1615
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	17	381	477	131	176	45
RTOR Reduction (vph)	0	0	19	0	0	31
Lane Group Flow (vph)	17	381	589	0	176	14
Heavy Vehicles (%)	11%	9%	3%	7%	3%	0%
Turn Type	Perm	NA	NA		Prot	Prot
Protected Phases		4	8		6	6
Permitted Phases	4					
Actuated Green, G (s)	25.0	25.0	25.0		16.0	16.0
Effective Green, g (s)	25.0	25.0	25.0		16.0	16.0
Actuated g/C Ratio	0.48	0.48	0.48		0.31	0.31
Clearance Time (s)	5.7	5.7	5.7		4.9	4.9
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	247	844	860		543	500
v/s Ratio Prot		0.22	c0.33		c0.10	0.01
v/s Ratio Perm	0.03					
v/c Ratio	0.07	0.45	0.68		0.32	0.03
Uniform Delay, d1	7.1	8.8	10.3		13.7	12.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.5	1.7	4.4		1.6	0.1
Delay (s)	7.6	10.5	14.7		15.2	12.5
Level of Service	A	B	B		B	B
Approach Delay (s)		10.4	14.7		14.7	
Approach LOS		B	B		B	
<b>Intersection Summary</b>						
HCM 2000 Control Delay			13.3		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.54			
Actuated Cycle Length (s)			51.6		Sum of lost time (s)	10.6
Intersection Capacity Utilization			46.5%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						



# HCM Unsignalized Intersection Capacity Analysis

## 4: Brownlee Drive/Southfield Gate & Line 6












Future Total 2031 AM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	480	5	5	520	5	5	5	10	15	0	10
Future Volume (Veh/h)	5	480	5	5	520	5	5	5	10	15	0	10
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	522	5	5	565	5	5	5	11	16	0	11
Pedestrians												5
Lane Width (m)												3.6
Walking Speed (m/s)												1.2
Percent Blockage												0
Right turn flare (veh)												
Median type	TWLTL				TWLTL							
Median storage veh	2				2							
Upstream signal (m)	349											
pX, platoon unblocked				0.99			0.99			0.99		
vC, conflicting volume	575			527			1120			572		
vC1, stage 1 conf vol							534			582		
vC2, stage 2 conf vol							586			537		
vCu, unblocked vol	575			516			1116			572		
tC, single (s)	4.1			4.3			7.3			6.2		
tC, 2 stage (s)							6.3			5.5		
tF (s)	2.2			2.4			3.7			4.0		
p0 queue free %	100			99			99			98		
cM capacity (veh/h)	1004			966			353			521		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	5	527	5	570	21	27						
Volume Left	5	0	5	0	5	16						
Volume Right	0	5	0	5	11	11						
cSH	1004	1700	966	1700	452	429						
Volume to Capacity	0.00	0.31	0.01	0.34	0.05	0.06						
Queue Length 95th (m)	0.1	0.0	0.1	0.0	1.2	1.6						
Control Delay (s)	8.6	0.0	8.7	0.0	13.4	14.0						
Lane LOS	A		A		B							
Approach Delay (s)	0.1		0.1		13.4							
Approach LOS					B							
Intersection Summary												
Average Delay			0.6									
Intersection Capacity Utilization			37.7%		ICU Level of Service		A					
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 5: Golf Driveway Access & Line 6

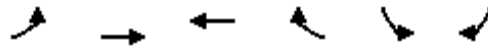
Future Total 2031 AM Peak Hour Period

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	455	50	75	415	115	220
Future Volume (Veh/h)	455	50	75	415	115	220
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	489	54	81	446	124	237
<b>Pedestrians</b>						
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)			346			
pX, platoon unblocked						
vC, conflicting volume			543		1124	516
vC1, stage 1 conf vol					516	
vC2, stage 2 conf vol					608	
vCu, unblocked vol			543		1124	516
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			92		71	58
cM capacity (veh/h)			1036		423	563
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>	<b>NB 2</b>	
Volume Total	543	81	446	124	237	
Volume Left	0	81	0	124	0	
Volume Right	54	0	0	0	237	
cSH	1700	1036	1700	423	563	
Volume to Capacity	0.32	0.08	0.26	0.29	0.42	
Queue Length 95th (m)	0.0	2.0	0.0	9.6	16.6	
Control Delay (s)	0.0	8.8	0.0	17.0	16.0	
Lane LOS		A		C	C	
Approach Delay (s)	0.0	1.3		16.3		
Approach LOS				C		
<b>Intersection Summary</b>						
Average Delay			4.6			
Intersection Capacity Utilization			47.5%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 6: Line 6 & Adams Street

Future Total 2031 AM Peak Hour Period

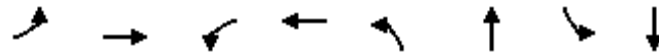


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	670	465	20	40	25
Future Volume (Veh/h)	5	670	465	20	40	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	5	720	500	22	43	27
Pedestrians					5	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh		2	2			
Upstream signal (m)			258			
pX, platoon unblocked						
vC, conflicting volume	527				1246	516
vC1, stage 1 conf vol					516	
vC2, stage 2 conf vol					730	
vCu, unblocked vol	527				1246	516
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				89	95
cM capacity (veh/h)	1046				400	561
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>SB 1</b>		
Volume Total	5	720	522	70		
Volume Left	5	0	0	43		
Volume Right	0	0	22	27		
cSH	1046	1700	1700	449		
Volume to Capacity	0.00	0.42	0.31	0.16		
Queue Length 95th (m)	0.1	0.0	0.0	4.4		
Control Delay (s)	8.5	0.0	0.0	14.5		
Lane LOS	A			B		
Approach Delay (s)	0.1		0.0	14.5		
Approach LOS				B		
<b>Intersection Summary</b>						
Average Delay			0.8			
Intersection Capacity Utilization			45.7%		ICU Level of Service	A
Analysis Period (min)			15			

# Queues

## 7: Inverness Way/Melbourne Dr & Line 6

Future Total 2031 AM Peak Hour Period



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	115	701	6	529	40	69	161	172
v/c Ratio	0.25	0.61	0.02	0.47	0.14	0.16	0.54	0.36
Control Delay	9.2	12.8	6.8	8.7	15.5	11.4	23.8	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.2	12.8	6.8	8.7	15.5	11.4	23.8	7.7
Queue Length 50th (m)	5.0	42.0	0.2	24.3	3.1	3.6	13.9	3.6
Queue Length 95th (m)	15.3	#104.4	1.7	53.6	8.0	9.8	25.1	13.4
Internal Link Dist (m)		233.8		288.6		331.7		165.8
Turn Bay Length (m)	50.0		50.0					
Base Capacity (vph)	459	1141	355	1124	370	550	386	588
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	0.61	0.02	0.47	0.11	0.13	0.42	0.29





















### Intersection Summary

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

# HCM Signalized Intersection Capacity Analysis

## 7: Inverness Way/Melbourne Dr & Line 6

Future Total 2031 AM Peak Hour Period




















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	595	15	5	340	120	35	40	20	140	40	110
Future Volume (vph)	100	595	15	5	340	120	35	40	20	140	40	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	1.00		1.00	0.96		1.00	0.95		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1652	1800		1805	1745		1752	1728		1668	1620	
Flt Permitted	0.42	1.00		0.29	1.00		0.65	1.00		0.71	1.00	
Satd. Flow (perm)	726	1800		560	1745		1196	1728		1250	1620	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	115	684	17	6	391	138	40	46	23	161	46	126
RTOR Reduction (vph)	0	1	0	0	20	0	0	18	0	0	101	0
Lane Group Flow (vph)	115	700	0	6	509	0	40	51	0	161	71	0
Confl. Peds. (#/hr)	5						5		10	10		
Heavy Vehicles (%)	9%	5%	13%	0%	5%	1%	3%	2%	6%	7%	0%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	30.6	30.6		30.6	30.6		10.4	10.4		10.4	10.4	
Effective Green, g (s)	30.6	30.6		30.6	30.6		10.4	10.4		10.4	10.4	
Actuated g/C Ratio	0.59	0.59		0.59	0.59		0.20	0.20		0.20	0.20	
Clearance Time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	429	1065		331	1032		240	347		251	325	
v/s Ratio Prot		c0.39			0.29			0.03			0.04	
v/s Ratio Perm	0.16			0.01			0.03			c0.13		
v/c Ratio	0.27	0.66		0.02	0.49		0.17	0.15		0.64	0.22	
Uniform Delay, d1	5.1	7.0		4.4	6.1		17.1	17.0		18.9	17.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.5	3.2		0.1	1.7		0.3	0.2		5.5	0.3	
Delay (s)	6.6	10.2		4.5	7.8		17.4	17.2		24.4	17.6	
Level of Service	A	B		A	A		B	B		C	B	
Approach Delay (s)		9.7			7.7			17.3			20.9	
Approach LOS		A			A			B			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			11.7				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			51.7				Sum of lost time (s)			10.7		
Intersection Capacity Utilization			90.2%				ICU Level of Service			E		
Analysis Period (min)			15									

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 8: Barrow Ave & Line 6

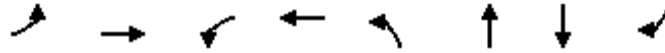
Future Total 2031 AM Peak Hour Period

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	15	730	10	20	445	10	20	0	35	5	0	0	
Future Volume (Veh/h)	15	730	10	20	445	10	20	0	35	5	0	0	
Sign Control	Free			Free			Stop			Stop			
Grade	0%			0%			0%			0%			
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	19	912	12	25	556	12	25	0	44	6	0	0	
Pedestrians												5	
Lane Width (m)												3.6	
Walking Speed (m/s)												1.2	
Percent Blockage												0	
Right turn flare (veh)													
Median type	TWLTL				TWLTL								
Median storage (veh)	2				2								
Upstream signal (m)	313				286								
pX, platoon unblocked				0.74				0.74	0.74	0.74	0.74	0.74	
vC, conflicting volume	573			924			1562	1579	918	1611	1579	567	
vC1, stage 1 conf vol							956	956			617	617	
vC2, stage 2 conf vol							606	623			994	962	
vCu, unblocked vol	573			717			1584	1607	708	1651	1607	567	
tC, single (s)	4.3			4.1			7.1	6.5	6.2	8.1	6.5	6.7	
tC, 2 stage (s)							6.1	5.5			7.1	5.5	
tF (s)	2.4			2.2			3.5	4.0	3.3	4.4	4.0	3.8	
p0 queue free %	98			96			90	100	86	95	100	100	
cM capacity (veh/h)	908			657			243	251	318	124	238	441	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1							
Volume Total	19	924	25	568	69	6							
Volume Left	19	0	25	0	25	6							
Volume Right	0	12	0	12	44	0							
cSH	908	1700	657	1700	286	124							
Volume to Capacity	0.02	0.54	0.04	0.33	0.24	0.05							
Queue Length 95th (m)	0.5	0.0	0.9	0.0	7.4	1.2							
Control Delay (s)	9.0	0.0	10.7	0.0	21.5	35.5							
Lane LOS	A			B			C						E
Approach Delay (s)	0.2			0.5			21.5						35.5
Approach LOS							C						E
Intersection Summary													
Average Delay			1.3										
Intersection Capacity Utilization			49.0%		ICU Level of Service				A				
Analysis Period (min)			15										

# Queues

## 9: Simcoe Road & Line 6

Future Total 2031 AM Peak Hour Period



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	584	298	6	68	219	231	152	320
v/c Ratio	1.07	0.38	0.02	0.09	0.46	0.34	0.21	0.40
Control Delay	79.7	8.2	10.6	10.3	17.3	14.2	12.8	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.7	8.2	10.6	10.3	17.3	14.2	12.8	3.4
Queue Length 50th (m)	~77.3	11.7	0.4	4.2	17.9	17.6	11.1	0.0
Queue Length 95th (m)	#129.6	26.4	2.2	10.4	35.0	32.2	21.6	12.6
Internal Link Dist (m)		261.7		146.8		400.8	164.8	
Turn Bay Length (m)	50.0		20.0		110.0			
Base Capacity (vph)	547	776	343	751	473	673	724	807
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	1.07	0.38	0.02	0.09	0.46	0.34	0.21	0.40

### Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.





















# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

## 9: Simcoe Road & Line 6

Future Total 2031 AM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	520	115	150	5	55	5	195	200	5	0	135	285
Future Volume (vph)	520	115	150	5	55	5	195	200	5	0	135	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		5.5	5.5			5.5	5.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frbp, ped/bikes	1.00	0.99		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	0.91		1.00	0.99		1.00	1.00			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1752	1675		1438	1793		1703	1679			1810	1538
Flt Permitted	0.71	1.00		0.54	1.00		0.66	1.00			1.00	1.00
Satd. Flow (perm)	1315	1675		825	1793		1184	1679			1810	1538
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)	584	129	169	6	62	6	219	225	6	0	152	320
RTOR Reduction (vph)	0	79	0	0	4	0	0	2	0	0	0	192
Lane Group Flow (vph)	584	219	0	6	65	0	219	229	0	0	152	128
Confl. Peds. (#/hr)			5	5					5	5		
Heavy Vehicles (%)	3%	0%	4%	25%	5%	0%	6%	13%	0%	0%	5%	5%
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	25.0	25.0		25.0	25.0		24.0	24.0			24.0	24.0
Effective Green, g (s)	25.0	25.0		25.0	25.0		24.0	24.0			24.0	24.0
Actuated g/C Ratio	0.42	0.42		0.42	0.42		0.40	0.40			0.40	0.40
Clearance Time (s)	5.5	5.5		5.5	5.5		5.5	5.5			5.5	5.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	547	697		343	747		473	671			724	615
v/s Ratio Prot		0.13			0.04			0.14			0.08	
v/s Ratio Perm	c0.44			0.01			c0.19					0.08
v/c Ratio	1.07	0.31		0.02	0.09		0.46	0.34			0.21	0.21
Uniform Delay, d1	17.5	11.7		10.3	10.6		13.3	12.5			11.8	11.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	57.8	0.3		0.0	0.1		3.2	1.4			0.7	0.8
Delay (s)	75.3	12.0		10.3	10.6		16.5	13.9			12.4	12.5
Level of Service	E	B		B	B		B	B			B	B
Approach Delay (s)		53.9			10.6			15.2			12.5	
Approach LOS		D			B			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			32.5				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			60.0				Sum of lost time (s)			11.0		
Intersection Capacity Utilization			89.2%				ICU Level of Service			E		
Analysis Period (min)			15									

c Critical Lane Group



# HCM Unsignalized Intersection Capacity Analysis

## 10: Simcoe Road & Gibson Circle

Future Total 2031 AM Peak Hour Period



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	50	20	265	265	10
Future Volume (Veh/h)	25	50	20	265	265	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	34	68	27	363	363	14
Pedestrians	5			5		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	792	380	382			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	792	380	382			
tC, single (s)	6.5	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.3			
p0 queue free %	90	90	98			
cM capacity (veh/h)	340	657	1129			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	102	390	377			
Volume Left	34	27	0			
Volume Right	68	0	14			
cSH	501	1129	1700			
Volume to Capacity	0.20	0.02	0.22			
Queue Length 95th (m)	6.0	0.6	0.0			
Control Delay (s)	14.0	0.8	0.0			
Lane LOS	B	A				
Approach Delay (s)	14.0	0.8	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay	2.0					
Intersection Capacity Utilization	43.2%			ICU Level of Service	A	
Analysis Period (min)	15					

# HCM Unsignalized Intersection Capacity Analysis

## 11: Simcoe Road & Golfview Blvd

Future Total 2031 AM Peak Hour Period



















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	10	5	220	260	15
Future Volume (Veh/h)	25	10	5	220	260	15
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	28	11	6	244	289	17
<b>Pedestrians</b>						
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	554	298	306			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	554	298	306			
tC, single (s)	6.5	6.2	4.6			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.7			
p0 queue free %	94	99	99			
cM capacity (veh/h)	479	747	1026			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	39	250	306			
Volume Left	28	6	0			
Volume Right	11	0	17			
cSH	533	1026	1700			
Volume to Capacity	0.07	0.01	0.18			
Queue Length 95th (m)	1.9	0.1	0.0			
Control Delay (s)	12.3	0.3	0.0			
Lane LOS	B	A				
Approach Delay (s)	12.3	0.3	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			0.9			
Intersection Capacity Utilization			25.6%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 12: Canal Rd

Future Total 2031 AM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	155	35	0	0	20	30	0	0	0	65	5	190
Future Volume (vph)	155	35	0	0	20	30	0	0	0	65	5	190
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	185	42	0	0	24	36	0	0	0	77	6	226
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	227	60	0	309								
Volume Left (vph)	185	0	0	77								
Volume Right (vph)	0	36	0	226								
Hadj (s)	0.32	-0.18	0.00	-0.30								
Departure Headway (s)	5.0	4.8	5.0	4.3								
Degree Utilization, x	0.32	0.08	0.00	0.37								
Capacity (veh/h)	676	692	660	786								
Control Delay (s)	10.3	8.2	8.0	9.9								
Approach Delay (s)	10.3	8.2	0.0	9.9								
Approach LOS	B	A	A	A								
Intersection Summary												
Delay			9.9									
Level of Service			A									
Intersection Capacity Utilization			39.3%	ICU Level of Service	A							
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 13: Line 5 & Canal Rd

Future Total 2031 AM Peak Hour Period












Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	80	35	0	110	115	95
Future Volume (Veh/h)	80	35	0	110	115	95
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	96	42	0	133	139	114
<b>Pedestrians</b>						
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	329	196	253			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	329	196	253			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	86	95	100			
cM capacity (veh/h)	670	850	1324			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	138	133	253			
Volume Left	96	0	0			
Volume Right	42	0	114			
cSH	716	1324	1700			
Volume to Capacity	0.19	0.00	0.15			
Queue Length 95th (m)	5.7	0.0	0.0			
Control Delay (s)	11.2	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	11.2	0.0	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay	3.0					
Intersection Capacity Utilization	25.1%			ICU Level of Service	A	
Analysis Period (min)	15					

# HCM Unsignalized Intersection Capacity Analysis

## 14: Line 5 & 10 Sideroad

Future Total 2031 AM Peak Hour Period

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	160	135	15	295	210	15
Future Volume (Veh/h)	160	135	15	295	210	15
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	195	165	18	360	256	18
<b>Pedestrians</b>						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			360		494	180
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			360		494	180
tC, single (s)			4.8		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.5		3.5	3.3
p0 queue free %			98		49	98
cM capacity (veh/h)			1001		501	838
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>	
Volume Total	130	230	138	240	274	
Volume Left	0	0	18	0	256	
Volume Right	0	165	0	0	18	
cSH	1700	1700	1001	1700	514	
Volume to Capacity	0.08	0.14	0.02	0.14	0.53	
Queue Length 95th (m)	0.0	0.0	0.4	0.0	24.8	
Control Delay (s)	0.0	0.0	1.3	0.0	19.7	
Lane LOS	A			C		
Approach Delay (s)	0.0		0.5		19.7	
Approach LOS				C		
<b>Intersection Summary</b>						
Average Delay			5.5			
Intersection Capacity Utilization			38.5%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 16: Line 10 & Line 5

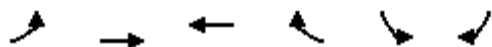
Future Total 2031 AM Peak Hour Period

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖	↘	↗
Traffic Volume (veh/h)	140	10	5	205	20	5
Future Volume (Veh/h)	140	10	5	205	20	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	147	11	5	216	21	5
<b>Pedestrians</b>						
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			158			152
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			158			152
tC, single (s)			4.1			6.2
tC, 2 stage (s)						
tF (s)			2.2			3.3
p0 queue free %			100			99
cM capacity (veh/h)			1434			899
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	158	221	26			
Volume Left	0	5	21			
Volume Right	11	0	5			
cSH	1700	1434	664			
Volume to Capacity	0.09	0.00	0.04			
Queue Length 95th (m)	0.0	0.1	1.0			
Control Delay (s)	0.0	0.2	10.6			
Lane LOS			A			B
Approach Delay (s)	0.0	0.2	10.6			
Approach LOS			B			
<b>Intersection Summary</b>						
Average Delay			0.8			
Intersection Capacity Utilization			24.8%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 17: Line 5 & Street A










Future Total 2031 AM Peak Hour Period



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Volume (veh/h)	30	115	95	0	0	115
Future Volume (Veh/h)	30	115	95	0	0	115
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	32	121	100	0	0	121
<b>Pedestrians</b>						
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	100				285	100
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	100				285	100
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				100	87
cM capacity (veh/h)	1505				694	961
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>SB 1</b>			
Volume Total	153	100	121			
Volume Left	32	0	0			
Volume Right	0	0	121			
cSH	1505	1700	961			
Volume to Capacity	0.02	0.06	0.13			
Queue Length 95th (m)	0.5	0.0	3.4			
Control Delay (s)	1.7	0.0	9.3			
Lane LOS	A		A			
Approach Delay (s)	1.7	0.0	9.3			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			3.7			
Intersection Capacity Utilization		28.2%		ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
 18: Simcoe Road & Danube Lane










Future Total 2031 AM Peak Hour Period

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	45	180	5	20	250
Future Volume (Veh/h)	10	45	180	5	20	250
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)	11	49	196	5	22	272
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	514	198			201	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	514	198			201	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	94			98	
cM capacity (veh/h)	515	848			1383	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	60	201	294			
Volume Left	11	0	22			
Volume Right	49	5	0			
cSH	758	1700	1383			
Volume to Capacity	0.08	0.12	0.02			
Queue Length 95th (m)	2.1	0.0	0.4			
Control Delay (s)	10.2	0.0	0.7			
Lane LOS	B		A			
Approach Delay (s)	10.2	0.0	0.7			
Approach LOS	B					
Intersection Summary						
Average Delay			1.5			
Intersection Capacity Utilization			37.4%	ICU Level of Service	A	
Analysis Period (min)			15			



HCM Unsignalized Intersection Capacity Analysis  
 19: Simcoe Road & Jonkman Blvd













Future Total 2031 AM Peak Hour Period

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	95	285	5	30	265
Future Volume (Veh/h)	10	95	285	5	30	265
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)	11	103	310	5	33	288
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	666	312			315	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	666	312			315	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	86			97	
cM capacity (veh/h)	416	732			1257	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	114	315	321			
Volume Left	11	0	33			
Volume Right	103	5	0			
cSH	682	1700	1257			
Volume to Capacity	0.17	0.19	0.03			
Queue Length 95th (m)	4.8	0.0	0.6			
Control Delay (s)	11.3	0.0	1.0			
Lane LOS	B		A			
Approach Delay (s)	11.3	0.0	1.0			
Approach LOS	B					
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilization			47.3%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 1: 10 Sideroad & Line 6

Future Total 2036 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	15	40	0	265	75	150	0	35	155	150	55	0
Future Volume (veh/h)	15	40	0	265	75	150	0	35	155	150	55	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	44	0	294	83	167	0	39	172	167	61	0
Approach Volume (veh/h)	61		544				211		228			
Crossing Volume (veh/h)	522		56				228		377			
High Capacity (veh/h)	917		1326				1158		1030			
High v/c (veh/h)	0.07		0.41				0.18		0.22			
Low Capacity (veh/h)	740		1107				956		840			
Low v/c (veh/h)	0.08		0.49				0.22		0.27			
<b>Intersection Summary</b>												
Maximum v/c High			0.41									
Maximum v/c Low			0.49									
Intersection Capacity Utilization			45.6%				ICU Level of Service		A			

# HCM Unsignalized Intersection Capacity Analysis

## 2: Line 6 & Langford Boulevard

Future Total 2036 AM Peak Hour

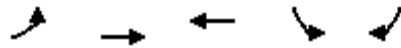


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	340	440	35	40	50
Future Volume (Veh/h)	5	340	440	35	40	50
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	5	374	484	38	44	55
Pedestrians						
Lane 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	522				887	503
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	522				887	503
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	99				86	90
cM capacity (veh/h)	986				312	569
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	5	374	522	99		
Volume Left	5	0	0	44		
Volume Right	0	0	38	55		
cSH	986	1700	1700	416		
Volume to Capacity	0.01	0.22	0.31	0.24		
Queue Length 95th (m)	0.1	0.0	0.0	7.3		
Control Delay (s)	8.7	0.0	0.0	16.3		
Lane LOS	A			C		
Approach Delay (s)	0.1		0.0	16.3		
Approach LOS				C		
Intersection Summary						
Average Delay			1.7			
Intersection Capacity Utilization			37.2%		ICU Level of Service	A
Analysis Period (min)			15			

Queues

3: Line 6 & West Park Ave

Future Total 2036 AM Peak Hour

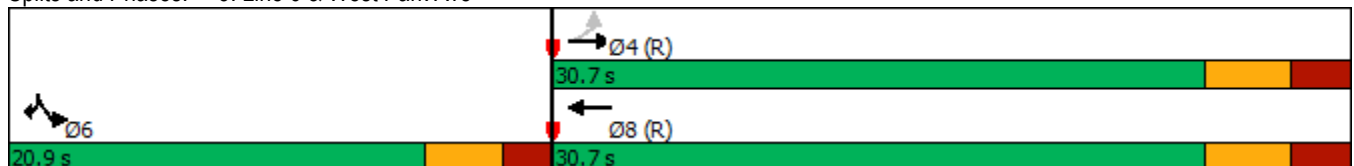


Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations	↖	↑	↔	↘	↘
Traffic Volume (vph)	20	360	430	160	45
Future Volume (vph)	20	360	430	160	45
Lane Group Flow (vph)	23	409	625	182	51
Turn Type	Perm	NA	NA	Prot	Prot
Protected Phases		4	8	6	6
Permitted Phases	4				
Detector Phase	4	4	8	6	6
Switch Phase					
Minimum Initial (s)	25.0	25.0	25.0	10.0	10.0
Minimum Split (s)	30.7	30.7	30.7	20.0	20.0
Total Split (s)	30.7	30.7	30.7	20.9	20.9
Total Split (%)	59.5%	59.5%	59.5%	40.5%	40.5%
Yellow Time (s)	3.3	3.3	3.3	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	5.7	5.7	4.9	4.9
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Min	C-Min	C-Min	Max	Max
v/c Ratio	0.10	0.48	0.71	0.34	0.10
Control Delay	8.6	11.4	15.4	15.9	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	8.6	11.4	15.4	15.9	5.2
Queue Length 50th (m)	1.1	24.5	40.8	13.4	0.0
Queue Length 95th (m)	4.3	42.6	70.8	26.1	5.5
Internal Link Dist (m)		582.6	325.3	441.0	
Turn Bay Length (m)	110.0				
Base Capacity (vph)	234	844	880	543	535
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	0.10	0.48	0.71	0.34	0.10

Intersection Summary

Cycle Length: 51.6  
 Actuated Cycle Length: 51.6  
 Offset: 20.9 (41%), Referenced to phase 4:EBTL and 8:WBT, Start of Green  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated

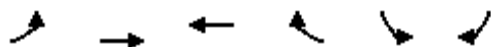
Splits and Phases: 3: Line 6 & West Park Ave



# HCM Signalized Intersection Capacity Analysis

## 3: Line 6 & West Park Ave

Future Total 2036 AM Peak Hour






















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	20	360	430	120	160	45
Future Volume (vph)	20	360	430	120	160	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7		4.9	4.9
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1626	1743	1775		1752	1615
Flt Permitted	0.28	1.00	1.00		0.95	1.00
Satd. Flow (perm)	485	1743	1775		1752	1615
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	23	409	489	136	182	51
RTOR Reduction (vph)	0	0	20	0	0	35
Lane Group Flow (vph)	23	409	605	0	182	16
Heavy Vehicles (%)	11%	9%	3%	7%	3%	0%
Turn Type	Perm	NA	NA		Prot	Prot
Protected Phases		4	8		6	6
Permitted Phases	4					
Actuated Green, G (s)	25.0	25.0	25.0		16.0	16.0
Effective Green, g (s)	25.0	25.0	25.0		16.0	16.0
Actuated g/C Ratio	0.48	0.48	0.48		0.31	0.31
Clearance Time (s)	5.7	5.7	5.7		4.9	4.9
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	234	844	859		543	500
v/s Ratio Prot		0.23	c0.34		c0.10	0.01
v/s Ratio Perm	0.05					
v/c Ratio	0.10	0.48	0.70		0.34	0.03
Uniform Delay, d1	7.2	9.0	10.4		13.7	12.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.8	2.0	4.8		1.7	0.1
Delay (s)	8.0	10.9	15.2		15.4	12.5
Level of Service	A	B	B		B	B
Approach Delay (s)		10.8	15.2		14.7	
Approach LOS		B	B		B	
<b>Intersection Summary</b>						
HCM 2000 Control Delay			13.7		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.56			
Actuated Cycle Length (s)			51.6		Sum of lost time (s)	10.6
Intersection Capacity Utilization			47.6%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

# HCM Unsignalized Intersection Capacity Analysis

## 4: Brownlee Drive/Southfield Gate & Line 6

Future Total 2036 AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	5	510	5	5	535	5	5	5	10	15	0	10	
Future Volume (Veh/h)	5	510	5	5	535	5	5	5	10	15	0	10	
Sign Control	Free			Free			Stop			Stop			
Grade	0%			0%			0%			0%			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	5	554	5	5	582	5	5	5	11	16	0	11	
Pedestrians												5	
Lane Width (m)												3.6	
Walking Speed (m/s)												1.2	
Percent Blockage												0	
Right turn flare (veh)													
Median type	TWLTL				TWLTL								
Median storage veh	2				2								
Upstream signal (m)	349												
pX, platoon unblocked				0.96				0.96	0.96	0.96	0.96	0.96	
vC, conflicting volume	592			559			1170	1168	556	1177	1168	590	
vC1, stage 1 conf vol							566	566			600	600	
vC2, stage 2 conf vol							603	602			578	569	
vCu, unblocked vol	592			522			1157	1155	519	1164	1155	590	
tC, single (s)	4.1			4.3			7.3	6.5	6.2	7.1	6.5	6.2	
tC, 2 stage (s)							6.3	5.5			6.1	5.5	
tF (s)	2.2			2.4			3.7	4.0	3.3	3.5	4.0	3.3	
p0 queue free %	99			99			99	99	98	96	100	98	
cM capacity (veh/h)	990			935			340	383	539	368	383	509	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1							
Volume Total	5	559	5	587	21	27							
Volume Left	5	0	5	0	5	16							
Volume Right	0	5	0	5	11	11							
cSH	990	1700	935	1700	436	415							
Volume to Capacity	0.01	0.33	0.01	0.35	0.05	0.07							
Queue Length 95th (m)	0.1	0.0	0.1	0.0	1.2	1.7							
Control Delay (s)	8.7	0.0	8.9	0.0	13.7	14.3							
Lane LOS	A			A			B	B					
Approach Delay (s)	0.1			0.1			13.7	14.3					
Approach LOS					B		B						
<b>Intersection Summary</b>													
Average Delay			0.6										
Intersection Capacity Utilization			38.5%		ICU Level of Service				A				
Analysis Period (min)			15										

# HCM Unsignalized Intersection Capacity Analysis

## 5: Street A & Line 6

Future Total 2036 AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↖	↗	↖	↗
Traffic Volume (veh/h)	485	50	75	430	115	220
Future Volume (Veh/h)	485	50	75	430	115	220
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	522	54	81	462	124	237
<b>Pedestrians</b>						
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)			346			
pX, platoon unblocked						
vC, conflicting volume			576		1173	549
vC1, stage 1 conf vol					549	
vC2, stage 2 conf vol					624	
vCu, unblocked vol			576		1173	549
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			92		70	56
cM capacity (veh/h)			1007		410	539
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>	<b>NB 2</b>	
Volume Total	576	81	462	124	237	
Volume Left	0	81	0	124	0	
Volume Right	54	0	0	0	237	
cSH	1700	1007	1700	410	539	
Volume to Capacity	0.34	0.08	0.27	0.30	0.44	
Queue Length 95th (m)	0.0	2.1	0.0	10.1	17.8	
Control Delay (s)	0.0	8.9	0.0	17.5	16.8	
Lane LOS		A		C	C	
Approach Delay (s)	0.0	1.3		17.1		
Approach LOS				C		
<b>Intersection Summary</b>						
Average Delay			4.6			
Intersection Capacity Utilization			49.1%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 6: Line 6 & Adams Street

Future Total 2036 AM Peak Hour



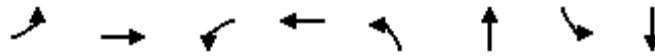
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	700	480	20	40	25
Future Volume (Veh/h)	5	700	480	20	40	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	5	753	516	22	43	27
Pedestrians					5	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh		2	2			
Upstream signal (m)			258			
pX, platoon unblocked	1.00				1.00	1.00
vC, conflicting volume	543				1295	532
vC1, stage 1 conf vol					532	
vC2, stage 2 conf vol					763	
vCu, unblocked vol	539				1294	528
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				89	95
cM capacity (veh/h)	1031				386	550
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>SB 1</b>		
Volume Total	5	753	538	70		
Volume Left	5	0	0	43		
Volume Right	0	0	22	27		
cSH	1031	1700	1700	436		
Volume to Capacity	0.00	0.44	0.32	0.16		
Queue Length 95th (m)	0.1	0.0	0.0	4.5		
Control Delay (s)	8.5	0.0	0.0	14.8		
Lane LOS	A			B		
Approach Delay (s)	0.1		0.0	14.8		
Approach LOS				B		
<b>Intersection Summary</b>						
Average Delay			0.8			
Intersection Capacity Utilization			47.3%		ICU Level of Service	A
Analysis Period (min)			15			



# Queues

## 7: Inverness Way/Melbourne Dr & Line 6

Future Total 2036 AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗
Traffic Volume (vph)	105	620	5	350	35	40	150	40
Future Volume (vph)	105	620	5	350	35	40	150	40
Lane Group Flow (vph)	121	730	6	551	40	69	172	178
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		6		2		8		4
Permitted Phases	6		2		8		4	
Detector Phase	6	6	2	2	8	8	4	4
Switch Phase								
Minimum Initial (s)	25.0	25.0	25.0	25.0	10.0	10.0	10.0	10.0
Minimum Split (s)	30.5	30.5	30.5	30.5	21.0	21.0	21.0	21.0
Total Split (s)	30.5	30.5	30.5	30.5	21.2	21.2	21.2	21.2
Total Split (%)	59.0%	59.0%	59.0%	59.0%	41.0%	41.0%	41.0%	41.0%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.0	3.0	3.0	3.0
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.2	5.2	5.2	5.2
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	C-Min	C-Min	None	None	None	None
v/c Ratio	0.33	0.74	0.02	0.56	0.14	0.16	0.57	0.36
Control Delay	10.8	16.5	7.0	10.3	15.3	11.3	24.4	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.8	16.5	7.0	10.3	15.3	11.3	24.4	7.5
Queue Length 50th (m)	5.6	46.2	0.2	26.8	3.1	3.5	14.8	3.5
Queue Length 95th (m)	17.0	#111.3	1.7	56.9	8.0	9.8	26.8	13.5
Internal Link Dist (m)		233.8		288.7		331.6		165.8
Turn Bay Length (m)	50.0		50.0					
Base Capacity (vph)	364	992	257	980	368	550	386	591
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	0.33	0.74	0.02	0.56	0.11	0.13	0.45	0.30

### Intersection Summary

Cycle Length: 51.7

Actuated Cycle Length: 51.7

Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green

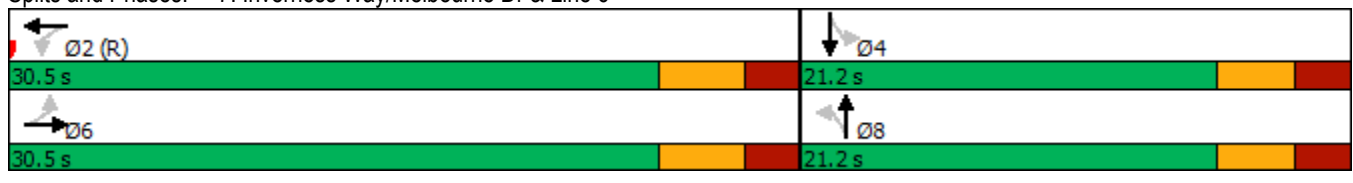
Natural Cycle: 60

Control Type: Actuated-Coordinated

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.





















### Splits and Phases: 7: Inverness Way/Melbourne Dr & Line 6



# HCM Signalized Intersection Capacity Analysis

## 7: Inverness Way/Melbourne Dr & Line 6

Future Total 2036 AM Peak Hour




















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	620	15	5	350	130	35	40	20	150	40	115
Future Volume (vph)	105	620	15	5	350	130	35	40	20	150	40	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	1.00		1.00	0.96		1.00	0.95		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1652	1800		1805	1742		1752	1728		1668	1617	
Flt Permitted	0.38	1.00		0.25	1.00		0.64	1.00		0.71	1.00	
Satd. Flow (perm)	663	1800		467	1742		1190	1728		1250	1617	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	121	713	17	6	402	149	40	46	23	172	46	132
RTOR Reduction (vph)	0	1	0	0	23	0	0	17	0	0	100	0
Lane Group Flow (vph)	121	729	0	6	528	0	40	52	0	172	78	0
Confl. Peds. (#/hr)	5						5		10	10		
Heavy Vehicles (%)	9%	5%	13%	0%	5%	1%	3%	2%	6%	7%	0%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	28.4	28.4		28.4	28.4		12.6	12.6		12.6	12.6	
Effective Green, g (s)	28.4	28.4		28.4	28.4		12.6	12.6		12.6	12.6	
Actuated g/C Ratio	0.55	0.55		0.55	0.55		0.24	0.24		0.24	0.24	
Clearance Time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	364	988		256	956		290	421		304	394	
v/s Ratio Prot		c0.40			0.30			0.03			0.05	
v/s Ratio Perm	0.18			0.01			0.03			c0.14		
v/c Ratio	0.33	0.74		0.02	0.55		0.14	0.12		0.57	0.20	
Uniform Delay, d1	6.4	8.8		5.3	7.5		15.3	15.2		17.2	15.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.4	4.9		0.2	2.3		0.2	0.1		2.4	0.2	
Delay (s)	8.9	13.7		5.5	9.8		15.5	15.4		19.6	15.8	
Level of Service	A	B		A	A		B	B		B	B	
Approach Delay (s)		13.0			9.8			15.4			17.6	
Approach LOS		B			A			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			13.1				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			51.7				Sum of lost time (s)			10.7		
Intersection Capacity Utilization			91.5%				ICU Level of Service			F		
Analysis Period (min)			15									

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 8: Barrow Ave & Line 6

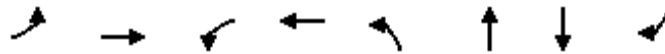
Future Total 2036 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	765	10	20	465	10	20	0	35	5	0	0
Future Volume (Veh/h)	15	765	10	20	465	10	20	0	35	5	0	0
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	19	956	12	25	581	12	25	0	44	6	0	0
Pedestrians												5
Lane Width (m)												3.6
Walking Speed (m/s)												1.2
Percent Blockage												0
Right turn flare (veh)												
Median type	TWLTL				TWLTL							
Median storage veh	2				2							
Upstream signal (m)	313				286							
pX, platoon unblocked	0.96			0.67			0.69	0.69	0.67	0.69	0.69	0.96
vC, conflicting volume	598			968			1631	1648	962	1680	1648	592
vC1, stage 1 conf vol							1000	1000		642	642	
vC2, stage 2 conf vol							631	648		1038	1006	
vCu, unblocked vol	563			704			1567	1591	695	1638	1591	556
tC, single (s)	4.3			4.1			7.1	6.5	6.2	8.1	6.5	6.7
tC, 2 stage (s)							6.1	5.5		7.1	5.5	
tF (s)	2.4			2.2			3.5	4.0	3.3	4.4	4.0	3.8
p0 queue free %	98			96			89	100	85	95	100	100
cM capacity (veh/h)	882			604			226	234	294	111	219	430
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	19	968	25	593	69	6						
Volume Left	19	0	25	0	25	6						
Volume Right	0	12	0	12	44	0						
cSH	882	1700	604	1700	265	111						
Volume to Capacity	0.02	0.57	0.04	0.35	0.26	0.05						
Queue Length 95th (m)	0.5	0.0	1.0	0.0	8.1	1.4						
Control Delay (s)	9.2	0.0	11.2	0.0	23.3	39.3						
Lane LOS	A		B		C	E						
Approach Delay (s)	0.2		0.5		23.3	39.3						
Approach LOS					C	E						
Intersection Summary												
Average Delay			1.4									
Intersection Capacity Utilization			50.9%		ICU Level of Service		A					
Analysis Period (min)			15									

Queues

9: Simcoe Road & Line 6

Future Total 2036 AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗
Traffic Volume (vph)	550	115	5	55	200	205	140	300
Future Volume (vph)	550	115	5	55	200	205	140	300
Lane Group Flow (vph)	618	303	6	68	225	236	157	337
Turn Type	Perm	NA	Perm	NA	Perm	NA	NA	Perm
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)	25.0	25.0	25.0	25.0	24.0	24.0	24.0	24.0
Minimum Split (s)	30.5	30.5	30.5	30.5	29.5	29.5	29.5	29.5
Total Split (s)	49.0	49.0	49.0	49.0	31.0	31.0	31.0	31.0
Total Split (%)	61.3%	61.3%	61.3%	61.3%	38.8%	38.8%	38.8%	38.8%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio	0.91	0.33	0.01	0.07	0.56	0.41	0.25	0.45
Control Delay	36.7	6.5	8.4	8.2	28.9	23.6	21.5	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.7	6.5	8.4	8.2	28.9	23.6	21.5	4.7
Queue Length 50th (m)	78.3	12.7	0.4	4.3	30.2	29.5	18.7	0.0
Queue Length 95th (m)	#147.5	26.0	2.1	10.0	53.2	49.3	33.2	17.1
Internal Link Dist (m)		261.6		146.8		400.7	164.9	
Turn Bay Length (m)	50.0		20.0		110.0			
Base Capacity (vph)	721	975	450	986	411	587	631	755
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	0.86	0.31	0.01	0.07	0.55	0.40	0.25	0.45

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

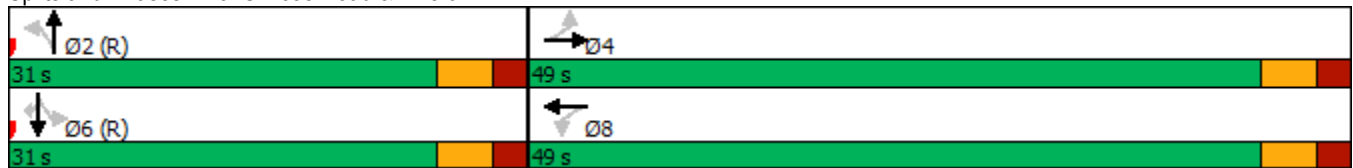
Natural Cycle: 75

Control Type: Actuated-Coordinated

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.





















Splits and Phases: 9: Simcoe Road & Line 6



# HCM Signalized Intersection Capacity Analysis

## 9: Simcoe Road & Line 6

Future Total 2036 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	550	115	155	5	55	5	200	205	5	0	140	300
Future Volume (vph)	550	115	155	5	55	5	200	205	5	0	140	300
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		5.5	5.5			5.5	5.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frbp, ped/bikes	1.00	0.98		1.00	1.00		1.00	1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.91		1.00	0.99		1.00	1.00			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1752	1670		1437	1793		1703	1679			1810	1538
Flt Permitted	0.71	1.00		0.54	1.00		0.66	1.00			1.00	1.00
Satd. Flow (perm)	1315	1670		822	1793		1178	1679			1810	1538
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)	618	129	174	6	62	6	225	230	6	0	157	337
RTOR Reduction (vph)	0	64	0	0	3	0	0	1	0	0	0	221
Lane Group Flow (vph)	618	239	0	6	65	0	225	235	0	0	157	116
Confl. Peds. (#/hr)			5	5					5	5		
Heavy Vehicles (%)	3%	0%	4%	25%	5%	0%	6%	13%	0%	0%	5%	5%
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	41.4	41.4		41.4	41.4		27.6	27.6			27.6	27.6
Effective Green, g (s)	41.4	41.4		41.4	41.4		27.6	27.6			27.6	27.6
Actuated g/C Ratio	0.52	0.52		0.52	0.52		0.35	0.35			0.35	0.35
Clearance Time (s)	5.5	5.5		5.5	5.5		5.5	5.5			5.5	5.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	680	864		425	927		406	579			624	530
v/s Ratio Prot		0.14			0.04			0.14			0.09	
v/s Ratio Perm	c0.47			0.01			c0.19					0.08
v/c Ratio	0.91	0.28		0.01	0.07		0.55	0.41			0.25	0.22
Uniform Delay, d1	17.6	10.9		9.4	9.7		21.2	20.0			18.8	18.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	16.0	0.2		0.0	0.0		5.4	2.1			1.0	1.0
Delay (s)	33.5	11.0		9.4	9.7		26.6	22.1			19.8	19.5
Level of Service	C	B		A	A		C	C			B	B
Approach Delay (s)		26.1			9.7			24.3			19.6	
Approach LOS		C			A			C			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			23.4				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)				11.0	
Intersection Capacity Utilization			90.9%				ICU Level of Service				E	
Analysis Period (min)			15									

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 10: Simcoe Road & Gibson Circle

Future Total 2036 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	10	20	275	275	10
Future Volume (Veh/h)	25	10	20	275	275	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	34	14	27	377	377	14
Pedestrians	5			5		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	820	394	396			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	820	394	396			
tC, single (s)	6.5	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.3			
p0 queue free %	90	98	98			
cM capacity (veh/h)	327	645	1116			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	48	404	391			
Volume Left	34	27	0			
Volume Right	14	0	14			
cSH	382	1116	1700			
Volume to Capacity	0.13	0.02	0.23			
Queue Length 95th (m)	3.4	0.6	0.0			
Control Delay (s)	15.8	0.8	0.0			
Lane LOS	C	A				
Approach Delay (s)	15.8	0.8	0.0			
Approach LOS	C					
<b>Intersection Summary</b>						
Average Delay			1.3			
Intersection Capacity Utilization			42.5%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 11: Simcoe Road & Golfview Blvd

Future Total 2036 AM Peak Hour



















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	10	5	230	230	15
Future Volume (Veh/h)	25	10	5	230	230	15
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	28	11	6	256	256	17
<b>Pedestrians</b>						
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	532	264	273			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	532	264	273			
tC, single (s)	6.5	6.2	4.6			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.7			
p0 queue free %	94	99	99			
cM capacity (veh/h)	493	779	1058			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	39	262	273			
Volume Left	28	6	0			
Volume Right	11	0	17			
cSH	550	1058	1700			
Volume to Capacity	0.07	0.01	0.16			
Queue Length 95th (m)	1.8	0.1	0.0			
Control Delay (s)	12.0	0.2	0.0			
Lane LOS	B	A				
Approach Delay (s)	12.0	0.2	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			0.9			
Intersection Capacity Utilization			26.1%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 12: Canal Rd

Future Total 2036 AM Peak Hour










												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	160	35	0	0	20	35	0	0	0	70	5	155
Future Volume (vph)	160	35	0	0	20	35	0	0	0	70	5	155
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	190	42	0	0	24	42	0	0	0	83	6	185
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	232	66	0	274								
Volume Left (vph)	190	0	0	83								
Volume Right (vph)	0	42	0	185								
Hadj (s)	0.32	-0.19	0.00	-0.26								
Departure Headway (s)	5.0	4.7	5.0	4.4								
Degree Utilization, x	0.32	0.09	0.00	0.33								
Capacity (veh/h)	688	711	663	772								
Control Delay (s)	10.3	8.1	8.0	9.6								
Approach Delay (s)	10.3	8.1	0.0	9.6								
Approach LOS	B	A	A	A								
Intersection Summary												
Delay			9.7									
Level of Service			A									
Intersection Capacity Utilization			37.7%	ICU Level of Service								A
Analysis Period (min)			15									



# HCM Unsignalized Intersection Capacity Analysis













## 13: Line 5 & Canal Rd

Future Total 2036 AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	80	55	0	115	100	75
Future Volume (Veh/h)	80	55	0	115	100	75
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	96	66	0	139	120	90
<b>Pedestrians</b>						
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	304	165	210			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	304	165	210			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	86	93	100			
cM capacity (veh/h)	692	885	1373			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	162	139	210			
Volume Left	96	0	0			
Volume Right	66	0	90			
cSH	759	1373	1700			
Volume to Capacity	0.21	0.00	0.12			
Queue Length 95th (m)	6.4	0.0	0.0			
Control Delay (s)	11.0	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	11.0	0.0	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			3.5			
Intersection Capacity Utilization			24.3%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
 14: Line 5 & 10 Sideroad











Future Total 2036 AM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	 			 	 	
Traffic Volume (veh/h)	175	135	15	305	210	15
Future Volume (Veh/h)	175	135	15	305	210	15
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	213	165	18	372	256	18
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			378	518		189
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			378	518		189
tC, single (s)			4.8	6.8		6.9
tC, 2 stage (s)						
tF (s)			2.5	3.5		3.3
p0 queue free %			98	47		98
cM capacity (veh/h)			983	483		827
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	142	236	142	248	274	
Volume Left	0	0	18	0	256	
Volume Right	0	165	0	0	18	
cSH	1700	1700	983	1700	497	
Volume to Capacity	0.08	0.14	0.02	0.15	0.55	
Queue Length 95th (m)	0.0	0.0	0.4	0.0	26.4	
Control Delay (s)	0.0	0.0	1.3	0.0	20.8	
Lane LOS			A	C		
Approach Delay (s)	0.0	0.5		20.8		
Approach LOS			C			
Intersection Summary						
Average Delay			5.6			
Intersection Capacity Utilization			38.7%	ICU Level of Service		A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 16: Line 10 & Line 5

Future Total 2036 AM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	140	10	5	205	20	5
Future Volume (Veh/h)	140	10	5	205	20	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	147	11	5	216	21	5
<b>Pedestrians</b>						
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			158			378 152
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			158			378 152
tC, single (s)			4.1			6.4 6.2
tC, 2 stage (s)						
tF (s)			2.2			3.5 3.3
p0 queue free %			100			97 99
cM capacity (veh/h)			1434			625 899
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	158	221	26			
Volume Left	0	5	21			
Volume Right	11	0	5			
cSH	1700	1434	664			
Volume to Capacity	0.09	0.00	0.04			
Queue Length 95th (m)	0.0	0.1	1.0			
Control Delay (s)	0.0	0.2	10.6			
Lane LOS			A	B		
Approach Delay (s)	0.0	0.2	10.6			
Approach LOS			B			
<b>Intersection Summary</b>						
Average Delay			0.8			
Intersection Capacity Utilization			24.8%	ICU Level of Service		A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 17: Line 5 & Street A










Future Total 2036 AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	115	75	0	20	135
Future Volume (Veh/h)	30	115	75	0	20	135
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	32	121	79	0	21	142
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	79				264	79
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	79				264	79
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				97	86
cM capacity (veh/h)	1532				714	987
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	153	79	163			
Volume Left	32	0	21			
Volume Right	0	0	142			
cSH	1532	1700	941			
Volume to Capacity	0.02	0.05	0.17			
Queue Length 95th (m)	0.5	0.0	5.0			
Control Delay (s)	1.7	0.0	9.6			
Lane LOS	A		A			
Approach Delay (s)	1.7	0.0	9.6			
Approach LOS			A			
Intersection Summary						
Average Delay			4.6			
Intersection Capacity Utilization			30.5%		ICU Level of Service	A
Analysis Period (min)			15			










HCM Unsignalized Intersection Capacity Analysis  
 18: Simcoe Road & Danube Lane

Future Total 2036 AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	45	190	5	20	220
Future Volume (Veh/h)	10	45	190	5	20	220
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)	11	49	207	5	22	239
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	492	210			212	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	492	210			212	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	94			98	
cM capacity (veh/h)	531	836			1370	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	60	212	261			
Volume Left	11	0	22			
Volume Right	49	5	0			
cSH	756	1700	1370			
Volume to Capacity	0.08	0.12	0.02			
Queue Length 95th (m)	2.1	0.0	0.4			
Control Delay (s)	10.2	0.0	0.8			
Lane LOS	B		A			
Approach Delay (s)	10.2	0.0	0.8			
Approach LOS	B					
Intersection Summary						
Average Delay			1.5			
Intersection Capacity Utilization			36.3%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
 19: Simcoe Road & Jonkman Blvd










Future Total 2036 AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	95	285	5	30	265
Future Volume (Veh/h)	10	95	285	5	30	265
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)	11	103	310	5	33	288
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	666	312			315	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	666	312			315	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	86			97	
cM capacity (veh/h)	416	732			1257	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	114	315	321			
Volume Left	11	0	33			
Volume Right	103	5	0			
cSH	682	1700	1257			
Volume to Capacity	0.17	0.19	0.03			
Queue Length 95th (m)	4.8	0.0	0.6			
Control Delay (s)	11.3	0.0	1.0			
Lane LOS	B		A			
Approach Delay (s)	11.3	0.0	1.0			
Approach LOS	B					
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilization			47.3%		ICU Level of Service	A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 20: Street A & Street B

















Future Total 2036 AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	40	70	250	5	25	100
Future Volume (vph)	40	70	250	5	25	100
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	44	78	278	6	28	111
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total (vph)	122	284	139			
Volume Left (vph)	44	0	28			
Volume Right (vph)	78	6	0			
Hadj (s)	-0.28	0.02	0.07			
Departure Headway (s)	4.6	4.4	4.6			
Degree Utilization, x	0.16	0.35	0.18			
Capacity (veh/h)	719	797	748			
Control Delay (s)	8.4	9.7	8.6			
Approach Delay (s)	8.4	9.7	8.6			
Approach LOS	A	A	A			
Intersection Summary						
Delay			9.1			
Level of Service			A			
Intersection Capacity Utilization			36.6%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 21: Street L & Street B

Future Total 2036 AM Peak Hour

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	5	0	20	0	25	0	0	0	0	25
Future Volume (Veh/h)	5	0	5	0	20	0	25	0	0	0	0	25
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	0	6	0	22	0	28	0	0	0	0	28
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	22			6			65	37	3	37	40	22
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	22			6			65	37	3	37	40	22
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			97	100	100	100	100	97
cM capacity (veh/h)	1593			1615			902	852	1081	966	849	1055
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	12	22	28	28								
Volume Left	6	0	28	0								
Volume Right	6	0	0	28								
cSH	1593	1615	902	1055								
Volume to Capacity	0.00	0.00	0.03	0.03								
Queue Length 95th (m)	0.1	0.0	0.8	0.7								
Control Delay (s)	3.6	0.0	9.1	8.5								
Lane LOS	A		A	A								
Approach Delay (s)	3.6	0.0	9.1	8.5								
Approach LOS			A	A								
Intersection Summary												
Average Delay			6.0									
Intersection Capacity Utilization			19.8%		ICU Level of Service				A			
Analysis Period (min)			15									



# HCM Unsignalized Intersection Capacity Analysis

## 22: Street A & Street S/Street C

















Future Total 2036 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	10	0	5	35	0	25	5	170	0	10	110	5
Future Volume (vph)	10	0	5	35	0	25	5	170	0	10	110	5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	0	6	39	0	28	6	189	0	11	122	6
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	17	67	195	139								
Volume Left (vph)	11	39	6	11								
Volume Right (vph)	6	28	0	6								
Hadj (s)	-0.05	-0.10	0.04	0.02								
Departure Headway (s)	4.7	4.6	4.3	4.3								
Degree Utilization, x	0.02	0.09	0.23	0.17								
Capacity (veh/h)	701	726	814	797								
Control Delay (s)	7.8	8.0	8.6	8.2								
Approach Delay (s)	7.8	8.0	8.6	8.2								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			8.3									
Level of Service			A									
Intersection Capacity Utilization			21.3%	ICU Level of Service	A							
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 23: Street L & Street C










Future Total 2036 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	5	0	20	0	25	0	0	0	0	5
Future Volume (Veh/h)	5	0	5	0	20	0	25	0	0	0	0	5
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	0	6	0	22	0	28	0	0	0	0	6
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	22			6			43			37		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	22			6			43			37		
tC, single (s)	4.1			4.1			7.1			6.5		
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5			4.0		
p0 queue free %	100			100			97			100		
cM capacity (veh/h)	1593			1615			952			852		
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	12	22	28	6								
Volume Left	6	0	28	0								
Volume Right	6	0	0	6								
cSH	1593	1615	952	1055								
Volume to Capacity	0.00	0.00	0.03	0.01								
Queue Length 95th (m)	0.1	0.0	0.7	0.1								
Control Delay (s)	3.6	0.0	8.9	8.4								
Lane LOS	A		A	A								
Approach Delay (s)	3.6	0.0	8.9	8.4								
Approach LOS			A	A								
Intersection Summary												
Average Delay				5.1								
Intersection Capacity Utilization				19.8%	ICU Level of Service	A						
Analysis Period (min)				15								

# HCM Unsignalized Intersection Capacity Analysis

## 24: Street A

Future Total 2036 AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	10	10	70	5	5	145
Future Volume (vph)	10	10	70	5	5	145
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	11	78	6	6	161
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total (vph)	22	84	167			
Volume Left (vph)	11	0	6			
Volume Right (vph)	11	6	0			
Hadj (s)	-0.17	-0.01	0.04			
Departure Headway (s)	4.3	4.1	4.1			
Degree Utilization, x	0.03	0.10	0.19			
Capacity (veh/h)	793	857	873			
Control Delay (s)	7.4	7.5	8.0			
Approach Delay (s)	7.4	7.5	8.0			
Approach LOS	A	A	A			
Intersection Summary						
Delay			7.8			
Level of Service			A			
Intersection Capacity Utilization			21.7%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 25: Street A & Street Q

Future Total 2036 AM Peak Hour















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	35	10	5	35	145	10
Future Volume (vph)	35	10	5	35	145	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	39	11	6	39	161	11
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	50	45	172			
Volume Left (vph)	39	6	0			
Volume Right (vph)	11	0	11			
Hadj (s)	0.06	0.06	0.00			
Departure Headway (s)	4.4	4.2	4.1			
Degree Utilization, x	0.06	0.05	0.19			
Capacity (veh/h)	773	822	872			
Control Delay (s)	7.7	7.5	8.0			
Approach Delay (s)	7.7	7.5	8.0			
Approach LOS	A	A	A			
Intersection Summary						
Delay			7.9			
Level of Service			A			
Intersection Capacity Utilization			18.2%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 1: 10 Sideroad & Line 6

Future Total 2026 PM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	10	15	0	100	65	150	0	140	330	185	40	0
Future Volume (veh/h)	10	15	0	100	65	150	0	140	330	185	40	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	17	0	111	72	167	0	156	367	206	44	0
Approach Volume (veh/h)	28			350			523			250		
Crossing Volume (veh/h)	361			167			234			183		
High Capacity (veh/h)	1043			1215			1153			1200		
High v/c (veh/h)	0.03			0.29			0.45			0.21		
Low Capacity (veh/h)	852			1007			951			993		
Low v/c (veh/h)	0.03			0.35			0.55			0.25		
<b>Intersection Summary</b>												
Maximum v/c High	0.45											
Maximum v/c Low	0.55											
Intersection Capacity Utilization	47.7%			ICU Level of Service				A				

# HCM Unsignalized Intersection Capacity Analysis

## 2: Line 6 & Langford Boulevard

Future Total 2026 PM Peak Hour Period

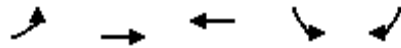


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	65	465	295	80	45	20
Future Volume (Veh/h)	65	465	295	80	45	20
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	71	511	324	88	49	22
<b>Pedestrians</b>						
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	412				1021	368
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	412				1021	368
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				80	97
cM capacity (veh/h)	1147				245	682
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>SB 1</b>		
Volume Total	71	511	412	71		
Volume Left	71	0	0	49		
Volume Right	0	0	88	22		
cSH	1147	1700	1700	305		
Volume to Capacity	0.06	0.30	0.24	0.23		
Queue Length 95th (m)	1.6	0.0	0.0	7.1		
Control Delay (s)	8.3	0.0	0.0	20.3		
Lane LOS	A			C		
Approach Delay (s)	1.0		0.0	20.3		
Approach LOS				C		
<b>Intersection Summary</b>						
Average Delay			1.9			
Intersection Capacity Utilization			37.7%	ICU Level of Service	A	
Analysis Period (min)			15			

# Queues

## 3: Line 6 & West Park Ave

Future Total 2026 PM Peak Hour Period



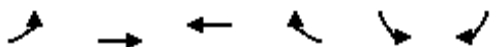
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	45	528	545	230	22
v/c Ratio	0.14	0.57	0.61	0.42	0.04
Control Delay	8.8	12.6	12.3	17.0	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	12.6	12.3	17.0	6.7
Queue Length 50th (m)	2.2	33.5	31.5	17.4	0.0
Queue Length 95th (m)	6.9	56.8	56.6	32.9	3.8
Internal Link Dist (m)		582.6	325.3	441.0	
Turn Bay Length (m)	110.0				
Base Capacity (vph)	324	920	900	548	515
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	0.14	0.57	0.61	0.42	0.04

### Intersection Summary

# HCM Signalized Intersection Capacity Analysis

## 3: Line 6 & West Park Ave

Future Total 2026 PM Peak Hour Period






















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↖		↖	↗
Traffic Volume (vph)	40	470	355	130	205	20
Future Volume (vph)	40	470	355	130	205	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7		4.9	4.9
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.96		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1801	1900	1806		1770	1615
Flt Permitted	0.35	1.00	1.00		0.95	1.00
Satd. Flow (perm)	669	1900	1806		1770	1615
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	45	528	399	146	230	22
RTOR Reduction (vph)	0	0	26	0	0	15
Lane Group Flow (vph)	45	528	519	0	230	7
Confl. Peds. (#/hr)	5			5		
Heavy Vehicles (%)	0%	0%	1%	0%	2%	0%
Turn Type	Perm	NA	NA		Prot	Prot
Protected Phases		4	8		6	6
Permitted Phases	4					
Actuated Green, G (s)	25.0	25.0	25.0		16.0	16.0
Effective Green, g (s)	25.0	25.0	25.0		16.0	16.0
Actuated g/C Ratio	0.48	0.48	0.48		0.31	0.31
Clearance Time (s)	5.7	5.7	5.7		4.9	4.9
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	324	920	875		548	500
v/s Ratio Prot		0.28	c0.29		c0.13	0.00
v/s Ratio Perm	0.07					
v/c Ratio	0.14	0.57	0.59		0.42	0.01
Uniform Delay, d1	7.4	9.5	9.6		14.1	12.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.9	2.6	3.0		2.4	0.0
Delay (s)	8.2	12.1	12.6		16.5	12.4
Level of Service	A	B	B		B	B
Approach Delay (s)		11.8	12.6		16.1	
Approach LOS		B	B		B	
<b>Intersection Summary</b>						
HCM 2000 Control Delay			12.9		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.53			
Actuated Cycle Length (s)			51.6		Sum of lost time (s)	10.6
Intersection Capacity Utilization			53.4%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						



# HCM Unsignalized Intersection Capacity Analysis

## 4: Brownlee Drive/Southfield Gate & Line 6












Future Total 2026 PM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	650	10	10	475	15	5	5	5	5	0	5
Future Volume (Veh/h)	15	650	10	10	475	15	5	5	5	5	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	722	11	11	528	17	6	6	6	6	0	6
Pedestrians		10			10						10	
Lane Width (m)		3.6			3.6						3.6	
Walking Speed (m/s)		1.2			1.2						1.2	
Percent Blockage		1			1						1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage (veh)		2			2							
Upstream signal (m)		349										
pX, platoon unblocked				0.84			0.84	0.84	0.84	0.84	0.84	
vC, conflicting volume	555			733			1328	1338	738	1344	1336	556
vC1, stage 1 conf vol							762	762		568	568	
vC2, stage 2 conf vol							566	577		775	767	
vCu, unblocked vol	555			584			1294	1307	589	1313	1304	556
tC, single (s)	4.1			4.2			7.1	6.5	6.5	7.1	6.5	6.7
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.3			3.5	4.0	3.5	3.5	4.0	3.8
p0 queue free %	98			99			98	98	98	98	100	99
cM capacity (veh/h)	1017			797			316	323	388	302	321	442
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	17	733	11	545	18	12						
Volume Left	17	0	11	0	6	6						
Volume Right	0	11	0	17	6	6						
cSH	1017	1700	797	1700	339	359						
Volume to Capacity	0.02	0.43	0.01	0.32	0.05	0.03						
Queue Length 95th (m)	0.4	0.0	0.3	0.0	1.3	0.8						
Control Delay (s)	8.6	0.0	9.6	0.0	16.2	15.4						
Lane LOS	A		A		C	C						
Approach Delay (s)	0.2		0.2		16.2	15.4						
Approach LOS					C	C						
Intersection Summary												
Average Delay			0.5									
Intersection Capacity Utilization			47.7%	ICU Level of Service	A							
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 5: Golf Driveway Access & Line 6

Future Total 2026 PM Peak Hour Period

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	495	165	270	445	55	155
Future Volume (Veh/h)	495	165	270	445	55	155
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)	538	179	293	484	60	168
<b>Pedestrians</b>						
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)			346			
pX, platoon unblocked						
vC, conflicting volume			717		1698	628
vC1, stage 1 conf vol					628	
vC2, stage 2 conf vol					1070	
vCu, unblocked vol			717		1698	628
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			67		71	65
cM capacity (veh/h)			893		207	487
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>	<b>NB 2</b>	
Volume Total	717	293	484	60	168	
Volume Left	0	293	0	60	0	
Volume Right	179	0	0	0	168	
cSH	1700	893	1700	207	487	
Volume to Capacity	0.42	0.33	0.28	0.29	0.35	
Queue Length 95th (m)	0.0	11.5	0.0	9.2	12.2	
Control Delay (s)	0.0	11.0	0.0	29.4	16.2	
Lane LOS		B		D	C	
Approach Delay (s)	0.0	4.1		19.7		
Approach LOS				C		
<b>Intersection Summary</b>						
Average Delay			4.5			
Intersection Capacity Utilization			64.4%	ICU Level of Service	C	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 6: Line 6 & Adams Street

Future Total 2026 PM Peak Hour Period

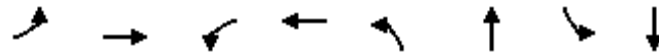


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	620	705	70	35	10
Future Volume (Veh/h)	30	620	705	70	35	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	33	689	783	78	39	11
Pedestrians					5	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage (veh)		2	2			
Upstream signal (m)			258			
pX, platoon unblocked	0.69				0.69	0.69
vC, conflicting volume	866				1582	827
vC1, stage 1 conf vol					827	
vC2, stage 2 conf vol					755	
vCu, unblocked vol	584				1619	527
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	95				87	97
cM capacity (veh/h)	679				302	382
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>SB 1</b>		
Volume Total	33	689	861	50		
Volume Left	33	0	0	39		
Volume Right	0	0	78	11		
cSH	679	1700	1700	317		
Volume to Capacity	0.05	0.41	0.51	0.16		
Queue Length 95th (m)	1.2	0.0	0.0	4.4		
Control Delay (s)	10.6	0.0	0.0	18.5		
Lane LOS	B			C		
Approach Delay (s)	0.5		0.0	18.5		
Approach LOS				C		
<b>Intersection Summary</b>						
Average Delay			0.8			
Intersection Capacity Utilization			51.4%		ICU Level of Service	A
Analysis Period (min)			15			

# Queues

## 7: Inverness Way/Melbourne Dr & Line 6

Future Total 2026 PM Peak Hour Period



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	107	629	11	832	22	28	107	174
v/c Ratio	0.39	0.52	0.03	0.68	0.08	0.07	0.36	0.37
Control Delay	14.6	9.2	6.2	14.0	15.4	12.9	19.9	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.6	9.2	6.2	14.0	15.4	12.9	19.9	7.5
Queue Length 50th (m)	4.7	30.6	0.4	47.4	1.8	1.8	9.2	2.8
Queue Length 95th (m)	#25.6	73.7	2.6	#136.0	5.4	5.8	17.5	13.1
Internal Link Dist (m)		233.8		288.6		331.7		165.8
Turn Bay Length (m)	50.0		50.0					
Base Capacity (vph)	273	1218	439	1215	378	573	421	602
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	0.39	0.52	0.03	0.68	0.06	0.05	0.25	0.29





















### Intersection Summary

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

# HCM Signalized Intersection Capacity Analysis

## 7: Inverness Way/Melbourne Dr & Line 6

Future Total 2026 PM Peak Hour Period




















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	525	35	10	630	110	20	20	5	95	30	125
Future Volume (vph)	95	525	35	10	630	110	20	20	5	95	30	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Lane Util. Factor	1.00	1.00		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		1.00	0.98	
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	0.97		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1803	1862		1802	1848		1796	1839		1752	1636	
Flt Permitted	0.22	1.00		0.35	1.00		0.65	1.00		0.74	1.00	
Satd. Flow (perm)	420	1862		673	1848		1224	1839		1363	1636	
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)	107	590	39	11	708	124	22	22	6	107	34	140
RTOR Reduction (vph)	0	3	0	0	9	0	0	5	0	0	115	0
Lane Group Flow (vph)	107	626	0	11	823	0	22	23	0	107	59	0
Confl. Peds. (#/hr)	5		5	5		5	5					5
Heavy Vehicles (%)	0%	1%	0%	0%	0%	1%	0%	0%	0%	3%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	31.6	31.6		31.6	31.6		9.4	9.4		9.4	9.4	
Effective Green, g (s)	31.6	31.6		31.6	31.6		9.4	9.4		9.4	9.4	
Actuated g/C Ratio	0.61	0.61		0.61	0.61		0.18	0.18		0.18	0.18	
Clearance Time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	256	1138		411	1129		222	334		247	297	
v/s Ratio Prot		0.34			c0.45			0.01			0.04	
v/s Ratio Perm	0.25			0.02			0.02			c0.08		
v/c Ratio	0.42	0.55		0.03	0.73		0.10	0.07		0.43	0.20	
Uniform Delay, d1	5.2	5.9		4.0	7.0		17.6	17.5		18.8	18.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.0	1.9		0.1	4.1		0.2	0.1		1.2	0.3	
Delay (s)	10.2	7.8		4.1	11.2		17.8	17.6		20.0	18.3	
Level of Service	B	A		A	B		B	B		C	B	
Approach Delay (s)		8.1			11.1			17.7			18.9	
Approach LOS		A			B			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			11.3				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			51.7				Sum of lost time (s)			10.7		
Intersection Capacity Utilization			90.9%				ICU Level of Service			E		
Analysis Period (min)			15									

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 8: Barrow Ave & Line 6

Future Total 2026 PM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	600	20	45	730	5	10	0	25	10	0	10
Future Volume (Veh/h)	0	600	20	45	730	5	10	0	25	10	0	10
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	690	23	52	839	6	11	0	29	11	0	11
Pedestrians							5			5		
Lane Width (m)							3.6			3.6		
Walking Speed (m/s)							1.2			1.2		
Percent Blockage							0			0		
Right turn flare (veh)												
Median type	TWLTL				TWLTL							
Median storage veh	2				2							
Upstream signal (m)	313				286							
pX, platoon unblocked				0.83			0.83			0.83		
vC, conflicting volume	850			718			1660			1660		
vC1, stage 1 conf vol							706			706		
vC2, stage 2 conf vol							954			954		
vCu, unblocked vol	850			561			1693			1693		
tC, single (s)	4.1			4.1			7.1			6.5		
tC, 2 stage (s)							6.1			5.5		
tF (s)	2.2			2.2			3.5			4.0		
p0 queue free %	100			94			95			100		
cM capacity (veh/h)	794			846			237			258		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	0	713	52	845	40	22						
Volume Left	0	0	52	0	11	11						
Volume Right	0	23	0	6	29	11						
cSH	1700	1700	846	1700	360	277						
Volume to Capacity	0.00	0.42	0.06	0.50	0.11	0.08						
Queue Length 95th (m)	0.0	0.0	1.6	0.0	3.0	2.1						
Control Delay (s)	0.0	0.0	9.5	0.0	16.2	19.1						
Lane LOS				A			C			C		
Approach Delay (s)	0.0		0.6		16.2		19.1					
Approach LOS					C		C					
<b>Intersection Summary</b>												
Average Delay				0.9								
Intersection Capacity Utilization				48.7%			ICU Level of Service			A		
Analysis Period (min)				15								

Queues

9: Simcoe Road & Line 6

Future Total 2026 PM Peak Hour Period























Lane Group	EBL	EBT	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	376	339	43	215	280	172	634
v/c Ratio	0.65	0.42	0.06	0.44	0.37	0.23	0.62
Control Delay	20.5	9.7	9.9	16.7	14.0	13.0	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.5	9.7	9.9	16.7	14.0	13.0	4.4
Queue Length 50th (m)	33.3	16.1	2.5	17.4	21.2	12.6	0.0
Queue Length 95th (m)	60.9	34.0	7.5	34.3	37.9	24.4	17.6
Internal Link Dist (m)		261.7	146.8		400.8	164.8	
Turn Bay Length (m)	50.0			110.0			
Base Capacity (vph)	577	798	778	488	756	738	1020
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	0.65	0.42	0.06	0.44	0.37	0.23	0.62
<b>Intersection Summary</b>							

# HCM Signalized Intersection Capacity Analysis

## 9: Simcoe Road & Line 6

Future Total 2026 PM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	350	145	170	0	35	5	200	240	20	5	155	590
Future Volume (vph)	350	145	170	0	35	5	200	240	20	5	155	590
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5		5.5	5.5			5.5	5.5
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.92			0.98		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1805	1746			1860		1787	1878			1861	1599
Flt Permitted	0.73	1.00			1.00		0.65	1.00			0.99	1.00
Satd. Flow (perm)	1385	1746			1860		1220	1878			1846	1599
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)	376	156	183	0	38	5	215	258	22	5	167	634
RTOR Reduction (vph)	0	71	0	0	3	0	0	5	0	0	0	380
Lane Group Flow (vph)	376	268	0	0	40	0	215	275	0	0	172	254
Heavy Vehicles (%)	0%	0%	0%	0%	0%	3%	1%	0%	0%	0%	2%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	6
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	25.0	25.0			25.0		24.0	24.0			24.0	24.0
Effective Green, g (s)	25.0	25.0			25.0		24.0	24.0			24.0	24.0
Actuated g/C Ratio	0.42	0.42			0.42		0.40	0.40			0.40	0.40
Clearance Time (s)	5.5	5.5			5.5		5.5	5.5			5.5	5.5
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	577	727			775		488	751			738	639
v/s Ratio Prot		0.15			0.02			0.15				
v/s Ratio Perm	c0.27						c0.18				0.09	0.16
v/c Ratio	0.65	0.37			0.05		0.44	0.37			0.23	0.40
Uniform Delay, d1	14.0	12.1			10.4		13.1	12.7			11.9	12.8
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	2.6	0.3			0.0		2.9	1.4			0.7	1.8
Delay (s)	16.7	12.4			10.5		16.0	14.0			12.6	14.7
Level of Service	B	B			B		B	B			B	B
Approach Delay (s)		14.6			10.5			14.9			14.2	
Approach LOS		B			B			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			14.5				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			60.0				Sum of lost time (s)			11.0		
Intersection Capacity Utilization			91.1%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												



# HCM Unsignalized Intersection Capacity Analysis

## 10: Simcoe Road & Gibson Circle

Future Total 2026 PM Peak Hour Period



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	5	25	405	205	25
Future Volume (Veh/h)	15	5	25	405	205	25
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	18	6	29	476	241	29
Pedestrians	10			5		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	1			0		
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	800	270	280			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	800	270	280			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	99	98			
cM capacity (veh/h)	346	763	1283			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	24	505	270			
Volume Left	18	29	0			
Volume Right	6	0	29			
cSH	401	1283	1700			
Volume to Capacity	0.06	0.02	0.16			
Queue Length 95th (m)	1.5	0.6	0.0			
Control Delay (s)	14.5	0.7	0.0			
Lane LOS	B	A				
Approach Delay (s)	14.5	0.7	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay	0.9					
Intersection Capacity Utilization	50.2%			ICU Level of Service	A	
Analysis Period (min)	15					

# HCM Unsignalized Intersection Capacity Analysis

## 11: Simcoe Road & Golfview Blvd

Future Total 2026 PM Peak Hour Period



















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	5	10	390	185	25
Future Volume (Veh/h)	20	5	10	390	185	25
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)	22	5	11	424	201	27
Pedestrians	10			5		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	1			0		
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	670	230	238			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	670	230	238			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	99	99			
cM capacity (veh/h)	418	805	1330			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	27	435	228			
Volume Left	22	11	0			
Volume Right	5	0	27			
cSH	459	1330	1700			
Volume to Capacity	0.06	0.01	0.13			
Queue Length 95th (m)	1.5	0.2	0.0			
Control Delay (s)	13.3	0.3	0.0			
Lane LOS	B	A				
Approach Delay (s)	13.3	0.3	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			0.7			
Intersection Capacity Utilization			40.1%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 12: Canal Rd










Future Total 2026 PM Peak Hour Period

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	280	45	0	5	55	115	5	5	0	45	5	85
Future Volume (vph)	280	45	0	5	55	115	5	5	0	45	5	85
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	341	55	0	6	67	140	6	6	0	55	6	104
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	396	213	12	165								
Volume Left (vph)	341	6	6	55								
Volume Right (vph)	0	140	0	104								
Hadj (s)	0.22	-0.37	0.10	-0.31								
Departure Headway (s)	4.8	4.5	5.7	5.0								
Degree Utilization, x	0.53	0.27	0.02	0.23								
Capacity (veh/h)	715	754	530	641								
Control Delay (s)	13.2	9.1	8.9	9.6								
Approach Delay (s)	13.2	9.1	8.9	9.6								
Approach LOS	B	A	A	A								
Intersection Summary												
Delay			11.3									
Level of Service			B									
Intersection Capacity Utilization			47.0%		ICU Level of Service				A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis










## 13: Line 5 & Canal Rd

Future Total 2026 PM Peak Hour Period

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	120	5	15	205	50	95
Future Volume (Veh/h)	120	5	15	205	50	95
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	138	6	17	236	57	109
<b>Pedestrians</b>						
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	382	112	166			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	382	112	166			
tC, single (s)	6.5	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.3			
p0 queue free %	77	99	99			
cM capacity (veh/h)	604	947	1382			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	144	253	166			
Volume Left	138	17	0			
Volume Right	6	0	109			
cSH	613	1382	1700			
Volume to Capacity	0.23	0.01	0.10			
Queue Length 95th (m)	7.3	0.3	0.0			
Control Delay (s)	12.7	0.6	0.0			
Lane LOS	B	A				
Approach Delay (s)	12.7	0.6	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			3.5			
Intersection Capacity Utilization			36.8%	ICU Level of Service	A	
Analysis Period (min)			15			










HCM Unsignalized Intersection Capacity Analysis  
 14: Line 5 & 10 Sideroad

Future Total 2026 PM Peak Hour Period

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	425	235	20	125	180	45
Future Volume (Veh/h)	425	235	20	125	180	45
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	472	261	22	139	200	50
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			733		716	366
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			733		716	366
tC, single (s)			4.1		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		43	92
cM capacity (veh/h)			881		349	622
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	315	418	68	93	250	
Volume Left	0	0	22	0	200	
Volume Right	0	261	0	0	50	
cSH	1700	1700	881	1700	383	
Volume to Capacity	0.19	0.25	0.02	0.05	0.65	
Queue Length 95th (m)	0.0	0.0	0.6	0.0	35.6	
Control Delay (s)	0.0	0.0	3.1	0.0	30.4	
Lane LOS	A			D		
Approach Delay (s)	0.0		1.3	30.4		
Approach LOS				D		
Intersection Summary						
Average Delay			6.8			
Intersection Capacity Utilization			38.7%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
 16: Line 10 & Line 5

Future Total 2026 PM Peak Hour Period

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	230	25	0	215	10	5
Future Volume (Veh/h)	230	25	0	215	10	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	256	28	0	239	11	6
<b>Pedestrians</b>						
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			284			509 270
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			284			509 270
tC, single (s)			4.1			6.4 6.2
tC, 2 stage (s)						
tF (s)			2.2			3.5 3.3
p0 queue free %			100			98 99
cM capacity (veh/h)			1290			528 774
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	284	239	17			
Volume Left	0	0	11			
Volume Right	28	0	6			
cSH	1700	1290	594			
Volume to Capacity	0.17	0.00	0.03			
Queue Length 95th (m)	0.0	0.0	0.7			
Control Delay (s)	0.0	0.0	11.2			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	11.2			
Approach LOS			B			
<b>Intersection Summary</b>						
Average Delay			0.4			
Intersection Capacity Utilization			23.6%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
 17: Line 5 & Street A










Future Total 2026 PM Peak Hour Period



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Volume (veh/h)	110	125	105	0	0	110
Future Volume (Veh/h)	110	125	105	0	0	110
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	122	139	117	0	0	122
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	117				500	117
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	117				500	117
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				100	87
cM capacity (veh/h)	1484				490	941
Direction, Lane #						
	EB 1	WB 1	SB 1			
Volume Total	261	117	122			
Volume Left	122	0	0			
Volume Right	0	0	122			
cSH	1484	1700	941			
Volume to Capacity	0.08	0.07	0.13			
Queue Length 95th (m)	2.1	0.0	3.6			
Control Delay (s)	3.9	0.0	9.4			
Lane LOS	A		A			
Approach Delay (s)	3.9	0.0	9.4			
Approach LOS			A			
Intersection Summary						
Average Delay			4.3			
Intersection Capacity Utilization			32.8%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
 18: Simcoe Road & Danube Lane

Future Total 2026 PM Peak Hour Period










						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	25	375	25	60	130
Future Volume (Veh/h)	5	25	375	25	60	130
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)	5	27	408	27	65	141
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	692	422			435	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	692	422			435	
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	96			94	
cM capacity (veh/h)	389	636			1135	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	32	435	206			
Volume Left	5	0	65			
Volume Right	27	27	0			
cSH	579	1700	1135			
Volume to Capacity	0.06	0.26	0.06			
Queue Length 95th (m)	1.4	0.0	1.5			
Control Delay (s)	11.6	0.0	3.0			
Lane LOS	B		A			
Approach Delay (s)	11.6	0.0	3.0			
Approach LOS	B					
Intersection Summary						
Average Delay			1.5			
Intersection Capacity Utilization			44.7%		ICU Level of Service	A
Analysis Period (min)			15			



# HCM Unsignalized Intersection Capacity Analysis

## 19: Simcoe Road & Jonkman Blvd













Future Total 2026 PM Peak Hour Period

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	60	395	25	95	225
Future Volume (Veh/h)	5	60	395	25	95	225
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)	5	65	429	27	103	245
<b>Pedestrians</b>						
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	894	442			456	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	894	442			456	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	90			91	
cM capacity (veh/h)	285	619			1115	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	70	456	348			
Volume Left	5	0	103			
Volume Right	65	27	0			
cSH	572	1700	1115			
Volume to Capacity	0.12	0.27	0.09			
Queue Length 95th (m)	3.3	0.0	2.4			
Control Delay (s)	12.2	0.0	3.2			
Lane LOS	B		A			
Approach Delay (s)	12.2	0.0	3.2			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			2.2			
Intersection Capacity Utilization			53.4%		ICU Level of Service	A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 1: 10 Sideroad & Line 6

Future Total 2031 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	10	35	0	140	135	200	0	140	370	200	40	0
Future Volume (veh/h)	10	35	0	140	135	200	0	140	370	200	40	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	39	0	156	150	222	0	156	411	222	44	0
Approach Volume (veh/h)	50			528			567			266		
Crossing Volume (veh/h)	422			167			272			306		
High Capacity (veh/h)	993			1215			1119			1089		
High v/c (veh/h)	0.05			0.43			0.51			0.24		
Low Capacity (veh/h)	808			1007			920			893		
Low v/c (veh/h)	0.06			0.52			0.62			0.30		
<b>Intersection Summary</b>												
Maximum v/c High	0.51											
Maximum v/c Low	0.62											
Intersection Capacity Utilization	54.5%			ICU Level of Service				A				

# HCM Unsignalized Intersection Capacity Analysis

## 2: Line 6 & Langford Boulevard

Future Total 2031 PM Peak Hour

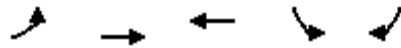


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	65	540	455	80	45	20
Future Volume (Veh/h)	65	540	455	80	45	20
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	71	593	500	88	49	22
Pedestrians						
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	588				1279	544
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	588				1279	544
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				71	96
cM capacity (veh/h)	987				169	543
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	71	593	588	71		
Volume Left	71	0	0	49		
Volume Right	0	0	88	22		
cSH	987	1700	1700	215		
Volume to Capacity	0.07	0.35	0.35	0.33		
Queue Length 95th (m)	1.9	0.0	0.0	11.0		
Control Delay (s)	8.9	0.0	0.0	29.8		
Lane LOS	A			D		
Approach Delay (s)	1.0		0.0	29.8		
Approach LOS				D		
Intersection Summary						
Average Delay			2.1			
Intersection Capacity Utilization			46.1%		ICU Level of Service	A
Analysis Period (min)			15			

# Queues

## 3: Line 6 & West Park Ave

Future Total 2031 PM Peak Hour



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	56	601	724	253	34
v/c Ratio	0.31	0.65	0.80	0.46	0.06
Control Delay	13.7	14.3	20.0	17.7	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.7	14.3	20.0	17.7	5.9
Queue Length 50th (m)	3.0	40.4	51.5	19.4	0.0
Queue Length 95th (m)	10.4	68.2	#109.3	36.3	4.6
Internal Link Dist (m)		582.6	325.3	441.0	
Turn Bay Length (m)	110.0				
Base Capacity (vph)	183	920	901	548	524
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	0.31	0.65	0.80	0.46	0.06

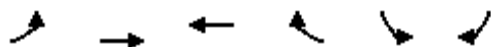
### Intersection Summary

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

# HCM Signalized Intersection Capacity Analysis

## 3: Line 6 & West Park Ave

Future Total 2031 PM Peak Hour






















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	50	535	505	140	225	30
Future Volume (vph)	50	535	505	140	225	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7		4.9	4.9
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1802	1900	1820		1770	1615
Flt Permitted	0.20	1.00	1.00		0.95	1.00
Satd. Flow (perm)	379	1900	1820		1770	1615
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	56	601	567	157	253	34
RTOR Reduction (vph)	0	0	19	0	0	23
Lane Group Flow (vph)	56	601	705	0	253	11
Confl. Peds. (#/hr)	5			5		
Heavy Vehicles (%)	0%	0%	1%	0%	2%	0%
Turn Type	Perm	NA	NA		Prot	Prot
Protected Phases		4	8		6	6
Permitted Phases	4					
Actuated Green, G (s)	25.0	25.0	25.0		16.0	16.0
Effective Green, g (s)	25.0	25.0	25.0		16.0	16.0
Actuated g/C Ratio	0.48	0.48	0.48		0.31	0.31
Clearance Time (s)	5.7	5.7	5.7		4.9	4.9
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	183	920	881		548	500
v/s Ratio Prot		0.32	c0.39		c0.14	0.01
v/s Ratio Perm	0.15					
v/c Ratio	0.31	0.65	0.80		0.46	0.02
Uniform Delay, d1	8.0	10.0	11.2		14.3	12.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	4.3	3.6	7.5		2.8	0.1
Delay (s)	12.3	13.6	18.7		17.1	12.4
Level of Service	B	B	B		B	B
Approach Delay (s)		13.5	18.7		16.6	
Approach LOS		B	B		B	
<b>Intersection Summary</b>						
HCM 2000 Control Delay			16.3		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.67			
Actuated Cycle Length (s)			51.6		Sum of lost time (s)	10.6
Intersection Capacity Utilization			62.8%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

# HCM Unsignalized Intersection Capacity Analysis

## 4: Brownlee Drive/Southfield Gate & Line 6












Future Total 2031 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	735	10	10	635	15	5	5	5	5	0	5
Future Volume (Veh/h)	15	735	10	10	635	15	5	5	5	5	0	5
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	817	11	11	706	17	6	6	6	6	0	6
Pedestrians	10			10			10			10		
Lane Width (m)	3.6			3.6			3.6			3.6		
Walking Speed (m/s)	1.2			1.2			1.2			1.2		
Percent Blockage	1			1			1			1		
Right turn flare (veh)												
Median type	TWLTL				TWLTL							
Median storage veh	2				2							
Upstream signal (m)	349											
pX, platoon unblocked				0.77			0.77			0.77		
vC, conflicting volume	733			828			1600			1612		
vC1, stage 1 conf vol							856			856		
vC2, stage 2 conf vol							744			755		
vCu, unblocked vol	733			622			1631			1646		
tC, single (s)	4.1			4.2			7.1			6.5		
tC, 2 stage (s)							6.1			5.5		
tF (s)	2.2			2.3			3.5			4.0		
p0 queue free %	98			98			98			98		
cM capacity (veh/h)	874			705			252			263		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	17	828	11	723	18	12						
Volume Left	17	0	11	0	6	6						
Volume Right	0	11	0	17	6	6						
cSH	874	1700	705	1700	280	285						
Volume to Capacity	0.02	0.49	0.02	0.43	0.06	0.04						
Queue Length 95th (m)	0.5	0.0	0.4	0.0	1.6	1.1						
Control Delay (s)	9.2	0.0	10.2	0.0	18.8	18.2						
Lane LOS	A		B		C							
Approach Delay (s)	0.2		0.2		18.8							
Approach LOS					C							
<b>Intersection Summary</b>												
Average Delay				0.5								
Intersection Capacity Utilization				52.1%			ICU Level of Service			A		
Analysis Period (min)				15								

# HCM Unsignalized Intersection Capacity Analysis

## 5: Golf Driveway Access & Line 6

Future Total 2031 PM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	580	165	270	605	55	155
Future Volume (Veh/h)	580	165	270	605	55	155
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)	630	179	293	658	60	168
<b>Pedestrians</b>						
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)			346			
pX, platoon unblocked						
vC, conflicting volume			809		1964	720
vC1, stage 1 conf vol					720	
vC2, stage 2 conf vol					1244	
vCu, unblocked vol			809		1964	720
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			65		64	61
cM capacity (veh/h)			825		164	432
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>	<b>NB 2</b>	
Volume Total	809	293	658	60	168	
Volume Left	0	293	0	60	0	
Volume Right	179	0	0	0	168	
cSH	1700	825	1700	164	432	
Volume to Capacity	0.48	0.35	0.39	0.36	0.39	
Queue Length 95th (m)	0.0	12.9	0.0	12.3	14.5	
Control Delay (s)	0.0	11.7	0.0	38.9	18.6	
Lane LOS		B		E	C	
Approach Delay (s)	0.0	3.6		23.9		
Approach LOS				C		
<b>Intersection Summary</b>						
Average Delay			4.5			
Intersection Capacity Utilization			68.8%	ICU Level of Service	C	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 6: Line 6 & Adams Street

Future Total 2031 PM Peak Hour



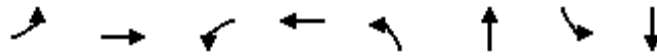
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	705	865	70	35	10
Future Volume (Veh/h)	30	705	865	70	35	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	33	783	961	78	39	11
Pedestrians					5	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh		2	2			
Upstream signal (m)			258			
pX, platoon unblocked	0.50				0.50	0.50
vC, conflicting volume	1044				1854	1005
vC1, stage 1 conf vol					1005	
vC2, stage 2 conf vol					849	
vCu, unblocked vol	585				2210	507
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	93				83	96
cM capacity (veh/h)	489				228	283
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>SB 1</b>		
Volume Total	33	783	1039	50		
Volume Left	33	0	0	39		
Volume Right	0	0	78	11		
cSH	489	1700	1700	239		
Volume to Capacity	0.07	0.46	0.61	0.21		
Queue Length 95th (m)	1.7	0.0	0.0	6.2		
Control Delay (s)	12.9	0.0	0.0	24.0		
Lane LOS	B			C		
Approach Delay (s)	0.5		0.0	24.0		
Approach LOS				C		
<b>Intersection Summary</b>						
Average Delay			0.9			
Intersection Capacity Utilization			59.8%		ICU Level of Service	B
Analysis Period (min)			15			



# Queues

## 7: Inverness Way/Melbourne Dr & Line 6

Future Total 2031 PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	129	702	11	1006	22	28	135	191
v/c Ratio	0.82	0.58	0.03	0.83	0.08	0.07	0.44	0.43
Control Delay	60.5	11.2	6.5	21.1	15.1	12.6	21.3	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.5	11.2	6.5	21.1	15.1	12.6	21.3	11.8
Queue Length 50th (m)	9.2	37.0	0.4	71.6	1.8	1.8	11.8	7.9
Queue Length 95th (m)	#31.3	#105.2	2.6	#177.9	5.4	5.8	21.4	18.7
Internal Link Dist (m)		233.8		288.6		331.7		165.8
Turn Bay Length (m)	50.0		50.0					
Base Capacity (vph)	157	1209	370	1205	372	573	421	571
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	0.82	0.58	0.03	0.83	0.06	0.05	0.32	0.33






















### Intersection Summary

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

# HCM Signalized Intersection Capacity Analysis

## 7: Inverness Way/Melbourne Dr & Line 6

Future Total 2031 PM Peak Hour



















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	590	35	10	775	120	20	20	5	120	30	140
Future Volume (vph)	115	590	35	10	775	120	20	20	5	120	30	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Lane Util. Factor	1.00	1.00		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		1.00	0.98	
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	0.97		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1804	1864		1802	1853		1796	1839		1752	1630	
Flt Permitted	0.13	1.00		0.30	1.00		0.64	1.00		0.74	1.00	
Satd. Flow (perm)	243	1864		573	1853		1205	1839		1363	1630	
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)	129	663	39	11	871	135	22	22	6	135	34	157
RTOR Reduction (vph)	0	3	0	0	8	0	0	5	0	0	79	0
Lane Group Flow (vph)	129	699	0	11	998	0	22	23	0	135	112	0
Confl. Peds. (#/hr)	5		5	5		5	5					5
Heavy Vehicles (%)	0%	1%	0%	0%	0%	1%	0%	0%	0%	3%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	31.3	31.3		31.3	31.3		9.7	9.7		9.7	9.7	
Effective Green, g (s)	31.3	31.3		31.3	31.3		9.7	9.7		9.7	9.7	
Actuated g/C Ratio	0.61	0.61		0.61	0.61		0.19	0.19		0.19	0.19	
Clearance Time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	147	1128		346	1121		226	345		255	305	
v/s Ratio Prot		0.37			c0.54			0.01				0.07
v/s Ratio Perm	0.53			0.02			0.02			c0.10		
v/c Ratio	0.88	0.62		0.03	0.89		0.10	0.07		0.53	0.37	
Uniform Delay, d1	8.6	6.4		4.1	8.7		17.4	17.3		18.9	18.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	47.2	2.6		0.2	10.7		0.2	0.1		2.0	0.8	
Delay (s)	55.8	9.0		4.3	19.4		17.6	17.4		20.9	19.1	
Level of Service	E	A		A	B		B	B		C	B	
Approach Delay (s)		16.3			19.3			17.5			19.8	
Approach LOS		B			B			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			18.2				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			51.7			Sum of lost time (s)				10.7		
Intersection Capacity Utilization			99.1%			ICU Level of Service				F		
Analysis Period (min)			15									

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 8: Barrow Ave & Line 6

Future Total 2031 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	690	20	45	885	5	10	0	25	10	0	10
Future Volume (Veh/h)	0	690	20	45	885	5	10	0	25	10	0	10
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	793	23	52	1017	6	11	0	29	11	0	11
Pedestrians							5			5		
Lane Width (m)							3.6			3.6		
Walking Speed (m/s)							1.2			1.2		
Percent Blockage							0			0		
Right turn flare (veh)												
Median type	TWLTL				TWLTL							
Median storage veh	2				2							
Upstream signal (m)	313				286							
pX, platoon unblocked	0.98			0.76			0.77	0.77	0.76	0.77	0.77	0.98
vC, conflicting volume	1028			821			1942	1942	810	1951	1950	1025
vC1, stage 1 conf vol							810	810			1129	1129
vC2, stage 2 conf vol							1132	1132			822	821
vCu, unblocked vol	1020			604			2025	2025	589	2037	2036	1017
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5			6.1	5.5
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			93			94	100	92	94	100	96
cM capacity (veh/h)	674			742			185	209	386	175	198	285
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	0	816	52	1023	40	22						
Volume Left	0	0	52	0	11	11						
Volume Right	0	23	0	6	29	11						
cSH	1700	1700	742	1700	297	217						
Volume to Capacity	0.00	0.48	0.07	0.60	0.13	0.10						
Queue Length 95th (m)	0.0	0.0	1.8	0.0	3.7	2.7						
Control Delay (s)	0.0	0.0	10.2	0.0	19.0	23.5						
Lane LOS			B		C							
Approach Delay (s)	0.0			0.5	19.0	23.5						
Approach LOS					C	C						
Intersection Summary												
Average Delay			0.9									
Intersection Capacity Utilization			56.9%		ICU Level of Service		B					
Analysis Period (min)			15									

# Queues

## 9: Simcoe Road & Line 6

Future Total 2031 PM Peak Hour



Lane Group	EBL	EBT	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	441	371	48	263	339	199	747
v/c Ratio	0.77	0.47	0.06	0.55	0.45	0.27	0.69
Control Delay	26.6	10.6	10.0	19.3	15.2	13.4	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.6	10.6	10.0	19.3	15.2	13.4	5.1
Queue Length 50th (m)	41.8	19.0	2.9	22.5	26.8	14.9	0.0
Queue Length 95th (m)	#87.4	38.8	8.1	43.8	46.6	27.9	18.8
Internal Link Dist (m)		261.7	146.8		400.8	164.8	
Turn Bay Length (m)	50.0			110.0			
Base Capacity (vph)	574	797	779	476	756	738	1087
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	0.77	0.47	0.06	0.55	0.45	0.27	0.69





















### Intersection Summary

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

# HCM Signalized Intersection Capacity Analysis

## 9: Simcoe Road & Line 6

Future Total 2031 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	410	160	185	0	40	5	245	290	25	5	180	695
Future Volume (vph)	410	160	185	0	40	5	245	290	25	5	180	695
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5		5.5	5.5			5.5	5.5
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.92			0.98		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1805	1747			1864		1787	1877			1861	1599
Flt Permitted	0.73	1.00			1.00		0.63	1.00			0.99	1.00
Satd. Flow (perm)	1379	1747			1864		1190	1877			1846	1599
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)	441	172	199	0	43	5	263	312	27	5	194	747
RTOR Reduction (vph)	0	69	0	0	3	0	0	5	0	0	0	448
Lane Group Flow (vph)	441	302	0	0	45	0	263	334	0	0	199	299
Heavy Vehicles (%)	0%	0%	0%	0%	0%	3%	1%	0%	0%	0%	2%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	25.0	25.0			25.0		24.0	24.0			24.0	24.0
Effective Green, g (s)	25.0	25.0			25.0		24.0	24.0			24.0	24.0
Actuated g/C Ratio	0.42	0.42			0.42		0.40	0.40			0.40	0.40
Clearance Time (s)	5.5	5.5			5.5		5.5	5.5			5.5	5.5
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	574	727			776		476	750			738	639
v/s Ratio Prot		0.17			0.02			0.18				
v/s Ratio Perm	c0.32						c0.22				0.11	0.19
v/c Ratio	0.77	0.41			0.06		0.55	0.44			0.27	0.47
Uniform Delay, d1	15.0	12.3			10.5		13.9	13.1			12.1	13.3
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	6.1	0.4			0.0		4.6	1.9			0.9	2.4
Delay (s)	21.1	12.7			10.5		18.4	15.0			13.0	15.7
Level of Service	C	B			B		B	B			B	B
Approach Delay (s)		17.3			10.5			16.5			15.2	
Approach LOS		B			B			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			16.1				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			60.0				Sum of lost time (s)			11.0		
Intersection Capacity Utilization			97.6%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Unsignalized Intersection Capacity Analysis

## 10: Simcoe Road & Gibson Circle

Future Total 2031 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	5	25	505	245	25
Future Volume (Veh/h)	15	5	25	505	245	25
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	18	6	29	594	288	29
Pedestrians	10			5		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	1			0		
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	964	318	327			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	964	318	327			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	99	98			
cM capacity (veh/h)	276	719	1234			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	24	623	317			
Volume Left	18	29	0			
Volume Right	6	0	29			
cSH	327	1234	1700			
Volume to Capacity	0.07	0.02	0.19			
Queue Length 95th (m)	1.9	0.6	0.0			
Control Delay (s)	16.9	0.6	0.0			
Lane LOS	C	A				
Approach Delay (s)	16.9	0.6	0.0			
Approach LOS	C					
<b>Intersection Summary</b>						
Average Delay			0.8			
Intersection Capacity Utilization			57.3%	ICU Level of Service	B	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
 11: Simcoe Road & Golfview Blvd

Future Total 2031 PM Peak Hour



















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	5	10	490	225	25
Future Volume (Veh/h)	20	5	10	490	225	25
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)	22	5	11	533	245	27
Pedestrians	10			5		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	1			0		
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	824	274	282			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	824	274	282			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	99	99			
cM capacity (veh/h)	340	760	1281			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	27	544	272			
Volume Left	22	11	0			
Volume Right	5	0	27			
cSH	379	1281	1700			
Volume to Capacity	0.07	0.01	0.16			
Queue Length 95th (m)	1.8	0.2	0.0			
Control Delay (s)	15.2	0.3	0.0			
Lane LOS	C	A				
Approach Delay (s)	15.2	0.3	0.0			
Approach LOS	C					
<b>Intersection Summary</b>						
Average Delay			0.7			
Intersection Capacity Utilization			45.3%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 12: Canal Rd

Future Total 2031 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	350	45	0	5	55	145	5	5	0	60	5	110
Future Volume (vph)	350	45	0	5	55	145	5	5	0	60	5	110
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	427	55	0	6	67	177	6	6	0	73	6	134
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	482	250	12	213								
Volume Left (vph)	427	6	6	73								
Volume Right (vph)	0	177	0	134								
Hadj (s)	0.22	-0.40	0.10	-0.31								
Departure Headway (s)	5.1	4.8	6.3	5.4								
Degree Utilization, x	0.68	0.33	0.02	0.32								
Capacity (veh/h)	685	702	478	598								
Control Delay (s)	18.4	10.2	9.4	11.0								
Approach Delay (s)	18.4	10.2	9.4	11.0								
Approach LOS	C	B	A	B								
Intersection Summary												
Delay			14.5									
Level of Service			B									
Intersection Capacity Utilization			55.4%	ICU Level of Service	B							
Analysis Period (min)			15									



HCM Unsignalized Intersection Capacity Analysis  
 13: Line 5 & Canal Rd

Future Total 2031 PM Peak Hour












Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	160	5	15	235	60	110
Future Volume (Veh/h)	160	5	15	235	60	110
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	184	6	17	270	69	126
<b>Pedestrians</b>						
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	436	132	195			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	436	132	195			
tC, single (s)	6.5	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.3			
p0 queue free %	67	99	99			
cM capacity (veh/h)	561	923	1349			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	190	287	195			
Volume Left	184	17	0			
Volume Right	6	0	126			
cSH	568	1349	1700			
Volume to Capacity	0.33	0.01	0.11			
Queue Length 95th (m)	11.7	0.3	0.0			
Control Delay (s)	14.5	0.6	0.0			
Lane LOS	B	A				
Approach Delay (s)	14.5	0.6	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			4.3			
Intersection Capacity Utilization			40.5%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis











## 14: Line 5 & 10 Sideroad

Future Total 2031 PM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	465	270	20	165	200	45
Future Volume (Veh/h)	465	270	20	165	200	45
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	517	300	22	183	222	50
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			817		802	408
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			817		802	408
tC, single (s)			4.1		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		28	91
cM capacity (veh/h)			820		307	584
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	345	472	83	122	272	
Volume Left	0	0	22	0	222	
Volume Right	0	300	0	0	50	
cSH	1700	1700	820	1700	336	
Volume to Capacity	0.20	0.28	0.03	0.07	0.81	
Queue Length 95th (m)	0.0	0.0	0.7	0.0	54.9	
Control Delay (s)	0.0	0.0	2.7	0.0	48.6	
Lane LOS	A			E		
Approach Delay (s)	0.0		1.1		48.6	
Approach LOS				E		
Intersection Summary						
Average Delay			10.4			
Intersection Capacity Utilization			42.0%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
 16: Line 10 & Line 5

Future Total 2031 PM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	265	25	0	235	10	5
Future Volume (Veh/h)	265	25	0	235	10	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	294	28	0	261	11	6
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			322			569 308
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			322			569 308
tC, single (s)			4.1			6.4 6.2
tC, 2 stage (s)						
tF (s)			2.2			3.5 3.3
p0 queue free %			100			98 99
cM capacity (veh/h)			1249			487 737
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	322	261	17			
Volume Left	0	0	11			
Volume Right	28	0	6			
cSH	1700	1249	553			
Volume to Capacity	0.19	0.00	0.03			
Queue Length 95th (m)	0.0	0.0	0.8			
Control Delay (s)	0.0	0.0	11.7			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	11.7			
Approach LOS			B			
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			25.5%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
 17: Line 5 & Street A










Future Total 2031 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Volume (veh/h)	110	160	125	0	0	110
Future Volume (Veh/h)	110	160	125	0	0	110
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	122	178	139	0	0	122
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	139				561	139
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	139				561	139
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				100	87
cM capacity (veh/h)	1457				451	915
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	300	139	122			
Volume Left	122	0	0			
Volume Right	0	0	122			
cSH	1457	1700	915			
Volume to Capacity	0.08	0.08	0.13			
Queue Length 95th (m)	2.2	0.0	3.7			
Control Delay (s)	3.6	0.0	9.5			
Lane LOS	A		A			
Approach Delay (s)	3.6	0.0	9.5			
Approach LOS			A			
Intersection Summary						
Average Delay			4.0			
Intersection Capacity Utilization			37.9%		ICU Level of Service	A
Analysis Period (min)			15			










HCM Unsignalized Intersection Capacity Analysis  
 18: Simcoe Road & Danube Lane

Future Total 2031 PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	25	475	25	60	170
Future Volume (Veh/h)	5	25	475	25	60	170
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)	5	27	516	27	65	185
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	844	530			543	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	844	530			543	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	95			94	
cM capacity (veh/h)	315	553			1036	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	32	543	250			
Volume Left	5	0	65			
Volume Right	27	27	0			
cSH	495	1700	1036			
Volume to Capacity	0.06	0.32	0.06			
Queue Length 95th (m)	1.7	0.0	1.6			
Control Delay (s)	12.8	0.0	2.7			
Lane LOS	B		A			
Approach Delay (s)	12.8	0.0	2.7			
Approach LOS	B					
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			52.1%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
 19: Simcoe Road & Jonkman Blvd













Future Total 2031 PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	60	495	25	95	265
Future Volume (Veh/h)	5	60	495	25	95	265
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)	5	65	538	27	103	288
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	1046	552			565	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1046	552			565	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	88			90	
cM capacity (veh/h)	230	538			1017	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	70	565	391			
Volume Left	5	0	103			
Volume Right	65	27	0			
cSH	491	1700	1017			
Volume to Capacity	0.14	0.33	0.10			
Queue Length 95th (m)	4.0	0.0	2.7			
Control Delay (s)	13.6	0.0	3.2			
Lane LOS	B		A			
Approach Delay (s)	13.6	0.0	3.2			
Approach LOS	B					
Intersection Summary						
Average Delay			2.1			
Intersection Capacity Utilization			60.8%		ICU Level of Service	B
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 1: 10 Sideroad & Line 6

Future Total 2036 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	10	35	0	160	135	215	0	110	395	205	40	0
Future Volume (veh/h)	10	35	0	160	135	215	0	110	395	205	40	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	39	0	178	150	239	0	122	439	228	44	0
Approach Volume (veh/h)	50			567			561			272		
Crossing Volume (veh/h)	450			133			278			328		
High Capacity (veh/h)	971			1248			1114			1070		
High v/c (veh/h)	0.05			0.45			0.50			0.25		
Low Capacity (veh/h)	788			1037			915			877		
Low v/c (veh/h)	0.06			0.55			0.61			0.31		
<b>Intersection Summary</b>												
Maximum v/c High	0.50											
Maximum v/c Low	0.61											
Intersection Capacity Utilization	55.8%			ICU Level of Service			B					

# HCM Unsignalized Intersection Capacity Analysis

## 2: Line 6 & Langford Boulevard

Future Total 2036 PM Peak Hour



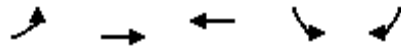
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	65	570	490	80	45	20
Future Volume (Veh/h)	65	570	490	80	45	20
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	71	626	538	88	49	22
Pedestrians						
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	626				1350	582
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	626				1350	582
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				68	96
cM capacity (veh/h)	956				153	517
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	71	626	626	71		
Volume Left	71	0	0	49		
Volume Right	0	0	88	22		
cSH	956	1700	1700	195		
Volume to Capacity	0.07	0.37	0.37	0.36		
Queue Length 95th (m)	1.9	0.0	0.0	12.4		
Control Delay (s)	9.1	0.0	0.0	33.6		
Lane LOS	A			D		
Approach Delay (s)	0.9		0.0	33.6		
Approach LOS				D		
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilization			48.0%		ICU Level of Service	A
Analysis Period (min)			15			



Queues

3: Line 6 & West Park Ave

Future Total 2036 PM Peak Hour

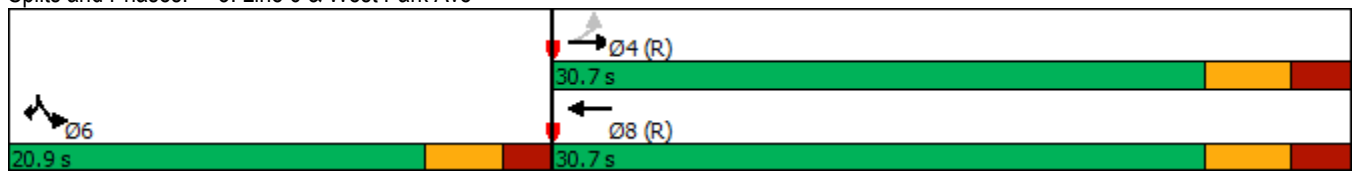


Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations	↖	↑	↔	↘	↘
Traffic Volume (vph)	50	565	540	230	30
Future Volume (vph)	50	565	540	230	30
Lane Group Flow (vph)	56	635	776	258	34
Turn Type	Perm	NA	NA	Prot	Prot
Protected Phases		4	8	6	6
Permitted Phases	4				
Detector Phase	4	4	8	6	6
Switch Phase					
Minimum Initial (s)	25.0	25.0	25.0	10.0	10.0
Minimum Split (s)	30.7	30.7	30.7	20.0	20.0
Total Split (s)	30.7	30.7	30.7	20.9	20.9
Total Split (%)	59.5%	59.5%	59.5%	40.5%	40.5%
Yellow Time (s)	3.3	3.3	3.3	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	5.7	5.7	4.9	4.9
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Min	C-Min	C-Min	Max	Max
v/c Ratio	0.38	0.69	0.86	0.47	0.06
Control Delay	17.8	15.2	24.1	17.8	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.8	15.2	24.1	17.8	5.9
Queue Length 50th (m)	3.2	43.7	58.0	19.9	0.0
Queue Length 95th (m)	12.2	74.0	#122.0	36.9	4.6
Internal Link Dist (m)		582.6	325.3	441.0	
Turn Bay Length (m)	110.0				
Base Capacity (vph)	147	920	901	548	524
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	0.38	0.69	0.86	0.47	0.06

Intersection Summary

Cycle Length: 51.6  
 Actuated Cycle Length: 51.6  
 Offset: 20.9 (41%), Referenced to phase 4:EBTL and 8:WBT, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

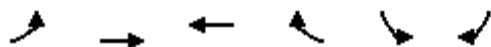
Splits and Phases: 3: Line 6 & West Park Ave



# HCM Signalized Intersection Capacity Analysis

## 3: Line 6 & West Park Ave

Future Total 2036 PM Peak Hour






















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	50	565	540	150	230	30
Future Volume (vph)	50	565	540	150	230	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7		4.9	4.9
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1803	1900	1820		1770	1615
Flt Permitted	0.16	1.00	1.00		0.95	1.00
Satd. Flow (perm)	304	1900	1820		1770	1615
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	56	635	607	169	258	34
RTOR Reduction (vph)	0	0	20	0	0	23
Lane Group Flow (vph)	56	635	756	0	258	11
Confl. Peds. (#/hr)	5			5		
Heavy Vehicles (%)	0%	0%	1%	0%	2%	0%
Turn Type	Perm	NA	NA		Prot	Prot
Protected Phases		4	8		6	6
Permitted Phases	4					
Actuated Green, G (s)	25.0	25.0	25.0		16.0	16.0
Effective Green, g (s)	25.0	25.0	25.0		16.0	16.0
Actuated g/C Ratio	0.48	0.48	0.48		0.31	0.31
Clearance Time (s)	5.7	5.7	5.7		4.9	4.9
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	147	920	881		548	500
v/s Ratio Prot		0.33	c0.42		c0.15	0.01
v/s Ratio Perm	0.18					
v/c Ratio	0.38	0.69	0.86		0.47	0.02
Uniform Delay, d1	8.4	10.3	11.7		14.4	12.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	7.3	4.2	10.6		2.9	0.1
Delay (s)	15.7	14.5	22.4		17.3	12.4
Level of Service	B	B	C		B	B
Approach Delay (s)		14.6	22.4		16.7	
Approach LOS		B	C		B	
<b>Intersection Summary</b>						
HCM 2000 Control Delay			18.4		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.71			
Actuated Cycle Length (s)			51.6		Sum of lost time (s)	10.6
Intersection Capacity Utilization			63.1%		ICU Level of Service	B
Analysis Period (min)			15			

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 4: Brownlee Drive/Southfield Gate & Line 6

Future Total 2036 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	770	10	10	680	15	5	5	5	5	0	5
Future Volume (Veh/h)	15	770	10	10	680	15	5	5	5	5	0	5
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	856	11	11	756	17	6	6	6	6	0	6
Pedestrians	10			10			10			10		
Lane Width (m)	3.6			3.6			3.6			3.6		
Walking Speed (m/s)	1.2			1.2			1.2			1.2		
Percent Blockage	1			1			1			1		
Right turn flare (veh)												
Median type	TWLTL			TWLTL								
Median storage (veh)	2			2								
Upstream signal (m)	349											
pX, platoon unblocked				0.73			0.73			0.73		
vC, conflicting volume	783			867			1690			1700		
vC1, stage 1 conf vol							896			896		
vC2, stage 2 conf vol							794			805		
vCu, unblocked vol	783			632			1760			1775		
tC, single (s)	4.1			4.2			7.1			6.5		
tC, 2 stage (s)							6.1			5.5		
tF (s)	2.2			2.3			3.5			4.0		
p0 queue free %	98			98			97			98		
cM capacity (veh/h)	837			666			233			245		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	17	867	11	773	18	12						
Volume Left	17	0	11	0	6	6						
Volume Right	0	11	0	17	6	6						
cSH	837	1700	666	1700	260	264						
Volume to Capacity	0.02	0.51	0.02	0.45	0.07	0.05						
Queue Length 95th (m)	0.5	0.0	0.4	0.0	1.8	1.1						
Control Delay (s)	9.4	0.0	10.5	0.0	19.9	19.3						
Lane LOS	A		B		C							
Approach Delay (s)	0.2		0.1		19.9							
Approach LOS					C							
<b>Intersection Summary</b>												
Average Delay				0.5								
Intersection Capacity Utilization				54.0%			ICU Level of Service			A		
Analysis Period (min)				15								

# HCM Unsignalized Intersection Capacity Analysis

## 5: Street A & Line 6

Future Total 2036 PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↖	↗	↖	↗
Traffic Volume (veh/h)	615	165	270	650	55	155
Future Volume (Veh/h)	615	165	270	650	55	155
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)	668	179	293	707	60	168
<b>Pedestrians</b>						
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)			346			
pX, platoon unblocked					1.00	
vC, conflicting volume			847	2050	758	
vC1, stage 1 conf vol				758		
vC2, stage 2 conf vol				1293		
vCu, unblocked vol			847	2051	758	
tC, single (s)			4.1	6.4	6.2	
tC, 2 stage (s)				5.4		
tF (s)			2.2	3.5	3.3	
p0 queue free %			63	61	59	
cM capacity (veh/h)			799	153	410	
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>	<b>NB 2</b>	
Volume Total	847	293	707	60	168	
Volume Left	0	293	0	60	0	
Volume Right	179	0	0	0	168	
cSH	1700	799	1700	153	410	
Volume to Capacity	0.50	0.37	0.42	0.39	0.41	
Queue Length 95th (m)	0.0	13.5	0.0	13.5	15.6	
Control Delay (s)	0.0	12.1	0.0	43.0	19.7	
Lane LOS	B		E		C	
Approach Delay (s)	0.0	3.5	25.8			
Approach LOS			D			
<b>Intersection Summary</b>						
Average Delay			4.5			
Intersection Capacity Utilization			70.7%	ICU Level of Service	C	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 6: Line 6 & Adams Street

Future Total 2036 PM Peak Hour

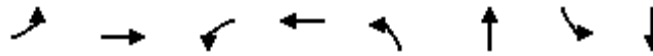


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑	↗		↘	↘
Traffic Volume (veh/h)	30	740	910	70	35	10
Future Volume (Veh/h)	30	740	910	70	35	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	33	822	1011	78	39	11
Pedestrians					5	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh		2	2			
Upstream signal (m)			258			
pX, platoon unblocked	0.52				0.52	0.52
vC, conflicting volume	1094				1943	1055
vC1, stage 1 conf vol					1055	
vC2, stage 2 conf vol					888	
vCu, unblocked vol	716				2355	641
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	93				81	96
cM capacity (veh/h)	454				210	247
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>SB 1</b>		
Volume Total	33	822	1089	50		
Volume Left	33	0	0	39		
Volume Right	0	0	78	11		
cSH	454	1700	1700	217		
Volume to Capacity	0.07	0.48	0.64	0.23		
Queue Length 95th (m)	1.9	0.0	0.0	6.9		
Control Delay (s)	13.6	0.0	0.0	26.5		
Lane LOS	B			D		
Approach Delay (s)	0.5		0.0	26.5		
Approach LOS				D		
<b>Intersection Summary</b>						
Average Delay			0.9			
Intersection Capacity Utilization			62.2%		ICU Level of Service	B
Analysis Period (min)			15			

# Queues

## 7: Inverness Way/Melbourne Dr & Line 6

Future Total 2036 PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	120	620	10	815	20	20	125	30
Future Volume (vph)	120	620	10	815	20	20	125	30
Lane Group Flow (vph)	135	736	11	1062	22	28	140	197
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		6		2		8		4
Permitted Phases	6		2		8		4	
Detector Phase	6	6	2	2	8	8	4	4
Switch Phase								
Minimum Initial (s)	25.0	25.0	25.0	25.0	5.0	5.0	5.0	5.0
Minimum Split (s)	30.5	30.5	30.5	30.5	26.2	26.2	26.2	26.2
Total Split (s)	53.8	53.8	53.8	53.8	26.2	26.2	26.2	26.2
Total Split (%)	67.3%	67.3%	67.3%	67.3%	32.8%	32.8%	32.8%	32.8%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.0	3.0	3.0	3.0
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.2	5.2	5.2	5.2
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Min	Min	C-Min	C-Min	None	None	None	None
v/c Ratio	0.78	0.57	0.03	0.82	0.14	0.09	0.60	0.49
Control Delay	45.7	9.4	5.7	17.7	27.2	21.5	40.0	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.7	9.4	5.7	17.7	27.2	21.5	40.0	13.0
Queue Length 50th (m)	11.8	48.7	0.5	98.8	3.0	3.0	21.0	7.2
Queue Length 95th (m)	#53.5	103.2	2.7	#237.9	8.4	8.7	34.5	22.1
Internal Link Dist (m)		233.8		288.7		331.6		165.8
Turn Bay Length (m)	50.0		50.0					
Base Capacity (vph)	174	1294	402	1288	247	487	357	533
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	0.78	0.57	0.03	0.82	0.09	0.06	0.39	0.37

### Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green

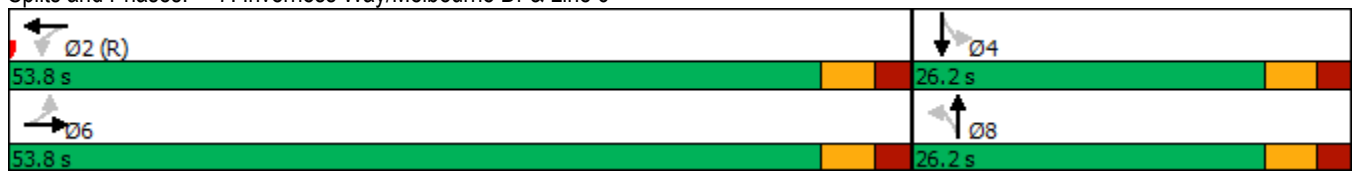
Natural Cycle: 90

Control Type: Actuated-Coordinated

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.






















### Splits and Phases: 7: Inverness Way/Melbourne Dr & Line 6



# HCM Signalized Intersection Capacity Analysis

## 7: Inverness Way/Melbourne Dr & Line 6

Future Total 2036 PM Peak Hour




















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	620	35	10	815	130	20	20	5	125	30	145
Future Volume (vph)	120	620	35	10	815	130	20	20	5	125	30	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	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		0.99	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.98		1.00	0.97		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1864		1801	1851		1793	1839		1752	1624	
Flt Permitted	0.13	1.00		0.31	1.00		0.50	1.00		0.74	1.00	
Satd. Flow (perm)	250	1864		580	1851		942	1839		1363	1624	
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)	135	697	39	11	916	146	22	22	6	140	34	163
RTOR Reduction (vph)	0	2	0	0	6	0	0	5	0	0	120	0
Lane Group Flow (vph)	135	734	0	11	1056	0	22	23	0	140	77	0
Confl. Peds. (#/hr)	5		5	5		5	5					5
Heavy Vehicles (%)	0%	1%	0%	0%	0%	1%	0%	0%	0%	3%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	55.5	55.5		55.5	55.5		13.8	13.8		13.8	13.8	
Effective Green, g (s)	55.5	55.5		55.5	55.5		13.8	13.8		13.8	13.8	
Actuated g/C Ratio	0.69	0.69		0.69	0.69		0.17	0.17		0.17	0.17	
Clearance Time (s)	5.5	5.5		5.5	5.5		5.2	5.2		5.2	5.2	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	173	1293		402	1284		162	317		235	280	
v/s Ratio Prot		0.39			c0.57			0.01				0.05
v/s Ratio Perm	0.54			0.02			0.02			c0.10		
v/c Ratio	0.78	0.57		0.03	0.82		0.14	0.07		0.60	0.28	
Uniform Delay, d1	8.2	6.2		3.8	8.7		28.0	27.7		30.5	28.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	20.0	0.6		0.1	6.1		0.4	0.1		4.0	0.5	
Delay (s)	28.2	6.8		4.0	14.8		28.4	27.8		34.5	29.3	
Level of Service	C	A		A	B		C	C		C	C	
Approach Delay (s)		10.1			14.7			28.1			31.5	
Approach LOS		B			B			C			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			15.7			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)			10.7			
Intersection Capacity Utilization			101.8%			ICU Level of Service				G		
Analysis Period (min)			15									

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 8: Barrow Ave & Line 6

Future Total 2036 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	725	20	45	935	5	10	0	25	10	0	10
Future Volume (Veh/h)	0	725	20	45	935	5	10	0	25	10	0	10
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	833	23	52	1075	6	11	0	29	11	0	11
Pedestrians							5			5		
Lane Width (m)							3.6			3.6		
Walking Speed (m/s)							1.2			1.2		
Percent Blockage							0			0		
Right turn flare (veh)												
Median type	TWLTL				TWLTL							
Median storage veh	2				2							
Upstream signal (m)	313				286							
pX, platoon unblocked	0.97			0.78			0.80	0.80	0.78	0.80	0.80	0.97
vC, conflicting volume	1086			861			2040	2040	850	2049	2048	1083
vC1, stage 1 conf vol							850	850			1187	1187
vC2, stage 2 conf vol							1190	1190			862	861
vCu, unblocked vol	1072			680			2087	2087	665	2099	2098	1069
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5			6.1	5.5
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			93			94	100	92	93	100	96
cM capacity (veh/h)	634			715			170	195	360	160	184	262
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	0	856	52	1081	40	22						
Volume Left	0	0	52	0	11	11						
Volume Right	0	23	0	6	29	11						
cSH	1700	1700	715	1700	275	199						
Volume to Capacity	0.00	0.50	0.07	0.64	0.15	0.11						
Queue Length 95th (m)	0.0	0.0	1.9	0.0	4.0	2.9						
Control Delay (s)	0.0	0.0	10.4	0.0	20.3	25.4						
Lane LOS			B		C		D					
Approach Delay (s)	0.0			0.5			20.3	25.4				
Approach LOS					C		D					
Intersection Summary												
Average Delay			0.9									
Intersection Capacity Utilization			59.5%		ICU Level of Service				B			
Analysis Period (min)			15									



Queues

9: Simcoe Road & Line 6

Future Total 2036 PM Peak Hour



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	435	165	40	260	305	5	185	730
Future Volume (vph)	435	165	40	260	305	5	185	730
Lane Group Flow (vph)	468	381	48	280	355	0	204	785
Turn Type	Perm	NA	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4	8		2		6	
Permitted Phases	4			2		6		6
Detector Phase	4	4	8	2	2	6	6	6
Switch Phase								
Minimum Initial (s)	25.0	25.0	25.0	24.0	24.0	24.0	24.0	24.0
Minimum Split (s)	30.5	30.5	30.5	29.5	29.5	29.5	29.5	29.5
Total Split (s)	30.5	30.5	30.5	29.5	29.5	29.5	29.5	29.5
Total Split (%)	50.8%	50.8%	50.8%	49.2%	49.2%	49.2%	49.2%	49.2%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	C-Min	C-Min	C-Min	C-Min	C-Min
v/c Ratio	0.82	0.48	0.06	0.59	0.47		0.28	0.71
Control Delay	30.0	10.9	10.0	20.4	15.5		13.4	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	30.0	10.9	10.0	20.4	15.5		13.4	5.3
Queue Length 50th (m)	45.7	19.9	2.9	24.5	28.4		15.3	0.0
Queue Length 95th (m)	#95.3	40.5	8.1	47.4	49.1		28.5	19.1
Internal Link Dist (m)		261.6	146.8		400.7		164.9	
Turn Bay Length (m)	50.0			110.0				
Base Capacity (vph)	574	797	779	474	756		738	1110
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	0.82	0.48	0.06	0.59	0.47		0.28	0.71

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

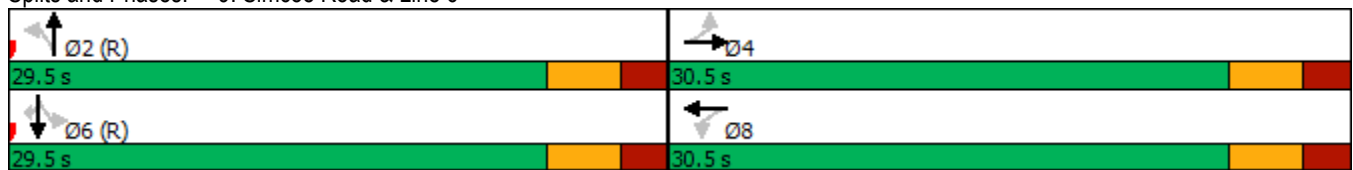
Natural Cycle: 60

Control Type: Actuated-Coordinated

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.





















Splits and Phases: 9: Simcoe Road & Line 6



# HCM Signalized Intersection Capacity Analysis

## 9: Simcoe Road & Line 6

Future Total 2036 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	435	165	190	0	40	5	260	305	25	5	185	730
Future Volume (vph)	435	165	190	0	40	5	260	305	25	5	185	730
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5		5.5	5.5			5.5	5.5
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.92			0.98		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1805	1747			1864		1787	1878			1861	1599
Flt Permitted	0.73	1.00			1.00		0.63	1.00			0.99	1.00
Satd. Flow (perm)	1379	1747			1864		1185	1878			1846	1599
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)	468	177	204	0	43	5	280	328	27	5	199	785
RTOR Reduction (vph)	0	69	0	0	3	0	0	5	0	0	0	471
Lane Group Flow (vph)	468	312	0	0	45	0	280	350	0	0	204	314
Heavy Vehicles (%)	0%	0%	0%	0%	0%	3%	1%	0%	0%	0%	2%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	6
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	25.0	25.0			25.0		24.0	24.0			24.0	24.0
Effective Green, g (s)	25.0	25.0			25.0		24.0	24.0			24.0	24.0
Actuated g/C Ratio	0.42	0.42			0.42		0.40	0.40			0.40	0.40
Clearance Time (s)	5.5	5.5			5.5		5.5	5.5			5.5	5.5
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	574	727			776		474	751			738	639
v/s Ratio Prot		0.18			0.02			0.19				
v/s Ratio Perm	c0.34						c0.24				0.11	0.20
v/c Ratio	0.82	0.43			0.06		0.59	0.47			0.28	0.49
Uniform Delay, d1	15.5	12.4			10.5		14.1	13.3			12.1	13.4
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	8.7	0.4			0.0		5.3	2.1			0.9	2.7
Delay (s)	24.2	12.8			10.5		19.5	15.4			13.1	16.1
Level of Service	C	B			B		B	B			B	B
Approach Delay (s)		19.1			10.5			17.2			15.5	
Approach LOS		B			B			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			17.0				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			60.0				Sum of lost time (s)			11.0		
Intersection Capacity Utilization			99.8%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Unsignalized Intersection Capacity Analysis

## 10: Simcoe Road & Gibson Circle

Future Total 2036 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	5	15	535	255	25
Future Volume (Veh/h)	15	5	15	535	255	25
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	18	6	18	629	300	29
Pedestrians	10			5		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	1			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	990	330	339			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	990	330	339			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	99	99			
cM capacity (veh/h)	269	708	1221			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	24	647	329			
Volume Left	18	18	0			
Volume Right	6	0	29			
cSH	319	1221	1700			
Volume to Capacity	0.08	0.01	0.19			
Queue Length 95th (m)	1.9	0.4	0.0			
Control Delay (s)	17.2	0.4	0.0			
Lane LOS	C	A				
Approach Delay (s)	17.2	0.4	0.0			
Approach LOS	C					
<b>Intersection Summary</b>						
Average Delay			0.7			
Intersection Capacity Utilization			51.8%	ICU Level of Service		A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 11: Simcoe Road & Golfview Blvd

Future Total 2036 PM Peak Hour



















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	5	10	510	235	25
Future Volume (Veh/h)	20	5	10	510	235	25
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)	22	5	11	554	255	27
Pedestrians	10			5		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	1			0		
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	854	284	292			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	854	284	292			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	99	99			
cM capacity (veh/h)	326	751	1271			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	27	565	282			
Volume Left	22	11	0			
Volume Right	5	0	27			
cSH	364	1271	1700			
Volume to Capacity	0.07	0.01	0.17			
Queue Length 95th (m)	1.9	0.2	0.0			
Control Delay (s)	15.7	0.3	0.0			
Lane LOS	C	A				
Approach Delay (s)	15.7	0.3	0.0			
Approach LOS	C					
<b>Intersection Summary</b>						
Average Delay			0.6			
Intersection Capacity Utilization			46.4%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 12: Canal Rd










Future Total 2036 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	360	45	0	5	55	155	5	5	0	65	5	115
Future Volume (vph)	360	45	0	5	55	155	5	5	0	65	5	115
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	439	55	0	6	67	189	6	6	0	79	6	140
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	494	262	12	225								
Volume Left (vph)	439	6	6	79								
Volume Right (vph)	0	189	0	140								
Hadj (s)	0.22	-0.41	0.10	-0.30								
Departure Headway (s)	5.2	4.9	6.4	5.5								
Degree Utilization, x	0.71	0.36	0.02	0.34								
Capacity (veh/h)	677	692	466	590								
Control Delay (s)	19.8	10.6	9.6	11.4								
Approach Delay (s)	19.8	10.6	9.6	11.4								
Approach LOS	C	B	A	B								
Intersection Summary												
Delay			15.3									
Level of Service			C									
Intersection Capacity Utilization			57.3%	ICU Level of Service	B							
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis










## 13: Line 5 & Canal Rd

Future Total 2036 PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	155	5	20	250	65	110
Future Volume (Veh/h)	155	5	20	250	65	110
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	178	6	23	287	75	126
<b>Pedestrians</b>						
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	471	138	201			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	471	138	201			
tC, single (s)	6.5	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.3			
p0 queue free %	67	99	98			
cM capacity (veh/h)	533	916	1342			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	184	310	201			
Volume Left	178	23	0			
Volume Right	6	0	126			
cSH	540	1342	1700			
Volume to Capacity	0.34	0.02	0.12			
Queue Length 95th (m)	12.0	0.4	0.0			
Control Delay (s)	15.1	0.7	0.0			
Lane LOS	C	A				
Approach Delay (s)	15.1	0.7	0.0			
Approach LOS	C					
<b>Intersection Summary</b>						
Average Delay			4.3			
Intersection Capacity Utilization			43.3%	ICU Level of Service	A	
Analysis Period (min)			15			











HCM Unsignalized Intersection Capacity Analysis  
 14: Line 5 & 10 Sideroad

Future Total 2036 PM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	460	270	20	185	200	45
Future Volume (Veh/h)	460	270	20	185	200	45
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	511	300	22	206	222	50
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			811		808	406
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			811		808	406
tC, single (s)			4.1		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		27	91
cM capacity (veh/h)			824		304	586
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	341	470	91	137	272	
Volume Left	0	0	22	0	222	
Volume Right	0	300	0	0	50	
cSH	1700	1700	824	1700	334	
Volume to Capacity	0.20	0.28	0.03	0.08	0.81	
Queue Length 95th (m)	0.0	0.0	0.7	0.0	55.6	
Control Delay (s)	0.0	0.0	2.5	0.0	49.5	
Lane LOS			A	E		
Approach Delay (s)	0.0		1.0		49.5	
Approach LOS					E	
Intersection Summary						
Average Delay			10.5			
Intersection Capacity Utilization			41.9%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
 16: Line 10 & Line 5

Future Total 2036 PM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	265	25	0	235	10	5
Future Volume (Veh/h)	265	25	0	235	10	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	294	28	0	261	11	6
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			322		569	308
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			322		569	308
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		98	99
cM capacity (veh/h)			1249		487	737
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	322	261	17			
Volume Left	0	0	11			
Volume Right	28	0	6			
cSH	1700	1249	553			
Volume to Capacity	0.19	0.00	0.03			
Queue Length 95th (m)	0.0	0.0	0.8			
Control Delay (s)	0.0	0.0	11.7			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	11.7			
Approach LOS			B			
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			25.5%	ICU Level of Service		A
Analysis Period (min)			15			



# HCM Unsignalized Intersection Capacity Analysis

## 17: Line 5 & Street A

Future Total 2036 PM Peak Hour












Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Volume (veh/h)	115	155	125	5	0	110
Future Volume (Veh/h)	115	155	125	5	0	110
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	128	172	139	6	0	122
<b>Pedestrians</b>						
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	145			570	142	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	145			570	142	
tC, single (s)	4.1			6.4	6.2	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	91			100	87	
cM capacity (veh/h)	1450			443	911	
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>SB 1</b>			
Volume Total	300	145	122			
Volume Left	128	0	0			
Volume Right	0	6	122			
cSH	1450	1700	911			
Volume to Capacity	0.09	0.09	0.13			
Queue Length 95th (m)	2.3	0.0	3.7			
Control Delay (s)	3.7	0.0	9.6			
Lane LOS	A		A			
Approach Delay (s)	3.7	0.0	9.6			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			4.0			
Intersection Capacity Utilization			38.2%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis










## 18: Simcoe Road & Danube Lane

Future Total 2036 PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	25	495	25	60	180
Future Volume (Veh/h)	5	25	495	25	60	180
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)	5	27	538	27	65	196
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	878	552			565	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	878	552			565	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	95			94	
cM capacity (veh/h)	301	538			1017	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	32	565	261			
Volume Left	5	0	65			
Volume Right	27	27	0			
cSH	479	1700	1017			
Volume to Capacity	0.07	0.33	0.06			
Queue Length 95th (m)	1.7	0.0	1.6			
Control Delay (s)	13.1	0.0	2.7			
Lane LOS	B		A			
Approach Delay (s)	13.1	0.0	2.7			
Approach LOS	B					
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			53.7%	ICU Level of Service		A
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis  
 19: Simcoe Road & Jonkman Blvd










Future Total 2036 PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	60	495	25	95	265
Future Volume (Veh/h)	5	60	495	25	95	265
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)	5	65	538	27	103	288
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	1046	552			565	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1046	552			565	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	88			90	
cM capacity (veh/h)	230	538			1017	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	70	565	391			
Volume Left	5	0	103			
Volume Right	65	27	0			
cSH	491	1700	1017			
Volume to Capacity	0.14	0.33	0.10			
Queue Length 95th (m)	4.0	0.0	2.7			
Control Delay (s)	13.6	0.0	3.2			
Lane LOS	B		A			
Approach Delay (s)	13.6	0.0	3.2			
Approach LOS	B					
Intersection Summary						
Average Delay			2.1			
Intersection Capacity Utilization			60.8%		ICU Level of Service	B
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 20: Street A & Street B

















Future Total 2036 PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	15	50	185	25	80	330
Future Volume (vph)	15	50	185	25	80	330
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	56	206	28	89	367
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total (vph)	73	234	456			
Volume Left (vph)	17	0	89			
Volume Right (vph)	56	28	0			
Hadj (s)	-0.38	-0.04	0.07			
Departure Headway (s)	5.0	4.5	4.4			
Degree Utilization, x	0.10	0.30	0.56			
Capacity (veh/h)	628	764	795			
Control Delay (s)	8.6	9.4	12.9			
Approach Delay (s)	8.6	9.4	12.9			
Approach LOS	A	A	B			
Intersection Summary						
Delay			11.4			
Level of Service			B			
Intersection Capacity Utilization			47.0%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 21: Street L & Street B

















Future Total 2036 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	5	15	0	0	0	15	0	0	0	0	20
Future Volume (Veh/h)	20	5	15	0	0	0	15	0	0	0	0	20
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	22	6	17	0	0	0	17	0	0	0	0	22
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	0			23			80	58	14	58	67	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			23			80	58	14	58	67	0
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			98	100	100	100	100	98
cM capacity (veh/h)	1623			1592			880	821	1065	928	812	1085
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	45	0	17	22								
Volume Left	22	0	17	0								
Volume Right	17	0	0	22								
cSH	1623	1700	880	1085								
Volume to Capacity	0.01	0.00	0.02	0.02								
Queue Length 95th (m)	0.3	0.0	0.5	0.5								
Control Delay (s)	3.6	0.0	9.2	8.4								
Lane LOS	A		A	A								
Approach Delay (s)	3.6	0.0	9.2	8.4								
Approach LOS			A	A								
Intersection Summary												
Average Delay			6.0									
Intersection Capacity Utilization			17.5%		ICU Level of Service				A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 22: Street A & Street S/Street C

















Future Total 2036 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	10	0	5	10	0	15	15	160	5	40	195	10
Future Volume (vph)	10	0	5	10	0	15	15	160	5	40	195	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	0	6	11	0	17	17	178	6	44	217	11
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	17	28	201	272								
Volume Left (vph)	11	11	17	44								
Volume Right (vph)	6	17	6	11								
Hadj (s)	-0.05	-0.25	0.03	0.04								
Departure Headway (s)	4.9	4.7	4.3	4.3								
Degree Utilization, x	0.02	0.04	0.24	0.32								
Capacity (veh/h)	655	684	811	821								
Control Delay (s)	8.0	7.9	8.7	9.3								
Approach Delay (s)	8.0	7.9	8.7	9.3								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			8.9									
Level of Service			A									
Intersection Capacity Utilization			31.8%	ICU Level of Service	A							
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 23: Street L & Street C










Future Total 2036 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	5	20	0	0	0	15	0	0	0	0	5
Future Volume (Veh/h)	10	5	20	0	0	0	15	0	0	0	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	6	22	0	0	0	17	0	0	0	0	6
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	0			28			45	39	17	39	50	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			28			45	39	17	39	50	0
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			98	100	100	100	100	99
cM capacity (veh/h)	1623			1585			947	847	1062	961	836	1085
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	39	0	17	6								
Volume Left	11	0	17	0								
Volume Right	22	0	0	6								
cSH	1623	1700	947	1085								
Volume to Capacity	0.01	0.00	0.02	0.01								
Queue Length 95th (m)	0.2	0.0	0.4	0.1								
Control Delay (s)	2.1	0.0	8.9	8.3								
Lane LOS	A		A	A								
Approach Delay (s)	2.1	0.0	8.9	8.3								
Approach LOS			A	A								
Intersection Summary												
Average Delay			4.5									
Intersection Capacity Utilization			17.5%		ICU Level of Service				A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 24: Street A

Future Total 2036 PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	5	10	125	10	10	120
Future Volume (vph)	5	10	125	10	10	120
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	11	139	11	11	133
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total (vph)	17	150	144			
Volume Left (vph)	6	0	11			
Volume Right (vph)	11	11	0			
Hadj (s)	-0.28	-0.01	0.05			
Departure Headway (s)	4.2	4.1	4.1			
Degree Utilization, x	0.02	0.17	0.17			
Capacity (veh/h)	781	867	860			
Control Delay (s)	7.3	7.9	7.9			
Approach Delay (s)	7.3	7.9	7.9			
Approach LOS	A	A	A			
Intersection Summary						
Delay			7.9			
Level of Service			A			
Intersection Capacity Utilization			24.6%	ICU Level of Service	A	
Analysis Period (min)			15			



HCM Unsignalized Intersection Capacity Analysis  
 25: Street A & Street Q

Future Total 2036 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	0	30	10	115	85	45
Future Volume (vph)	0	30	10	115	85	45
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	33	11	128	94	50
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	33	139	144			
Volume Left (vph)	0	11	0			
Volume Right (vph)	33	0	50			
Hadj (s)	-0.57	0.05	-0.17			
Departure Headway (s)	3.9	4.2	3.9			
Degree Utilization, x	0.04	0.16	0.16			
Capacity (veh/h)	853	846	900			
Control Delay (s)	7.1	7.9	7.7			
Approach Delay (s)	7.1	7.9	7.7			
Approach LOS	A	A	A			
Intersection Summary						
Delay			7.7			
Level of Service			A			
Intersection Capacity Utilization			24.3%	ICU Level of Service	A	
Analysis Period (min)			15			

## Appendix C: Sidra Analysis Results



# LANE SUMMARY

Site: FB\_2026\_AM [Line 6 / 10 Sideroad - FB26 AM (Site Folder: General)]

FB\_2026\_AM  
 Site Category: FB\_2026\_AM  
 Roundabout

Lane Use and Performance													
	DEMAND FLOWS		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% BACK OF QUEUE		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[ Total veh/h ]	HV %						[ Veh ]	[ Dist ]				
	veh/h	%	veh/h	v/c	%	sec			m	%	%		
South: 10 Sideroad													
Lane 1	40	6.8	1153	0.035	39 <sup>5</sup>	1.9	LOSA	0.1	0.9	Full	1160	0.0	0.0
Lane 2 <sup>d</sup>	111	4.0	1241	0.090	100	2.4	LOSA	0.3	2.5	Full	1160	0.0	0.0
Approach	151	4.7		0.090		2.2	LOSA	0.3	2.5				
East: Line 6													
Lane 1 <sup>d</sup>	217	1.0	1351	0.160	100	9.6	LOSA	0.7	4.8	Full	500	0.0	0.0
Lane 2	128	4.9	1256	0.102	63 <sup>5</sup>	3.3	LOSA	0.4	2.9	Full	500	0.0	0.0
Approach	344	2.4		0.160		7.3	LOSA	0.7	4.8				
North: 10 Sideroad													
Lane 1 <sup>d</sup>	162	10.1	1086	0.149	100	7.9	LOSA	0.6	4.3	Full	500	0.0	0.0
Approach	162	10.1		0.149		7.9	LOSA	0.6	4.3				
West: Line 6													
Lane 1	14	2.0	936	0.015	100	9.5	LOSA	0.1	0.4	Full	500	0.0	0.0
Lane 2 <sup>d</sup>	15	1.9	1013	0.015	100	4.1	LOSA	0.1	0.4	Full	500	0.0	0.0
Approach	29	1.9		0.015		6.7	LOSA	0.1	0.4				
Intersection	687	4.7		0.160		6.3	LOSA	0.7	4.8				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
 Roundabout LOS Method: SIDRA Roundabout LOS.  
 Lane LOS values are based on average delay per lane.  
 Intersection and Approach LOS values are based on average delay for all lanes.  
 Roundabout Capacity Model: US HCM 6.  
 Delay Model: SIDRA Standard (Geometric Delay is included).  
 Queue Model: SIDRA Standard.  
 Gap-Acceptance Capacity: Traditional M1.  
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

- 5 Lane under-utilisation found by the program
- d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: 10 Sideroad											
Mov.	L2	T1	R2	Total	%HV						
From S						Cap.	Deg.	Lane	Prob.	Ov.	
To Exit:	W	N	E			veh/h	Satn	Util.	SL	Ov.	Lane
							v/c	%	%	%	No.
Lane 1	1	39	-	40	6.8	1153	0.035	39 <sup>5</sup>	NA	NA	
Lane 2	-	-	111	111	4.0	1241	0.090	100	NA	NA	
Approach	1	39	111	151	4.7		0.090				
East: Line 6											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	

From E To Exit:	S	W	N			Cap. veh/h	Satn v/c	Util. %	SL %	Ov. %	Lane No.
Lane 1	217	-	-	217	1.0	1351	0.160	100	NA	NA	NA
Lane 2	-	39	89	128	4.9	1256	0.102	63 <sup>5</sup>	NA	NA	NA
Approach	217	39	89	344	2.4		0.160				
North: 10 Sideroad											
Mov. From N To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. %	Ov. Lane No.
	E	S	W								
Lane 1	100	61	1	162	10.1	1086	0.149	100	NA	NA	NA
Approach	100	61	1	162	10.1		0.149				
West: Line 6											
Mov. From W To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. %	Ov. Lane No.
	N	E	S								
Lane 1	11	3	-	14	2.0	936	0.015	100	NA	NA	NA
Lane 2	-	14	1	15	1.9	1013	0.015	100	NA	NA	NA
Approach	11	17	1	29	1.9		0.015				
Total %HV Deg.Satn (v/c)											
Intersection	687	4.7					0.160				

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

5 Lane under-utilisation found by the program

Merge Analysis												
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane % veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
South Exit: 10 Sideroad												
Merge Type: <b>Not Applied</b>												
Full Length Lane	1											
Full Length Lane	2											
East Exit: Line 6												
Merge Type: <b>Not Applied</b>												
Full Length Lane	1											
Full Length Lane	2											
North Exit: 10 Sideroad												
Merge Type: <b>Not Applied</b>												
Full Length Lane	1											
West Exit: Line 6												
Merge Type: <b>Not Applied</b>												
Full Length Lane	1											
Full Length Lane	2											

# LANE SUMMARY

Site: F□\_2026\_PM [Line 6 / 10 Sideroad - F□26 PM (Site Folder: General)]

FB\_2026\_PM  
 Site Category: FB\_2026\_PM  
 Roundabout

Lane Use and Performance													
	DEMAND FLOWS		Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
	[ Total veh/h	HV %]						[ Veh	Dist ] m				
South: 10 Sideroad													
Lane 1	140	3.0	1141	0.123	45 <sup>5</sup>	1.9	LOSA	0.5	3.5	Full	1160	0.0	0.0
Lane 2 <sup>d</sup>	339	0.0	1232	0.275	100	2.6	LOSA	1.3	9.0	Full	1160	0.0	0.0
Approach	479	0.9		0.275		2.4	LOSA	1.3	9.0				
East: Line 6													
Lane 1	157	0.0	1172	0.134	100	8.1	LOSA	0.6	3.9	Full	500	0.0	0.0
Lane 2 <sup>d</sup>	165	2.5	1231	0.134	100	3.6	LOSA	0.5	3.8	Full	500	0.0	0.0
Approach	322	1.3		0.134		5.8	LOSA	0.6	3.9				
North: 10 Sideroad													
Lane 1 <sup>d</sup>	184	0.7	1210	0.152	100	8.5	LOSA	0.6	4.4	Full	500	0.0	0.0
Approach	184	0.7		0.152		8.5	LOSA	0.6	4.4				
West: Line 6													
Lane 1	14	2.0	1019	0.014	100	9.2	LOSA	0.0	0.4	Full	500	0.0	0.0
Lane 2 <sup>d</sup>	15	2.0	1094	0.014	100	3.8	LOSA	0.0	0.3	Full	500	0.0	0.0
Approach	29	2.0		0.014		6.4	LOSA	0.0	0.4				
Intersection	1014	1.0		0.275		4.7	LOSA	1.3	9.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
 Roundabout LOS Method: SIDRA Roundabout LOS.  
 Lane LOS values are based on average delay per lane.  
 Intersection and Approach LOS values are based on average delay for all lanes.  
 Roundabout Capacity Model: US HCM 6.  
 Delay Model: SIDRA Standard (Geometric Delay is included).  
 Queue Model: SIDRA Standard.  
 Gap-Acceptance Capacity: Traditional M1.  
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

- <sup>5</sup> Lane under-utilisation found by the program
- <sup>d</sup> Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: 10 Sideroad											
Mov.	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. Lane No.	Ov. Lane No.
From S To Exit:	W	N	E								
Lane 1	1	139	-	140	3.0	1141	0.123	45 <sup>5</sup>	NA	NA	NA
Lane 2	-	-	339	339	0.0	1232	0.275	100	NA	NA	NA
Approach	1	139	339	479	0.9		0.275				
East: Line 6											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	

From E To Exit:	S	W	N			Cap. veh/h	Satn v/c	Util. %	SL %	Ov. %	Lane No.
Lane 1	111	46	-	157	0.0	1172	0.134	100	NA	NA	
Lane 2	-	26	139	165	2.5	1231	0.134	100	NA	NA	
Approach	111	72	139	322	1.3		0.134				
<b>North: 10 Sideroad</b>											
Mov. From N To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. %	Ov. Lane No.
Lane 1	139	44	1	184	0.7	1210	0.152	100	NA	NA	
Approach	139	44	1	184	0.7		0.152				
<b>West: Line 6</b>											
Mov. From W To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. %	Ov. Lane No.
Lane 1	11	3	-	14	2.0	1019	0.014	100	NA	NA	
Lane 2	-	14	1	15	2.0	1094	0.014	100	NA	NA	
Approach	11	17	1	29	2.0		0.014				
<b>Total %HV Deg.Satn (v/c)</b>											
Intersection	1014	1.0		0.275							

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

5 Lane under-utilisation found by the program

<b>Merge Analysis</b>												
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane % veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
<b>South Exit: 10 Sideroad</b>												
Merge Type: <b>Not Applied</b>												
Full Length Lane	1											
Full Length Lane	2											
<b>East Exit: Line 6</b>												
Merge Type: <b>Not Applied</b>												
Full Length Lane	1											
Full Length Lane	2											
<b>North Exit: 10 Sideroad</b>												
Merge Type: <b>Not Applied</b>												
Full Length Lane	1											
<b>West Exit: Line 6</b>												
Merge Type: <b>Not Applied</b>												
Full Length Lane	1											
Full Length Lane	2											

# LANE SUMMARY

Site: FB\_2031\_AM [Line 6 / 10 Sideroad - FB31 AM (Site Folder: General)]

FB\_2031\_AM  
 Site Category: FB\_2031\_AM  
 Roundabout

Lane Use and Performance													
	DEMAND FLOWS		Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
	[ Total veh/h	HV %]						[ Veh	Dist ] m				
South: 10 Sideroad													
Lane 1	40	6.8	1091	0.037	30 <sup>5</sup>	2.1	LOSA	0.1	1.0	Full	1160	0.0	0.0
Lane 2 <sup>d</sup>	144	4.0	1179	0.122	100	2.6	LOSA	0.5	3.4	Full	1160	0.0	0.0
Approach	184	4.6		0.122		2.5	LOSA	0.5	3.4				
East: Line 6													
Lane 1 <sup>d</sup>	256	1.0	1345	0.190	100	9.7	LOSA	0.8	5.8	Full	500	0.0	0.0
Lane 2	194	4.0	1255	0.155	82 <sup>5</sup>	3.3	LOSA	0.7	4.7	Full	500	0.0	0.0
Approach	450	2.3		0.190		6.9	LOSA	0.8	5.8				
North: 10 Sideroad													
Lane 1 <sup>d</sup>	196	1.3	1055	0.185	100	8.6	LOSA	0.7	5.3	Full	500	0.0	0.0
Approach	196	1.3		0.185		8.6	LOSA	0.7	5.3				
West: Line 6													
Lane 1	30	2.0	881	0.034	100	8.3	LOSA	0.1	0.9	Full	500	0.0	0.0
Lane 2 <sup>d</sup>	32	1.9	957	0.034	100	4.4	LOSA	0.1	0.8	Full	500	0.0	0.0
Approach	62	2.0		0.034		6.2	LOSA	0.1	0.9				
Intersection	892	2.5		0.190		6.3	LOSA	0.8	5.8				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: US HCM 6.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

<sup>5</sup> Lane under-utilisation found by the program

<sup>d</sup> Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: 10 Sideroad											
Mov.	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. Lane No.	
From S To Exit:	W	N	E								
Lane 1	1	39	-	40	6.8	1091	0.037	30 <sup>5</sup>	NA	NA	
Lane 2	-	-	144	144	4.0	1179	0.122	100	NA	NA	
Approach	1	39	144	184	4.6		0.122				
East: Line 6											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	

From E To Exit:	S	W	N			Cap. veh/h	Satn v/c	Util. %	SL %	Ov. %	Lane No.
Lane 1	256	-	-	256	1.0	1345	0.190	100	NA	NA	NA
Lane 2	-	83	111	194	4.0	1255	0.155	82 <sup>5</sup>	NA	NA	NA
Approach	256	83	111	450	2.3		0.190				
North: 10 Sideroad											
Mov. From N To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. %	Ov. Lane No.
	E	S	W								
Lane 1	133	61	1	196	1.3	1055	0.185	100	NA	NA	NA
Approach	133	61	1	196	1.3		0.185				
West: Line 6											
Mov. From W To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. %	Ov. Lane No.
	N	E	S								
Lane 1	17	13	-	30	2.0	881	0.034	100	NA	NA	NA
Lane 2	-	31	1	32	1.9	957	0.034	100	NA	NA	NA
Approach	17	44	1	62	2.0		0.034				
Total %HV Deg.Satn (v/c)											
Intersection	892	2.5					0.190				

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

5 Lane under-utilisation found by the program

Merge Analysis												
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane % veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
South Exit: 10 Sideroad												
Merge Type: <b>Not Applied</b>												
Full Length Lane	1											
Full Length Lane	2											
East Exit: Line 6												
Merge Type: <b>Not Applied</b>												
Full Length Lane	1											
Full Length Lane	2											
North Exit: 10 Sideroad												
Merge Type: <b>Not Applied</b>												
Full Length Lane	1											
West Exit: Line 6												
Merge Type: <b>Not Applied</b>												
Full Length Lane	1											
Full Length Lane	2											



# LANE SUMMARY

Site: FB\_2031\_PM [Line 6 / 10 Sideroad - FB31 PM (Site Folder: General)]

FB\_2031\_PM  
 Site Category: FB\_2031\_PM  
 Roundabout

Lane Use and Performance													
	DEMAND FLOWS		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% BACK OF QUEUE		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[ Total veh/h ]	HV %						[ Veh ]	[ Dist ]				
	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: 10 Sideroad													
Lane 1	140	3.0	1100	0.127	40 <sup>5</sup>	2.1	LOSA	0.5	3.6	Full	1160	0.0	0.0
Lane 2 <sup>d</sup>	383	0.0	1192	0.322	100	2.8	LOSA	1.6	10.9	Full	1160	0.0	0.0
Approach	523	0.8		0.322		2.6	LOSA	1.6	10.9				
East: Line 6													
Lane 1	244	0.0	1172	0.208	100	7.7	LOSA	0.9	6.5	Full	500	0.0	0.0
Lane 2 <sup>d</sup>	256	2.3	1232	0.208	100	3.7	LOSA	0.9	6.4	Full	500	0.0	0.0
Approach	500	1.2		0.208		5.6	LOSA	0.9	6.5				
North: 10 Sideroad													
Lane 1 <sup>d</sup>	201	0.7	1091	0.184	100	9.1	LOSA	0.8	5.3	Full	500	0.0	0.0
Approach	201	0.7		0.184		9.1	LOSA	0.8	5.3				
West: Line 6													
Lane 1	25	2.0	963	0.026	100	7.1	LOSA	0.1	0.7	Full	500	0.0	0.0
Lane 2 <sup>d</sup>	27	2.0	1039	0.026	100	4.0	LOSA	0.1	0.6	Full	500	0.0	0.0
Approach	51	2.0		0.026		5.5	LOSA	0.1	0.7				
Intersection	1276	1.0		0.322		4.9	LOSA	1.6	10.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
 Roundabout LOS Method: SIDRA Roundabout LOS.  
 Lane LOS values are based on average delay per lane.  
 Intersection and Approach LOS values are based on average delay for all lanes.  
 Roundabout Capacity Model: US HCM 6.  
 Delay Model: SIDRA Standard (Geometric Delay is included).  
 Queue Model: SIDRA Standard.  
 Gap-Acceptance Capacity: Traditional M1.  
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

- <sup>5</sup> Lane under-utilisation found by the program
- <sup>d</sup> Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: 10 Sideroad											
Mov.	L2	T1	R2	Total	%HV	Cap.	Deg.	Lane	Prob.	Ov.	
From S						veh/h	Satn	Util.	SL	Ov.	Lane
To Exit:	W	N	E				v/c	%	%		No.
Lane 1	1	139	-	140	3.0	1100	0.127	40 <sup>5</sup>	NA	NA	
Lane 2	-	-	383	383	0.0	1192	0.322	100	NA	NA	
Approach	1	139	383	523	0.8		0.322				
East: Line 6											
Mov.	L2	T1	R2	Total	%HV	Deg.	Lane	Prob.	Ov.		

From E To Exit:	S	W	N			Cap. veh/h	Satn v/c	Util. %	SL %	Ov. %	Lane No.
Lane 1	156	88	-	244	0.0	1172	0.208	100	NA	NA	
Lane 2	-	62	194	256	2.3	1232	0.208	100	NA	NA	
Approach	156	150	194	500	1.2		0.208				
North: 10 Sideroad											
Mov. From N To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. %	Ov. Lane No.
Lane 1	156	44	1	201	0.7	1091	0.184	100	NA	NA	
Approach	156	44	1	201	0.7		0.184				
West: Line 6											
Mov. From W To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. %	Ov. Lane No.
Lane 1	11	13	-	25	2.0	963	0.026	100	NA	NA	
Lane 2	-	25	1	27	2.0	1039	0.026	100	NA	NA	
Approach	11	39	1	51	2.0		0.026				
Total %HV Deg.Satn (v/c)											
Intersection	1276	1.0		0.322							

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

5 Lane under-utilisation found by the program

Merge Analysis												
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane % veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
South Exit: 10 Sideroad												
Merge Type: <b>Not Applied</b>												
Full Length Lane	1		Merge Analysis not applied.									
Full Length Lane	2		Merge Analysis not applied.									
East Exit: Line 6												
Merge Type: <b>Not Applied</b>												
Full Length Lane	1		Merge Analysis not applied.									
Full Length Lane	2		Merge Analysis not applied.									
North Exit: 10 Sideroad												
Merge Type: <b>Not Applied</b>												
Full Length Lane	1		Merge Analysis not applied.									
West Exit: Line 6												
Merge Type: <b>Not Applied</b>												
Full Length Lane	1		Merge Analysis not applied.									
Full Length Lane	2		Merge Analysis not applied.									

# LANE SUMMARY

Site: FB\_2036\_AM [Line 6 / 10 Sideroad - FB36 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

FB\_2036\_AM  
Site Category: FB\_2036\_AM  
Roundabout

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[ Total veh/h ]	[ HV % ]	[ Total veh/h ]	[ HV % ]						[ Veh ]	[ Dist ]				
	veh/h	%	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: 10 Sideroad															
Lane 1	40	6.8	40	6.8	1064	0.038	27 <sup>5</sup>	2.2	LOS A	0.1	1.0	Full	1160	0.0	0.0
Lane 2 <sup>d</sup>	161	4.0	161	4.0	1156	0.139	100	2.7	LOS A	0.5	3.9	Full	1160	0.0	0.0
Approach	201	4.6	201	4.6		0.139		2.6	LOS A	0.5	3.9				
East: Line 6															
Lane 1 <sup>d</sup>	267	1.0	267	1.0	1344	0.198	100	9.7	LOS A	0.9	6.2	Full	500	0.0	0.0
Lane 2	200	4.1	200	4.1	1252	0.160	81 <sup>5</sup>	3.3	LOS A	0.7	4.9	Full	500	0.0	0.0
Approach	467	2.3	467	2.3		0.198		6.9	LOS A	0.9	6.2				
North: 10 Sideroad															
Lane 1 <sup>d</sup>	212	1.2	212	1.2	1043	0.203	100	8.9	LOS A	0.8	5.9	Full	500	0.0	0.0
Approach	212	1.2	212	1.2		0.203		8.9	LOS A	0.8	5.9				
West: Line 6															
Lane 1	30	2.0	30	2.0	853	0.035	100	8.5	LOS A	0.1	0.9	Full	500	0.0	0.0
Lane 2 <sup>d</sup>	32	1.9	32	1.9	929	0.035	100	4.5	LOS A	0.1	0.9	Full	500	0.0	0.0
Approach	62	2.0	62	2.0		0.035		6.4	LOS A	0.1	0.9				
All Vehicles	942	2.5	942	2.5		0.203		6.4	LOS A	0.9	6.2				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).  
Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: US HCM 6.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

<sup>5</sup> Lane under-utilisation found by the program

<sup>d</sup> Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: 10 Sideroad											
Mov.	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.	
From S To Exit:	W	N	E								
Lane 1	1	39	-	40	6.8	1064	0.038	27 <sup>5</sup>	NA	NA	
Lane 2	-	-	161	161	4.0	1156	0.139	100	NA	NA	

Approach	1	39	161	201	4.6		0.139				
<b>East: Line 6</b>											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane No.	
From E To Exit:	S	W	N			Cap. veh/h	v/c	%	%		
Lane 1	267	-	-	267	1.0	1344	0.198	100	NA	NA	
Lane 2	-	83	117	200	4.1	1252	0.160	81 <sup>5</sup>	NA	NA	
Approach	267	83	117	467	2.3		0.198				
<b>North: 10 Sideroad</b>											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane No.	
From N To Exit:	E	S	W			Cap. veh/h	v/c	%	%		
Lane 1	150	61	1	212	1.2	1043	0.203	100	NA	NA	
Approach	150	61	1	212	1.2		0.203				
<b>West: Line 6</b>											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane No.	
From W To Exit:	N	E	S			Cap. veh/h	v/c	%	%		
Lane 1	17	13	-	30	2.0	853	0.035	100	NA	NA	
Lane 2	-	31	1	32	1.9	929	0.035	100	NA	NA	
Approach	17	44	1	62	2.0		0.035				
<b>Total %HV Deg.Satn (v/c)</b>											
All Vehicles	942	2.5		0.203							

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

5 Lane under-utilisation found by the program

### Merge Analysis

Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
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There are no Exit Short Lanes for Merge Analysis at this Site.

### Variable Demand Analysis

	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
<b>South: 10 Sideroad</b>				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
<b>East: Line 6</b>				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
<b>North: 10 Sideroad</b>				
Lane 1	0.0	0.0	0.0	0.0
<b>West: Line 6</b>				
Lane 1	0.0	0.0	0.0	0.0

Lane 2	0.0	0.0	0.0	0.0
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Organisation: BA CONSULTING GROUP LTD | Licence: PLUS / 1PC | Processed: August 10, 2023 10:52:22 AM  
Project: P:\67\20\05\Analysis\9. Sidra (Roundabout)\BHL.sip9

# LANE SUMMARY

Site: FB\_2036\_PM [Line 6 / 10 Sideroad - FB36 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

FB\_2036\_PM  
Site Category: FB\_2036\_PM  
Roundabout

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% Back Of Queue		Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
	[ Total veh/h	HV ] %	[ Total veh/h	HV ] %						[ Veh	Dist ] m				
South: 10 Sideroad															
Lane 1	90	3.0	90	3.0	1090	0.083	24 <sup>5</sup>	2.1	LOS A	0.3	2.3	Full	1160	0.0	0.0
Lane 2 <sup>d</sup>	411	0.0	411	0.0	1186	0.347	100	2.9	LOS A	1.7	12.1	Full	1160	0.0	0.0
Approach	501	0.5	501	0.5		0.347		2.7	LOS A	1.7	12.1				
East: Line 6															
Lane 1	263	0.0	263	0.0	1228	0.214	100	7.7	LOS A	1.0	6.8	Full	500	0.0	0.0
Lane 2 <sup>d</sup>	275	2.3	275	2.3	1285	0.214	100	3.5	LOS A	0.9	6.7	Full	500	0.0	0.0
Approach	539	1.2	539	1.2		0.214		5.6	LOS A	1.0	6.8				
North: 10 Sideroad															
Lane 1 <sup>d</sup>	207	0.6	207	0.6	1069	0.193	100	9.2	LOS A	0.8	5.6	Full	500	0.0	0.0
Approach	207	0.6	207	0.6		0.193		9.2	LOS A	0.8	5.6				
West: Line 6															
Lane 1	25	2.0	25	2.0	933	0.026	100	7.3	LOS A	0.1	0.7	Full	500	0.0	0.0
Lane 2 <sup>d</sup>	27	2.0	27	2.0	1009	0.026	100	4.1	LOS A	0.1	0.7	Full	500	0.0	0.0
Approach	51	2.0	51	2.0		0.026		5.7	LOS A	0.1	0.7				
All Vehicles	1298	0.9	1298	0.9		0.347		5.1	LOS A	1.7	12.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: US HCM 6.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

<sup>5</sup> Lane under-utilisation found by the program

<sup>d</sup> Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: 10 Sideroad											
Mov.	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.	
From S To Exit:	W	N	E								
Lane 1	1	89	-	90	3.0	1090	0.083	24 <sup>5</sup>	NA	NA	
Lane 2	-	-	411	411	0.0	1186	0.347	100	NA	NA	

Approach	1	89	411	501	0.5		0.347				
<b>East: Line 6</b>											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From E							Satn	Util.	SL	Ov.	Lane
To Exit:	S	W	N			Cap.	v/c	%	%		No.
						veh/h					
Lane 1	178	86	-	263	0.0	1228	0.214	100	NA	NA	
Lane 2	-	64	211	275	2.3	1285	0.214	100	NA	NA	
Approach	178	150	211	539	1.2		0.214				
<b>North: 10 Sideroad</b>											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From N							Satn	Util.	SL	Ov.	Lane
To Exit:	E	S	W			Cap.	v/c	%	%		No.
						veh/h					
Lane 1	161	44	1	207	0.6	1069	0.193	100	NA	NA	
Approach	161	44	1	207	0.6		0.193				
<b>West: Line 6</b>											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From W							Satn	Util.	SL	Ov.	Lane
To Exit:	N	E	S			Cap.	v/c	%	%		No.
						veh/h					
Lane 1	11	13	-	25	2.0	933	0.026	100	NA	NA	
Lane 2	-	25	1	27	2.0	1009	0.026	100	NA	NA	
Approach	11	39	1	51	2.0		0.026				
<b>Total %HV Deg.Satn (v/c)</b>											
All Vehicles	1298	0.9		0.347							

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

5 Lane under-utilisation found by the program

<b>Merge Analysis</b>												
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
There are no Exit Short Lanes for Merge Analysis at this Site.												

<b>Variable Demand Analysis</b>				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
<b>South: 10 Sideroad</b>				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
<b>East: Line 6</b>				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
<b>North: 10 Sideroad</b>				
Lane 1	0.0	0.0	0.0	0.0
<b>West: Line 6</b>				
Lane 1	0.0	0.0	0.0	0.0

Lane 2	0.0	0.0	0.0	0.0
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Project: P:\67\20\05\Analysis\9. Sidra (Roundabout)\BHL.sip9



# LANE SUMMARY

Site: FT\_2026\_AM [Line 6 / 10 Sideroad - FT26 AM (Site Folder: General)]

FT\_2026\_AM  
 Site Category: FT\_2026\_AM  
 Roundabout

Lane Use and Performance													
	DEMAND FLOWS		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% BACK OF QUEUE		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[ Total veh/h ]	HV %						[ Veh ]	[ Dist ]				
	veh/h	%	veh/h	v/c	%	sec			m	%	%		
South: 10 Sideroad													
Lane 1	40	6.8	1128	0.035	35 <sup>5</sup>	2.0	LOSA	0.1	1.0	Full	1160	0.0	0.0
Lane 2 <sup>d</sup>	122	4.0	1216	0.100	100	2.5	LOSA	0.4	2.8	Full	1160	0.0	0.0
Approach	162	4.7		0.100		2.3	LOSA	0.4	2.8				
East: Line 6													
Lane 1 <sup>d</sup>	244	1.0	1351	0.181	100	9.6	LOSA	0.8	5.5	Full	500	0.0	0.0
Lane 2	178	5.5	1252	0.142	78 <sup>5</sup>	3.3	LOSA	0.6	4.3	Full	500	0.0	0.0
Approach	422	2.9		0.181		7.0	LOSA	0.8	5.5				
North: 10 Sideroad													
Lane 1 <sup>d</sup>	184	10.6	1058	0.174	100	8.4	LOSA	0.7	5.1	Full	500	0.0	0.0
Approach	184	10.6		0.174		8.4	LOSA	0.7	5.1				
West: Line 6													
Lane 1	14	2.0	893	0.016	100	9.8	LOSA	0.1	0.4	Full	500	0.0	0.0
Lane 2 <sup>d</sup>	15	1.9	969	0.016	100	4.3	LOSA	0.1	0.4	Full	500	0.0	0.0
Approach	29	1.9		0.016		6.9	LOSA	0.1	0.4				
Intersection	798	5.0		0.181		6.4	LOSA	0.8	5.5				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: US HCM 6.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

<sup>5</sup> Lane under-utilisation found by the program

<sup>d</sup> Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: 10 Sideroad											
Mov.	L2	T1	R2	Total	%HV	Cap.	Deg.	Lane	Prob.	Ov.	
From S						veh/h	Satn	Util.	SL	Ov.	Lane
To Exit:	W	N	E				v/c	%	%		No.
Lane 1	1	39	-	40	6.8	1128	0.035	35 <sup>5</sup>	NA	NA	
Lane 2	-	-	122	122	4.0	1216	0.100	100	NA	NA	
Approach	1	39	122	162	4.7		0.100				
East: Line 6											
Mov.	L2	T1	R2	Total	%HV	Deg.	Lane	Prob.	Ov.		

From E To Exit:	S	W	N			Cap. veh/h	Satn v/c	Util. %	SL %	Ov. %	Lane No.
Lane 1	244	-	-	244	1.0	1351	0.181	100	NA	NA	NA
Lane 2	-	39	139	178	5.5	1252	0.142	78 <sup>5</sup>	NA	NA	NA
Approach	244	39	139	422	2.9		0.181				
North: 10 Sideroad											
Mov. From N To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. %	Ov. Lane No.
	E	S	W								
Lane 1	122	61	1	184	10.6	1058	0.174	100	NA	NA	NA
Approach	122	61	1	184	10.6		0.174				
West: Line 6											
Mov. From W To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. %	Ov. Lane No.
	N	E	S								
Lane 1	11	3	-	14	2.0	893	0.016	100	NA	NA	NA
Lane 2	-	14	1	15	1.9	969	0.016	100	NA	NA	NA
Approach	11	17	1	29	1.9		0.016				
Total %HV Deg.Satn (v/c)											
Intersection	798	5.0					0.181				

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

5 Lane under-utilisation found by the program

Merge Analysis												
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane % veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
South Exit: 10 Sideroad												
Merge Type: <b>Not Applied</b>												
Full Length Lane	1											
Full Length Lane	2											
East Exit: Line 6												
Merge Type: <b>Not Applied</b>												
Full Length Lane	1											
Full Length Lane	2											
North Exit: 10 Sideroad												
Merge Type: <b>Not Applied</b>												
Full Length Lane	1											
West Exit: Line 6												
Merge Type: <b>Not Applied</b>												
Full Length Lane	1											
Full Length Lane	2											

# LANE SUMMARY

Site: FT\_2026\_PM [Line 6 / 10 Sideroad - FT26 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

FT\_2026\_PM  
Site Category: FT\_2026\_PM  
Roundabout

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[ Total veh/h	HV ] %	[ Total veh/h	HV ] %						[ Veh	Dist ] m				
South: 10 Sideroad															
Lane 1	157	3.0	157	3.0	1068	0.147	47 <sup>5</sup>	2.3	LOS A	0.6	4.2	Full	1160	0.0	0.0
Lane 2 <sup>d</sup>	367	0.0	367	0.0	1164	0.315	100	2.9	LOS A	1.5	10.5	Full	1160	0.0	0.0
Approach	523	0.9	523	0.9		0.315		2.7	LOS A	1.5	10.5				
East: Line 6															
Lane 1	171	0.0	171	0.0	1154	0.148	100	7.8	LOS A	0.6	4.3	Full	500	0.0	0.0
Lane 2 <sup>d</sup>	179	2.8	179	2.8	1208	0.148	100	3.8	LOS A	0.6	4.3	Full	500	0.0	0.0
Approach	350	1.4	350	1.4		0.148		5.7	LOS A	0.6	4.3				
North: 10 Sideroad															
Lane 1 <sup>d</sup>	251	0.5	251	0.5	1210	0.208	100	8.9	LOS A	0.9	6.3	Full	500	0.0	0.0
Approach	251	0.5	251	0.5		0.208		8.9	LOS A	0.9	6.3				
West: Line 6															
Lane 1	14	2.0	14	2.0	953	0.015	100	9.5	LOS A	0.1	0.4	Full	500	0.0	0.0
Lane 2 <sup>d</sup>	15	1.9	15	1.9	1030	0.015	100	4.0	LOS A	0.1	0.4	Full	500	0.0	0.0
Approach	29	1.9	29	1.9		0.015		6.6	LOS A	0.1	0.4				
All Vehicles	1153	1.0	1153	1.0		0.315		5.1	LOS A	1.5	10.5				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).  
Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: US HCM 6.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

<sup>5</sup> Lane under-utilisation found by the program

<sup>d</sup> Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: 10 Sideroad											
Mov.	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.	
From S To Exit:	W	N	E								
Lane 1	1	156	-	157	3.0	1068	0.147	47 <sup>5</sup>	NA	NA	
Lane 2	-	-	367	367	0.0	1164	0.315	100	NA	NA	

Approach	1	156	367	523	0.9		0.315				
<b>East: Line 6</b>											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From E							Satn	Util.	SL	Ov.	Lane
To Exit:	S	W	N			Cap.	v/c	%	%		No.
	veh/h										
Lane 1	111	60	-	171	0.0	1154	0.148	100	NA	NA	
Lane 2	-	12	167	179	2.8	1208	0.148	100	NA	NA	
Approach	111	72	167	350	1.4		0.148				
<b>North: 10 Sideroad</b>											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From N							Satn	Util.	SL	Ov.	Lane
To Exit:	E	S	W			Cap.	v/c	%	%		No.
	veh/h										
Lane 1	206	44	1	251	0.5	1210	0.208	100	NA	NA	
Approach	206	44	1	251	0.5		0.208				
<b>West: Line 6</b>											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From W							Satn	Util.	SL	Ov.	Lane
To Exit:	N	E	S			Cap.	v/c	%	%		No.
	veh/h										
Lane 1	11	3	-	14	2.0	953	0.015	100	NA	NA	
Lane 2	-	14	1	15	1.9	1030	0.015	100	NA	NA	
Approach	11	17	1	29	1.9		0.015				
<b>Total %HV Deg.Satn (v/c)</b>											
All Vehicles	1153	1.0		0.315							

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

5 Lane under-utilisation found by the program

<b>Merge Analysis</b>												
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
There are no Exit Short Lanes for Merge Analysis at this Site.												

<b>Variable Demand Analysis</b>				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
<b>South: 10 Sideroad</b>				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
<b>East: Line 6</b>				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
<b>North: 10 Sideroad</b>				
Lane 1	0.0	0.0	0.0	0.0
<b>West: Line 6</b>				
Lane 1	0.0	0.0	0.0	0.0

Lane 2	0.0	0.0	0.0	0.0
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Project: P:\67\20\05\Analysis\9. Sidra (Roundabout)\BHL 2023.sip9

# LANE SUMMARY

Site: FT\_2031\_AM [Line 6 / 10 Sideroad - FT31 AM (Site Folder: General)]

FT\_2031\_AM  
 Site Category: FT\_2031\_AM  
 Roundabout

Lane Use and Performance													
	DEMAND FLOWS		Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
	[ Total veh/h	HV %]						[ Veh	Dist ] m				
South: 10 Sideroad													
Lane 1	40	6.8	1064	0.038	28 <sup>5</sup>	2.2	LOSA	0.1	1.0	Full	1160	0.0	0.0
Lane 2 <sup>d</sup>	156	4.0	1153	0.135	100	2.7	LOSA	0.5	3.8	Full	1160	0.0	0.0
Approach	196	4.6		0.135		2.6	LOSA	0.5	3.8				
East: Line 6													
Lane 1 <sup>d</sup>	283	1.0	1345	0.211	100	9.7	LOSA	0.9	6.6	Full	500	0.0	0.0
Lane 2	244	4.6	1251	0.195	93 <sup>5</sup>	3.3	LOSA	0.9	6.3	Full	500	0.0	0.0
Approach	528	2.7		0.211		6.7	LOSA	0.9	6.6				
North: 10 Sideroad													
Lane 1 <sup>d</sup>	212	11.0	983	0.216	100	9.0	LOSA	0.8	6.4	Full	500	0.0	0.0
Approach	212	11.0		0.216		9.0	LOSA	0.8	6.4				
West: Line 6													
Lane 1	30	2.0	838	0.036	100	8.5	LOSA	0.1	0.9	Full	500	0.0	0.0
Lane 2 <sup>d</sup>	32	1.9	914	0.036	100	4.6	LOSA	0.1	0.9	Full	500	0.0	0.0
Approach	62	2.0		0.036		6.5	LOSA	0.1	0.9				
Intersection	998	4.8		0.216		6.4	LOSA	0.9	6.6				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
 Roundabout LOS Method: SIDRA Roundabout LOS.  
 Lane LOS values are based on average delay per lane.  
 Intersection and Approach LOS values are based on average delay for all lanes.  
 Roundabout Capacity Model: US HCM 6.  
 Delay Model: SIDRA Standard (Geometric Delay is included).  
 Queue Model: SIDRA Standard.  
 Gap-Acceptance Capacity: Traditional M1.  
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

- <sup>5</sup> Lane under-utilisation found by the program
- <sup>d</sup> Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: 10 Sideroad											
Mov.	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. Lane No.	Ov. Lane No.
From S To Exit:	W	N	E								
Lane 1	1	39	-	40	6.8	1064	0.038	28 <sup>5</sup>	NA	NA	NA
Lane 2	-	-	156	156	4.0	1153	0.135	100	NA	NA	NA
Approach	1	39	156	196	4.6		0.135				
East: Line 6											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	

From E To Exit:	S	W	N			Cap. veh/h	Satn v/c	Util. %	SL %	Ov. %	Lane No.
Lane 1	283	-	-	283	1.0	1345	0.211	100	NA	NA	NA
Lane 2	-	83	161	244	4.6	1251	0.195	93 <sup>5</sup>	NA	NA	NA
Approach	283	83	161	528	2.7		0.211				
North: 10 Sideroad											
Mov. From N To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. %	Ov. Lane No.
Lane 1	150	61	1	212	11.0	983	0.216	100	NA	NA	NA
Approach	150	61	1	212	11.0		0.216				
West: Line 6											
Mov. From W To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. %	Ov. Lane No.
Lane 1	17	13	-	30	2.0	838	0.036	100	NA	NA	NA
Lane 2	-	31	1	32	1.9	914	0.036	100	NA	NA	NA
Approach	17	44	1	62	2.0		0.036				
Total %HV Deg.Satn (v/c)											
Intersection	998	4.8					0.216				

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

5 Lane under-utilisation found by the program

Merge Analysis												
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane % veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
South Exit: 10 Sideroad												
Merge Type: <b>Not Applied</b>												
Full Length Lane	1		Merge Analysis not applied.									
Full Length Lane	2		Merge Analysis not applied.									
East Exit: Line 6												
Merge Type: <b>Not Applied</b>												
Full Length Lane	1		Merge Analysis not applied.									
Full Length Lane	2		Merge Analysis not applied.									
North Exit: 10 Sideroad												
Merge Type: <b>Not Applied</b>												
Full Length Lane	1		Merge Analysis not applied.									
West Exit: Line 6												
Merge Type: <b>Not Applied</b>												
Full Length Lane	1		Merge Analysis not applied.									
Full Length Lane	2		Merge Analysis not applied.									

# LANE SUMMARY

Site: FT\_2031\_PM [Line 6 / 10 Sideroad - FT31 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

FT\_2031\_PM  
Site Category: FT\_2031\_PM  
Roundabout

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% Back Of Queue		Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
	[ Total veh/h	HV ] %	[ Total veh/h	HV ] %						[ Veh	Dist ] m				
South: 10 Sideroad															
Lane 1	157	3.0	157	3.0	1029	0.152	42 <sup>5</sup>	2.4	LOS A	0.6	4.4	Full	1160	0.0	0.0
Lane 2 <sup>d</sup>	411	0.0	411	0.0	1126	0.365	100	3.2	LOS A	1.8	12.7	Full	1160	0.0	0.0
Approach	568	0.8	568	0.8		0.365		3.0	LOS A	1.8	12.7				
East: Line 6															
Lane 1	258	0.0	258	0.0	1154	0.223	100	7.6	LOS A	1.0	7.0	Full	500	0.0	0.0
Lane 2 <sup>d</sup>	270	2.5	270	2.5	1210	0.223	100	3.8	LOS A	1.0	6.9	Full	500	0.0	0.0
Approach	528	1.3	528	1.3		0.223		5.6	LOS A	1.0	7.0				
North: 10 Sideroad															
Lane 1 <sup>d</sup>	268	0.5	268	0.5	1090	0.246	100	9.5	LOS A	1.1	7.5	Full	500	0.0	0.0
Approach	268	0.5	268	0.5		0.246		9.5	LOS A	1.1	7.5				
West: Line 6															
Lane 1	25	2.0	25	2.0	900	0.027	100	7.5	LOS A	0.1	0.7	Full	500	0.0	0.0
Lane 2 <sup>d</sup>	27	1.9	27	1.9	976	0.027	100	4.3	LOS A	0.1	0.7	Full	500	0.0	0.0
Approach	51	2.0	51	2.0		0.027		5.8	LOS A	0.1	0.7				
All Vehicles	1414	1.0	1414	1.0		0.365		5.3	LOS A	1.8	12.7				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).  
Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: US HCM 6.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

<sup>5</sup> Lane under-utilisation found by the program

<sup>d</sup> Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: 10 Sideroad											
Mov.	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.	
From S To Exit:	W	N	E								
Lane 1	1	156	-	157	3.0	1029	0.152	42 <sup>5</sup>	NA	NA	
Lane 2	-	-	411	411	0.0	1126	0.365	100	NA	NA	



Approach	1	156	411	568	0.8		0.365				
<b>East: Line 6</b>											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From E							Satn	Util.	SL	Ov.	Lane
To Exit:	S	W	N			Cap.	v/c	%	%		No.
	veh/h										
Lane 1	156	102	-	258	0.0	1154	0.223	100	NA	NA	
Lane 2	-	48	222	270	2.5	1210	0.223	100	NA	NA	
Approach	156	150	222	528	1.3		0.223				
<b>North: 10 Sideroad</b>											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From N							Satn	Util.	SL	Ov.	Lane
To Exit:	E	S	W			Cap.	v/c	%	%		No.
	veh/h										
Lane 1	222	44	1	268	0.5	1090	0.246	100	NA	NA	
Approach	222	44	1	268	0.5		0.246				
<b>West: Line 6</b>											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From W							Satn	Util.	SL	Ov.	Lane
To Exit:	N	E	S			Cap.	v/c	%	%		No.
	veh/h										
Lane 1	11	13	-	25	2.0	900	0.027	100	NA	NA	
Lane 2	-	25	1	27	1.9	976	0.027	100	NA	NA	
Approach	11	39	1	51	2.0		0.027				
<b>Total %HV Deg.Satn (v/c)</b>											
All Vehicles	1414	1.0		0.365							

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

5 Lane under-utilisation found by the program

<b>Merge Analysis</b>												
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
There are no Exit Short Lanes for Merge Analysis at this Site.												

<b>Variable Demand Analysis</b>				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
<b>South: 10 Sideroad</b>				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
<b>East: Line 6</b>				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
<b>North: 10 Sideroad</b>				
Lane 1	0.0	0.0	0.0	0.0
<b>West: Line 6</b>				
Lane 1	0.0	0.0	0.0	0.0

Lane 2	0.0	0.0	0.0	0.0
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Project: P:\67\20\05\Analysis\9. Sidra (Roundabout)\BHL 2023.sip9

# LANE SUMMARY

Site: FT\_2036\_AM [Line 6 / 10 Sideroad - FT36 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

FT\_2036\_AM  
Site Category: FT\_2036\_AM  
Roundabout

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[ Total veh/h	HV ] %	[ Total veh/h	HV ] %						[ Veh	Dist ] m				
South: 10 Sideroad															
Lane 1	40	6.8	40	6.8	1035	0.039	25 <sup>5</sup>	2.3	LOS A	0.1	1.0	Full	1160	0.0	0.0
Lane 2 <sup>d</sup>	172	4.0	172	4.0	1128	0.153	100	2.9	LOS A	0.6	4.3	Full	1160	0.0	0.0
Approach	212	4.5	212	4.5		0.153		2.8	LOS A	0.6	4.3				
East: Line 6															
Lane 1 <sup>d</sup>	294	1.0	294	1.0	1344	0.219	100	9.7	LOS A	1.0	7.0	Full	500	0.0	0.0
Lane 2	250	4.7	250	4.7	1248	0.200	91 <sup>5</sup>	3.4	LOS A	0.9	6.5	Full	500	0.0	0.0
Approach	544	2.7	544	2.7		0.219		6.8	LOS A	1.0	7.0				
North: 10 Sideroad															
Lane 1 <sup>d</sup>	229	11.3	229	11.3	946	0.242	100	9.5	LOS A	0.9	7.2	Full	500	0.0	0.0
Approach	229	11.3	229	11.3		0.242		9.5	LOS A	0.9	7.2				
West: Line 6															
Lane 1	30	2.0	30	2.0	809	0.037	100	8.8	LOS A	0.1	0.9	Full	500	0.0	0.0
Lane 2 <sup>d</sup>	33	1.9	33	1.9	885	0.037	100	4.7	LOS A	0.1	0.9	Full	500	0.0	0.0
Approach	62	2.0	62	2.0		0.037		6.7	LOS A	0.1	0.9				
All Vehicles	1048	4.9	1048	4.9		0.242		6.5	LOS A	1.0	7.2				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).  
Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: US HCM 6.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

<sup>5</sup> Lane under-utilisation found by the program

<sup>d</sup> Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: 10 Sideroad											
Mov.	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.	
From S To Exit:	W	N	E								
Lane 1	1	39	-	40	6.8	1035	0.039	25 <sup>5</sup>	NA	NA	
Lane 2	-	-	172	172	4.0	1128	0.153	100	NA	NA	

Approach	1	39	172	212	4.5		0.153				
<b>East: Line 6</b>											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane No.	
From E To Exit:	S	W	N			Cap. veh/h	v/c	%	%		
Lane 1	294	-	-	294	1.0	1344	0.219	100	NA	NA	
Lane 2	-	83	167	250	4.7	1248	0.200	91 <sup>5</sup>	NA	NA	
Approach	294	83	167	544	2.7		0.219				
<b>North: 10 Sideroad</b>											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane No.	
From N To Exit:	E	S	W			Cap. veh/h	v/c	%	%		
Lane 1	167	61	1	229	11.3	946	0.242	100	NA	NA	
Approach	167	61	1	229	11.3		0.242				
<b>West: Line 6</b>											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane No.	
From W To Exit:	N	E	S			Cap. veh/h	v/c	%	%		
Lane 1	17	13	-	30	2.0	809	0.037	100	NA	NA	
Lane 2	-	31	1	33	1.9	885	0.037	100	NA	NA	
Approach	17	44	1	62	2.0		0.037				
<b>Total %HV Deg.Satn (v/c)</b>											
All Vehicles	1048	4.9		0.242							

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

5 Lane under-utilisation found by the program

### Merge Analysis

Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
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There are no Exit Short Lanes for Merge Analysis at this Site.

### Variable Demand Analysis

	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
<b>South: 10 Sideroad</b>				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
<b>East: Line 6</b>				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
<b>North: 10 Sideroad</b>				
Lane 1	0.0	0.0	0.0	0.0
<b>West: Line 6</b>				
Lane 1	0.0	0.0	0.0	0.0

Lane 2	0.0	0.0	0.0	0.0
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# LANE SUMMARY

Site: FT\_2036\_PM [Line 6 / 10 Sideroad - FT36 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

FT\_2036\_PM  
Site Category: FT\_2036\_PM  
Roundabout

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% Back Of Queue		Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
	[ Total veh/h	HV ] %	[ Total veh/h	HV ] %						[ Veh	Dist ] m				
South: 10 Sideroad															
Lane 1	123	3.0	123	3.0	1024	0.120	31 <sup>5</sup>	2.4	LOS A	0.5	3.4	Full	1160	0.0	0.0
Lane 2 <sup>d</sup>	439	0.0	439	0.0	1121	0.392	100	3.2	LOS A	2.0	14.0	Full	1160	0.0	0.0
Approach	562	0.7	562	0.7		0.392		3.1	LOS A	2.0	14.0				
East: Line 6															
Lane 1	277	0.0	277	0.0	1191	0.233	100	7.7	LOS A	1.1	7.5	Full	500	0.0	0.0
Lane 2 <sup>d</sup>	290	2.5	290	2.5	1246	0.233	100	3.7	LOS A	1.0	7.4	Full	500	0.0	0.0
Approach	567	1.3	567	1.3		0.233		5.6	LOS A	1.1	7.5				
North: 10 Sideroad															
Lane 1 <sup>d</sup>	273	0.5	273	0.5	1070	0.255	100	9.7	LOS A	1.1	7.8	Full	500	0.0	0.0
Approach	273	0.5	273	0.5		0.255		9.7	LOS A	1.1	7.8				
West: Line 6															
Lane 1	24	2.0	24	2.0	877	0.028	100	7.6	LOS A	0.1	0.7	Full	500	0.0	0.0
Lane 2 <sup>d</sup>	27	1.9	27	1.9	953	0.028	100	4.4	LOS A	0.1	0.7	Full	500	0.0	0.0
Approach	51	2.0	51	2.0		0.028		5.9	LOS A	0.1	0.7				
All Vehicles	1453	0.9	1453	0.9		0.392		5.4	LOS A	2.0	14.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).  
Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: US HCM 6.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Sieglösch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

<sup>5</sup> Lane under-utilisation found by the program

<sup>d</sup> Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: 10 Sideroad											
Mov.	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.	
From S To Exit:	W	N	E								
Lane 1	1	122	-	123	3.0	1024	0.120	31 <sup>5</sup>	NA	NA	
Lane 2	-	-	439	439	0.0	1121	0.392	100	NA	NA	

Approach	1	122	439	562	0.7		0.392				
<b>East: Line 6</b>											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From E							Satn	Util.	SL	Ov.	Lane
To Exit:	S	W	N			Cap.	v/c	%	%	%	No.
	veh/h										
Lane 1	178	99	-	277	0.0	1191	0.233	100	NA	NA	
Lane 2	-	51	239	290	2.5	1246	0.233	100	NA	NA	
Approach	178	150	239	567	1.3		0.233				
<b>North: 10 Sideroad</b>											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From N							Satn	Util.	SL	Ov.	Lane
To Exit:	E	S	W			Cap.	v/c	%	%	%	No.
	veh/h										
Lane 1	228	44	1	273	0.5	1070	0.255	100	NA	NA	
Approach	228	44	1	273	0.5		0.255				
<b>West: Line 6</b>											
Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.	
From W							Satn	Util.	SL	Ov.	Lane
To Exit:	N	E	S			Cap.	v/c	%	%	%	No.
	veh/h										
Lane 1	11	13	-	24	2.0	877	0.028	100	NA	NA	
Lane 2	-	26	1	27	1.9	953	0.028	100	NA	NA	
Approach	11	39	1	51	2.0		0.028				
<b>Total %HV Deg.Satn (v/c)</b>											
All Vehicles	1453	0.9		0.392							

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

5 Lane under-utilisation found by the program

<b>Merge Analysis</b>												
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
There are no Exit Short Lanes for Merge Analysis at this Site.												

<b>Variable Demand Analysis</b>				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
<b>South: 10 Sideroad</b>				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
<b>East: Line 6</b>				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
<b>North: 10 Sideroad</b>				
Lane 1	0.0	0.0	0.0	0.0
<b>West: Line 6</b>				
Lane 1	0.0	0.0	0.0	0.0

Lane 2	0.0	0.0	0.0	0.0
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## Appendix D: Signal Timing Plans



## Traffic Signal Timing Plan

**Intersection:** 6th Line & Simcoe Road

**City/Town:** Bradford West Gwillimbury

**Date:** 16-Sep-08

**Startup of signals to be set to flashing Red on all approaches.**

Signal Operation	Sixth Line Eastbound	Sixth Line Westbound	Simcoe Road Northbound	Simcoe Road Southbound
Phase #	4	8	2	6
Minimum Green	25	25	24	24
Amber Clearance	3.3	3.3	3.3	3.3
All Red	2.2	2.2	2.2	2.2
Walk	10	10	10	10
Ped Clearance (FDW)	15	15	14	14

Cycle Length: 60 seconds

Notes: -Based on 2011 traffic conditions from February 2008 ESR  
-Amber Clearance, All Red, and Ped timing from MTO Book 12

## Traffic Signal Timing Plan

**Intersection:** Sixth Line & West Park Avenue

**City/Town:** Bradford West Gwillimbury

**Date:** 16-Sep-08

**Startup of signals to be set to flashing Red on all approaches.**

Signal Operation	Sixth Line Eastbound	Sixth Line Westbound	West Park Avenue Southbound
Phase #	4	8	6
Minimum Green	25	25	10
Extension	-	-	3
Maximum Green	-	-	16 <sup>1</sup>
Amber Clearance	3.3	3.3	3
All Red	2.4	2.4	1.9
Walk	10	10	10
Ped Clearance (FDW)	15	15	14

Min. Cycle Length:

45.6 seconds

- Notes: <sup>1</sup> Maximum green time when pedestrian phase not activated
- Signals operate under semi-actuated control (loop detectors on West Park Avenue)
  - Amber Clearance, All Red, and Ped timing from MTO Book 12
  - Based on 2011 traffic conditions from February 2008 ESR

## Traffic Signal Timing Plan

*ACTIVATION  
March 26/09  
11:10 AM. MJC*

**Intersection:** Sixth Line & Melbourne Drive  
**City/Town:** Bradford West Gwillimbury  
**Date:** 16-Sep-08

**Startup of signals to be set to flashing Red on all approaches.**

Signal Operation	<del>West</del> <b>Sixth Line Eastbound</b>	<del>East</del> <b>Sixth Line Westbound</b>	<b>Melbourne Drive Southbound</b>
Phase #	<i>2</i> <del>4</del>	<i>6</i> <del>8</del>	<i>4</i> <del>6</del>
Minimum Green	25	25	10
Extension	-	-	3
Maximum Green	-	-	16 <sup>1</sup>
Amber Clearance	3.3	3.3	3
All Red	2.2	2.2	2.2
Walk	10	10	10
Ped Clearance (FDW)	15	15	11

Min. Cycle Length: 45.7 seconds

- Notes: <sup>1</sup> Maximum green time when pedestrian phase not activated  
 -Signals operate under semi-actuated control (loop detectors on Melbourne Drive)  
 -Amber Clearance, All Red, and Ped timing from MTO Book 12  
 -Based on 2011 traffic conditions from February 2008 ESR

*DET.  
NOTE: ch. 3 CALL 04*

*DET.  
CH. 4 CALL 04 delay = 5 sec.*

## Appendix E: Left Turn Warrants



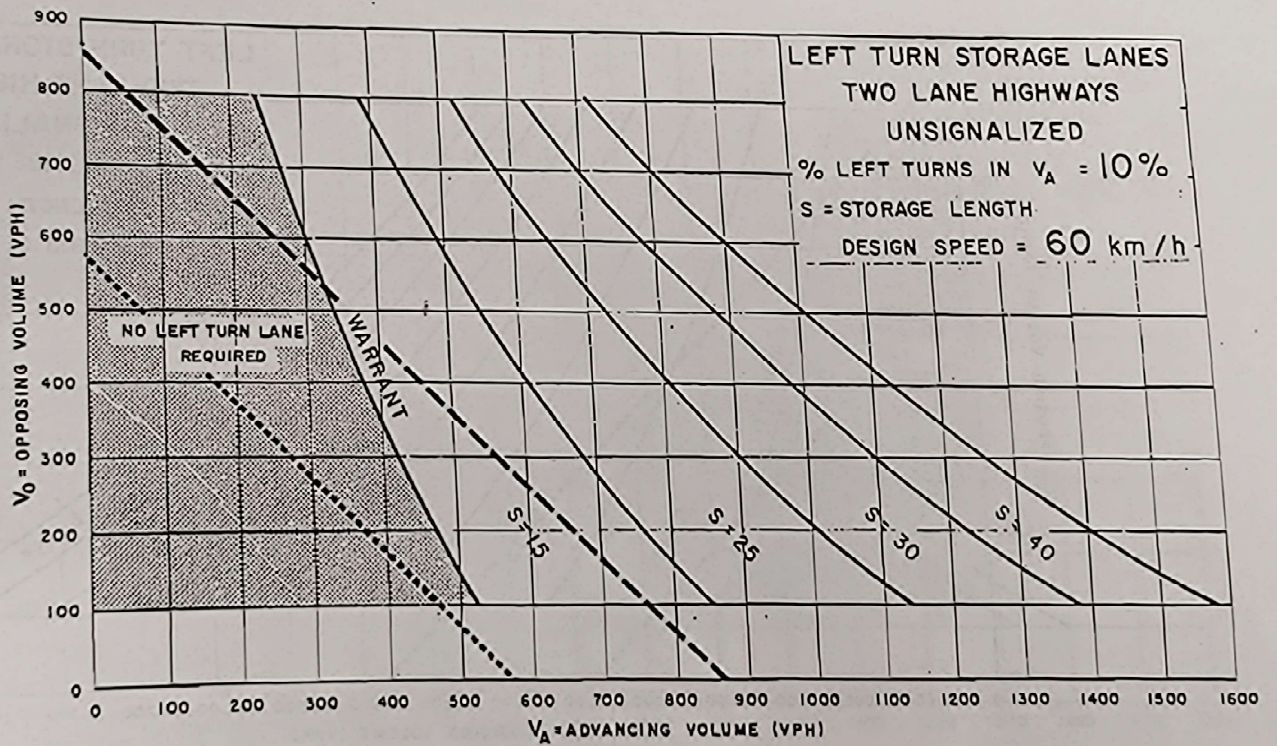
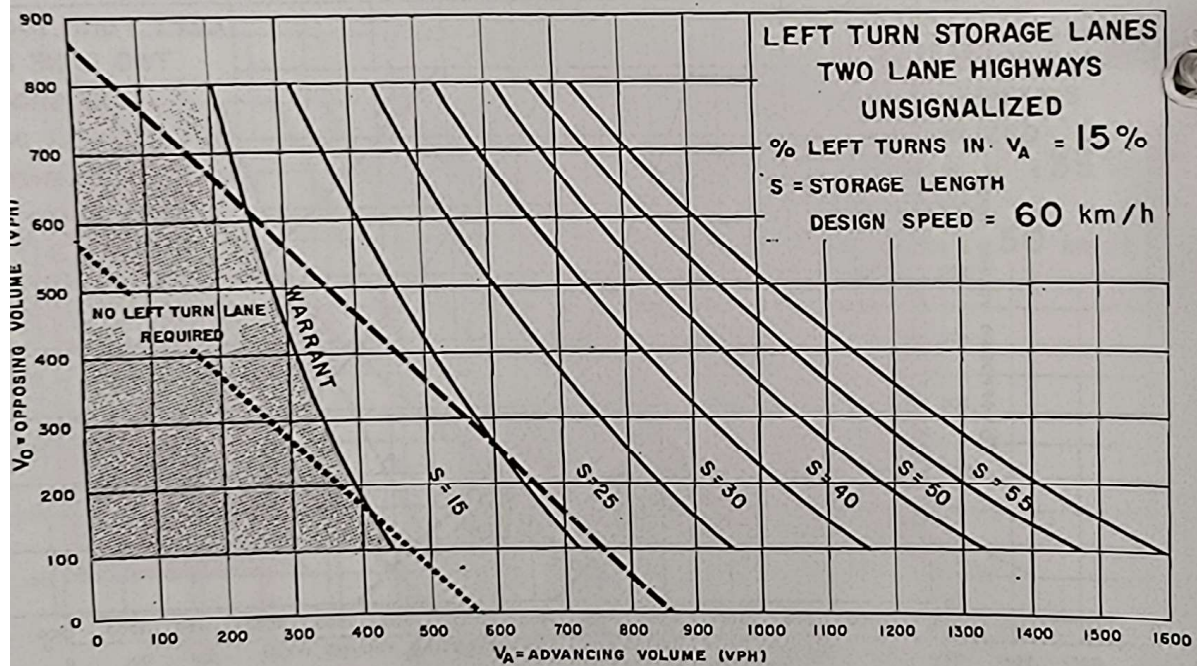


Figure EA-6

EA-7

GRADE INTERSECTIONS

APPENDIX A



----- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW

..... TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

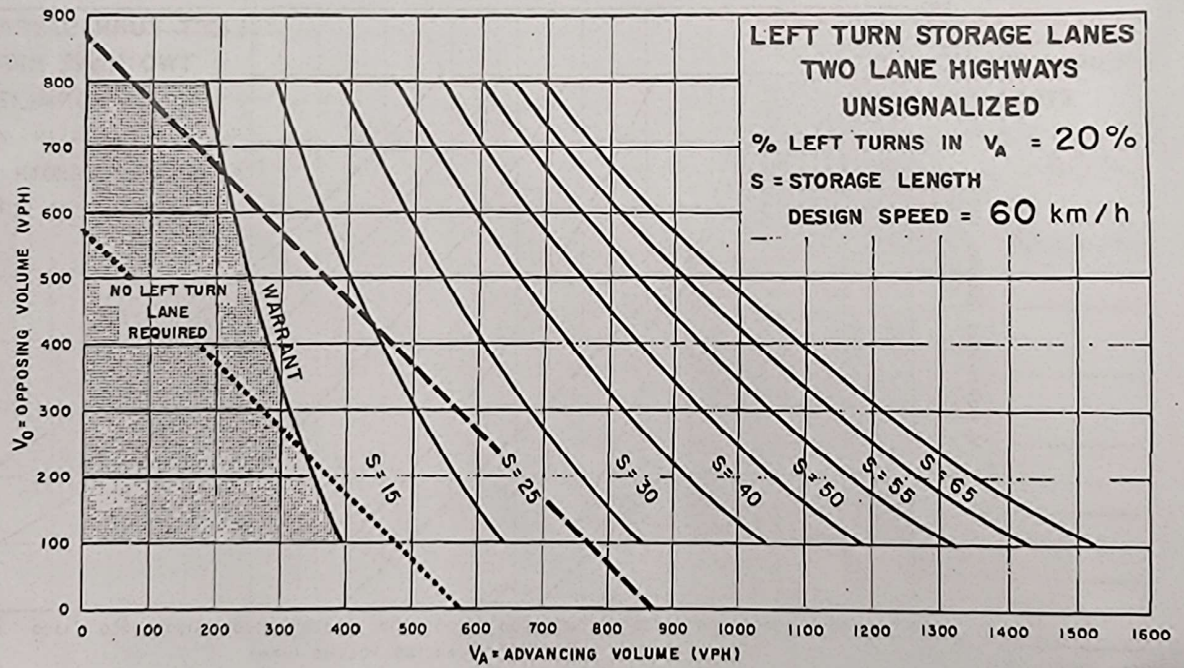
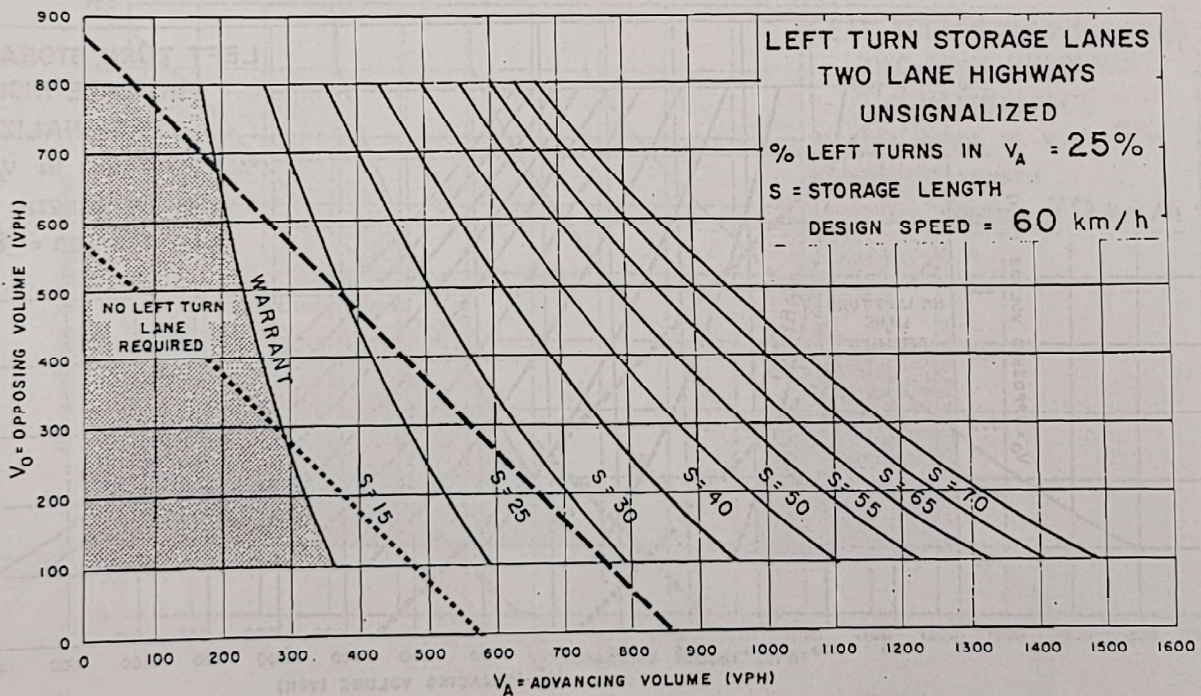


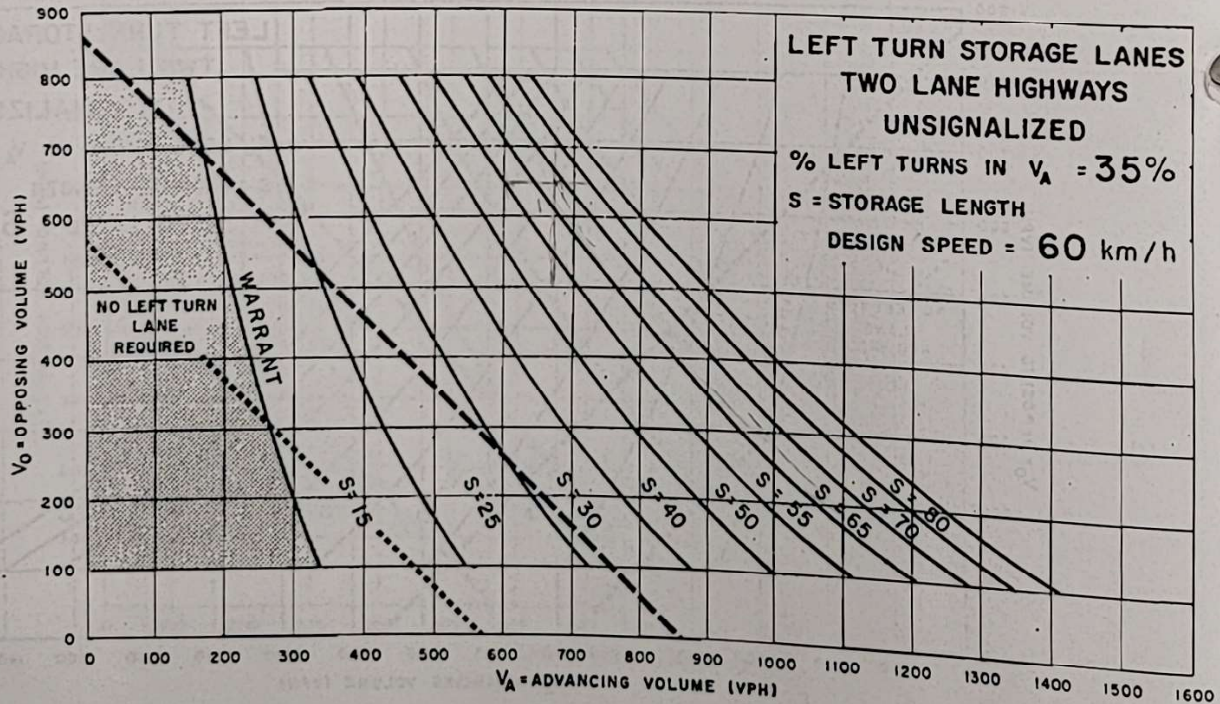
Figure FA-7

AT-GRADE INTERSECTIONS

APPENDIX A

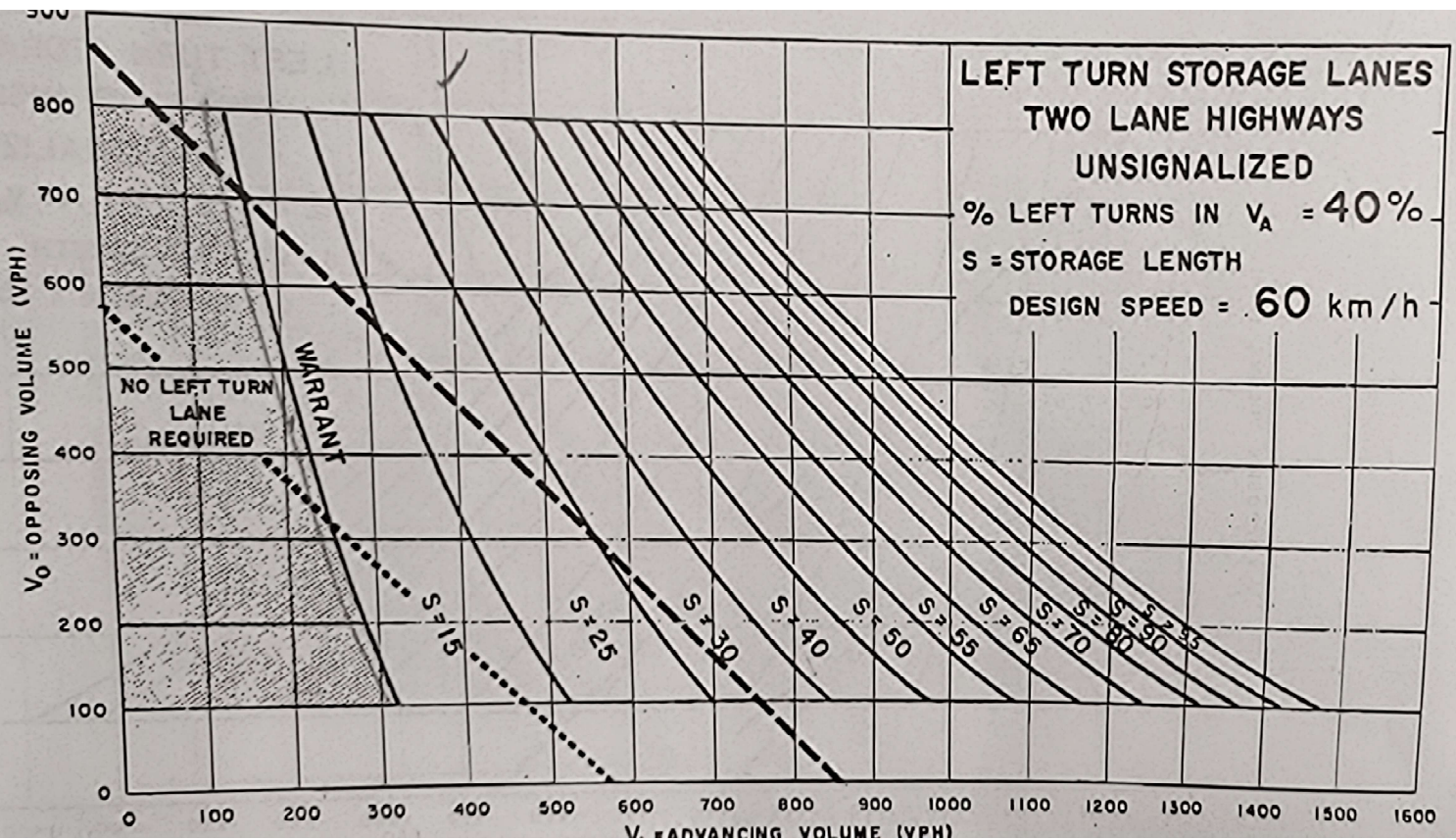


- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW
- ..... TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS



--- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW

..... TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS





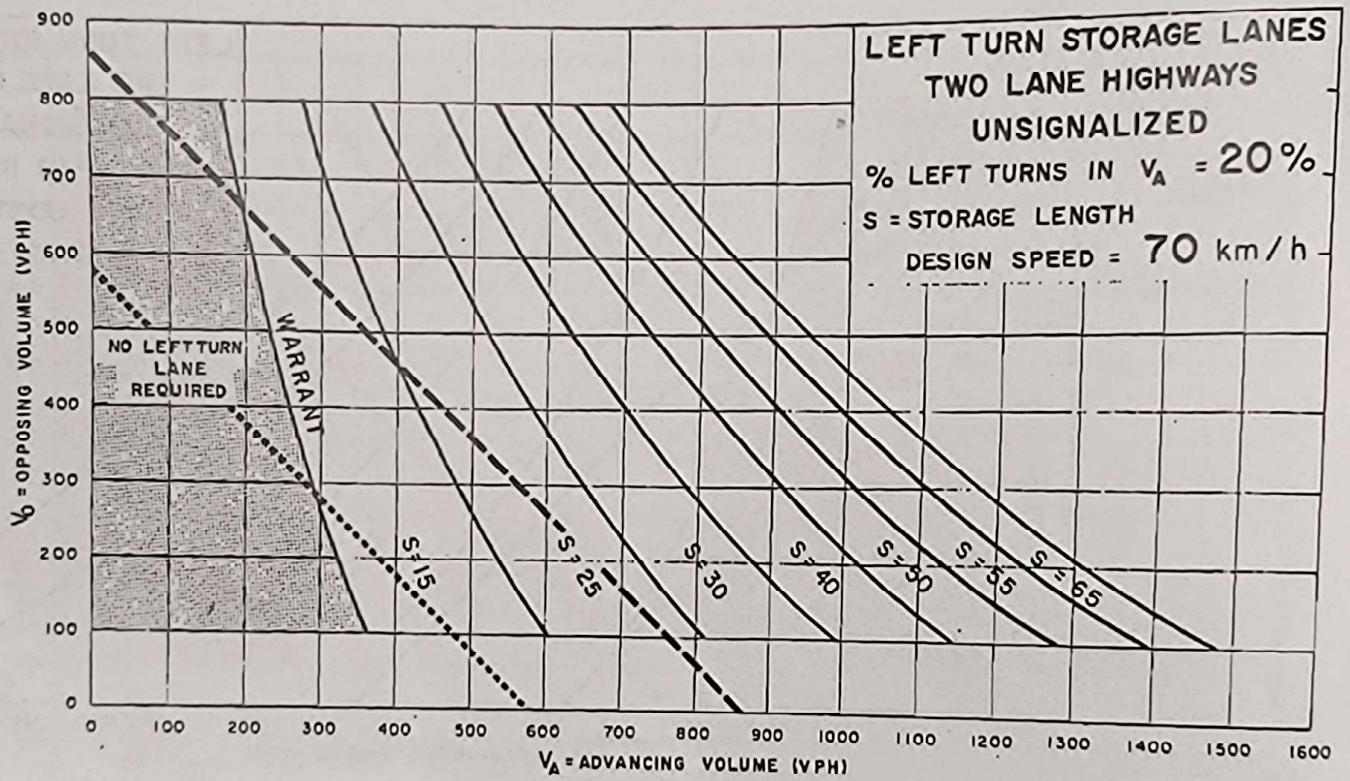
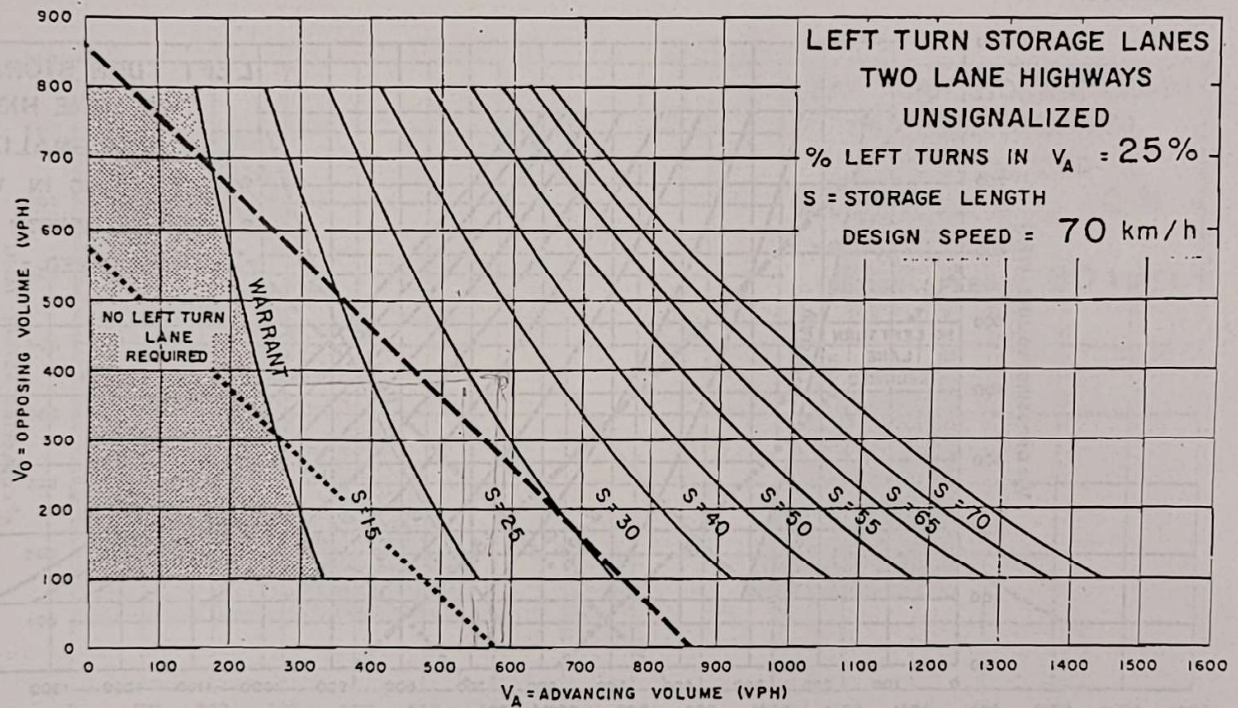


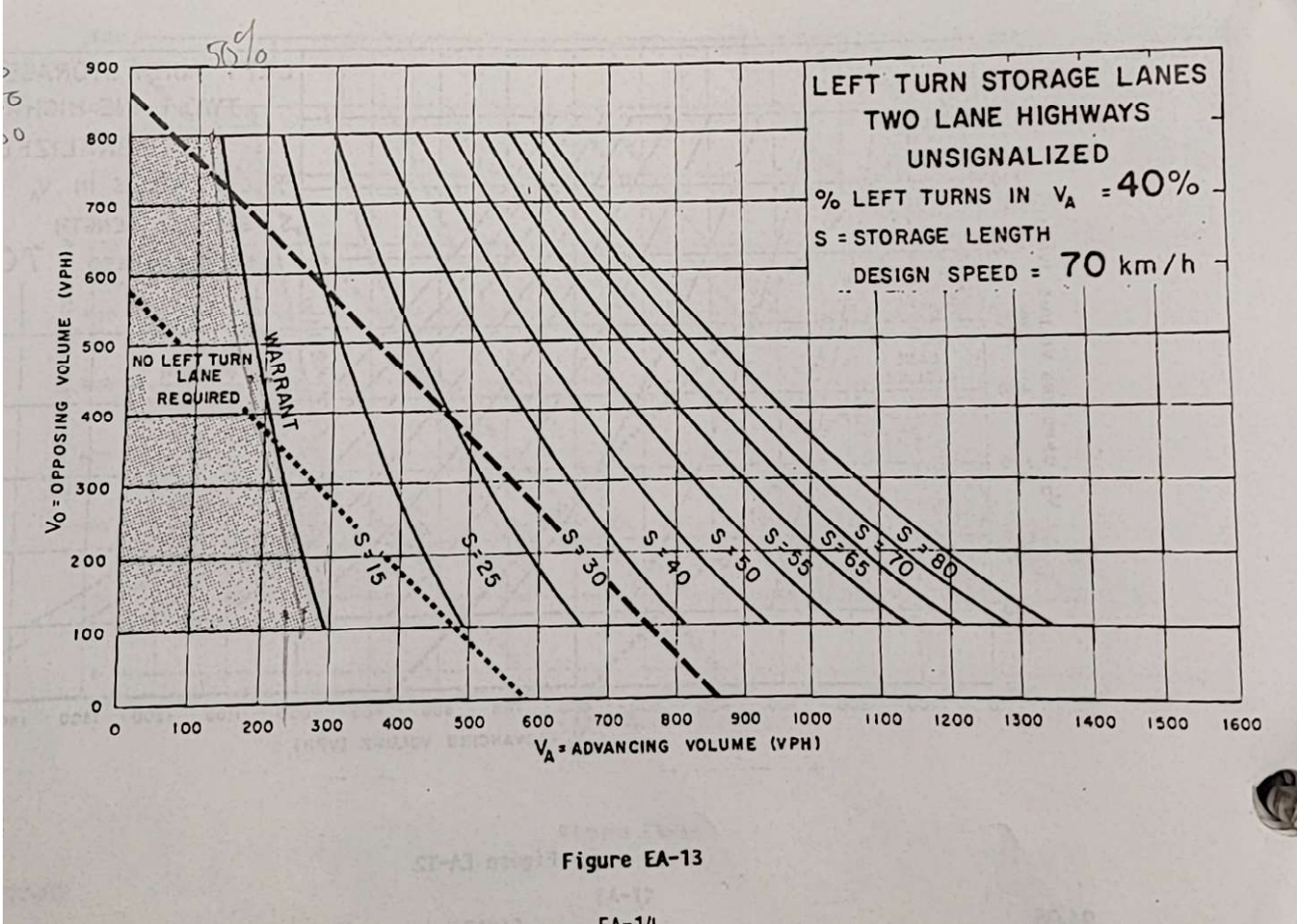
Figure EA-11

AT-GRADE INTERSECTIONS

APPENDIX A



- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW
- ..... TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS



**Appendix F:  
Signal Warrant Analysis**



**Existing Line 6 / Street A**

Hour ending	Approach Total	Relative % vs. AM	Relative % vs. PM
08:00:00	281	74%	0
09:00:00	381	100%	0
14:00:00	271	0%	56%
15:00:00	324	0%	66%
16:00:00	447	0%	92%
17:00:00	488	0%	100%
18:00:00	426	0%	87%
19:00:00	313	0%	64%

**2026 Projected**

Hour ending	EBL	EBT	EBR	NBL	NBT	NBR	WBL	WBT	WBR
08:00:00	0	262	37	85	0	162	55	236	0
09:00:00	0	355	50	115	0	220	75	320	0
14:00:00	0	275	92	31	0	86	150	247	0
15:00:00	0	329	110	37	0	103	179	295	0
16:00:00	0	453	151	50	0	142	247	408	0
17:00:00	0	495	165	55	0	155	270	445	0
18:00:00	0	432	144	48	0	135	236	388	0
19:00:00	0	317	106	35	0	99	173	285	0

**2031 Projected**

Hour ending	EBL	EBT	EBR	NBL	NBT	NBR	WBL	WBT	WBR
08:00:00	0	336	37	85	0	162	55	306	0
09:00:00	0	455	50	115	0	220	75	415	0
14:00:00	0	322	92	31	0	86	150	336	0
15:00:00	0	385	110	37	0	103	179	402	0
16:00:00	0	531	151	50	0	142	247	554	0
17:00:00	0	580	165	55	0	155	270	605	0
18:00:00	0	506	144	48	0	135	236	528	0
19:00:00	0	372	106	35	0	99	173	388	0

**2036 Projected**

Hour ending	EBL	EBT	EBR	NBL	NBT	NBR	WBL	WBT	WBR
08:00:00	0	358	37	85	0	162	55	317	0
09:00:00	0	485	50	115	0	220	75	430	0
14:00:00	0	342	92	31	0	86	150	361	0
15:00:00	0	408	110	37	0	103	179	432	0
16:00:00	0	563	151	50	0	142	247	595	0
17:00:00	0	615	165	55	0	155	270	650	0
18:00:00	0	537	144	48	0	135	236	567	0
19:00:00	0	394	106	35	0	99	173	417	0

5th Line / Street A

2026		AM	PM	AHV
	NBL	0	0	0
	NBT	0	0	0
Street A	NBR	0	0	0
&	SBL	0	0	0
5th Line	SBT	0	0	0
	SBR	115	110	56
	EBL	30	110	35
	EBT	100	125	56
	EBR	0	0	0
	WBL	0	0	0
	WBT	75	105	45
	WBR	0	0	0
<b>Total</b>				<b>193</b>
<b>Major</b>				<b>136</b>
<b>Minor</b>				<b>56</b>
<b>Minor Crossing</b>				<b>0</b>

2036		AM	PM	AHV
	NBL	0	0	0
	NBT	0	0	0
Street A	NBR	0	0	0
&	SBL	20	0	5
5th Line	SBT	0	0	0
	SBR	135	110	61
	EBL	30	115	36
	EBT	115	155	68
	EBR	0	0	0
	WBL	0	0	0
	WBT	75	125	50
	WBR	0	5	1
<b>Total</b>				<b>221</b>
<b>Major</b>				<b>155</b>
<b>Minor</b>				<b>66</b>
<b>Minor Crossing</b>				<b>5</b>

2031		AM	PM	AHV
	NBL	0	0	0
	NBT	0	0	0
Street A	NBR	0	0	0
&	SBL	0	0	0
5th Line	SBT	0	0	0
	SBR	115	110	56
	EBL	30	110	35
	EBT	115	160	69
	EBR	0	0	0
	WBL	0	0	0
	WBT	95	125	55
	WBR	0	0	0
<b>Total</b>				<b>215</b>
<b>Major</b>				<b>159</b>
<b>Minor</b>				<b>56</b>
<b>Minor Crossing</b>				<b>0</b>

### Justification 1: Minimum Vehicle Volumes

#### Restricted Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 Lanes		2 or More Lanes		Hour Ending											
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	8:00	9:00	14:00	15:00	16:00	17:00	18:00	19:00				
1A	576	864	600	900	837	1,135	880	1,052	1,452	1,585	1,384	1,017				
	COMPLIANCE %				97	100	100	100	100	100	100	100	100	797	100	
1B	144	306	120	170	247	335	117	139	192	210	183	135				
	COMPLIANCE %				81	100	38	46	63	69	60	44	500	62		
<b>Free Flow</b>					<b>Both 1A and 1B 100% Fulfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>
<b>Signal Justification 1:</b>					<b>Lesser of 1A or 1B at least 80% fulfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>

### Justification 2: Delay to Cross Traffic

#### Restricted Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 lanes		2 or More lanes		Hour Ending											
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	8:00	9:00	14:00	15:00	16:00	17:00	18:00	19:00				
2A	576	864	600	900	590	800	764	913	1,259	1,375	1,200	882				
	COMPLIANCE %				68	93	88	100	100	100	100	100	100	749	94	
2B	60	90	50	75	85	115	31	37	50	190	48	35				
	COMPLIANCE %				94	100	34	41	56	100	53	39	517	65		
<b>Free Flow</b>					<b>Both 2A and 2B 100% Fulfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>
<b>Signal Justification 2:</b>					<b>Lesser of 2A or 2B at least 80% fulfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>

### Justification 3: Combination

#### Combination Justification 1 and 2

Justification Satisfied 80% or More				Two Justifications Satisfied 80% or More	
Justification 1	Minimum Vehicular Volume			NO	NOT JUSTIFIED
Justification 2	Delay Cross Traffic			NO	

### Justification 1: Minimum Vehicle Volumes

#### Restricted Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 Lanes		2 or More Lanes		Hour Ending											
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	8:00	9:00	14:00	15:00	16:00	17:00	18:00	19:00				
1A	576	864	600	900	981	1,330	1,016	1,215	1,676	1,830	1,598	1,174				
	COMPLIANCE %				100	100	100	100	100	100	100	100	100	800	100	
1B	144	306	120	170	247	335	117	139	192	210	183	135				
	COMPLIANCE %				81	100	38	46	63	69	60	44	500	62		
<b>Free Flow</b>					<b>Both 1A and 1B 100% Fulfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>
<b>Signal Justification 1:</b>					<b>Lesser of 1A or 1B at least 80% fulfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>

### Justification 2: Delay to Cross Traffic

#### Restricted Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 lanes		2 or More lanes		Hour Ending											
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	8:00	9:00	14:00	15:00	16:00	17:00	18:00	19:00				
2A	576	864	600	900	734	995	900	1,076	1,484	1,620	1,414	1,039				
	COMPLIANCE %				85	100	100	100	100	100	100	100	100	785	98	
2B	60	90	50	75	85	115	31	37	174	190	166	35				
	COMPLIANCE %				94	100	34	41	100	100	100	39	608	76		
<b>Free Flow</b>					<b>Both 2A and 2B 100% Fulfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>
<b>Signal Justification 2:</b>					<b>Lesser of 2A or 2B at least 80% fulfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>

### Justification 3: Combination

#### Combination Justification 1 and 2

Justification Satisfied 80% or More				Two Justifications Satisfied 80% or More	
Justification 1	Minimum Vehicular Volume			NO	NOT JUSTIFIED
Justification 2	Delay Cross Traffic			NO	

### Justification 1: Minimum Vehicle Volumes

#### Restricted Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 Lanes		2 or More Lanes		Hour Ending											
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	8:00	9:00	14:00	15:00	16:00	17:00	18:00	19:00				
1A	576	864	600	900	1,014	1,375	1,061	1,268	1,750	1,910	1,667	1,225				
	COMPLIANCE %				100	100	100	100	100	100	100	100	800	100		
1B	144	306	120	170	247	335	117	139	192	210	183	135				
	COMPLIANCE %				81	100	38	46	63	69	60	44	500	62		
<b>Free Flow</b>					<b>Both 1A and 1B 100% Fulfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>
<b>Signal Justification 1:</b>					<b>Lesser of 1A or 1B at least 80% fulfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>

### Justification 2: Delay to Cross Traffic

#### Restricted Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 lanes		2 or More lanes		Hour Ending											
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	8:00	9:00	14:00	15:00	16:00	17:00	18:00	19:00				
2A	576	864	600	900	767	1,040	944	1,129	1,557	1,700	1,484	1,090				
	COMPLIANCE %				89	100	100	100	100	100	100	100	789	99		
2B	60	90	50	75	85	115	31	37	174	190	166	35				
	COMPLIANCE %				94	100	34	41	100	100	100	39	608	76		
<b>Free Flow</b>					<b>Both 2A and 2B 100% Fulfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>
<b>Signal Justification 2:</b>					<b>Lesser of 2A or 2B at least 80% fulfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>

### Justification 3: Combination

#### Combination Justification 1 and 2

Justification Satisfied 80% or More				Two Justifications Satisfied 80% or More	
Justification 1	Minimum Vehicular Volume			NO	NOT JUSTIFIED
Justification 2	Delay Cross Traffic			NO	



### Justification 1: Minimum Vehicle Volumes

#### Restricted Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 Lanes		2 or More Lanes		Hour Ending											
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW												
1A	576	1080	600	900	680	680	680	680	680	680	680	680	504	63		
	COMPLIANCE %				63	63	63	63	63	63	63	63				
1B	144	383	120	170	136	136	136	136	136	136	136	136	284	36		
	COMPLIANCE %				36	36	36	36	36	36	36	36				
<b>Free Flow</b>					<b>Both 1A and 1B 100% Fullfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>
<b>Signal Justification 1:</b>					<b>Lesser of 1A or 1B at least 80% fulfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>

### Justification 2: Delay to Cross Traffic

#### Restricted Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 lanes		2 or More lanes		Hour Ending											
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW												
2A	576	1080	600	900	544	544	544	544	544	544	544	544	403	50		
	COMPLIANCE %				50	50	50	50	50	50	50	50				
2B	60	113	50	75	43	43	43	43	43	43	43	43	306	38		
	COMPLIANCE %				38	38	38	38	38	38	38	38				
<b>Free Flow</b>					<b>Both 2A and 2B 100% Fullfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>
<b>Signal Justification 2:</b>					<b>Lesser of 2A or 2B at least 80% fulfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>

### Justification 3: Combination

#### Combination Justification 1 and 2

Justification Satisfied 80% or More				Two Justifications Satisfied 80% or More	
Justification 1	Minimum Vehicular Volume		NO		NO
Justification 2	Delay Cross Traffic		NO		NOT JUSTIFIED

### Justification 1: Minimum Vehicle Volumes

#### Restricted Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 Lanes		2 or More Lanes		Hour Ending											
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW												
1A	576	1080	600	900	790	790	790	790	790	790	790	790				
	COMPLIANCE %				73	73	73	73	73	73	73	73	73	585	73	
1B	144	383	120	170	136	136	136	136	136	136	136	136				
	COMPLIANCE %				36	36	36	36	36	36	36	36	36	284	36	
<b>Free Flow</b>					<b>Both 1A and 1B 100% Fullfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>
<b>Signal Justification 1:</b>					<b>Lesser of 1A or 1B at least 80% fulfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>

### Justification 2: Delay to Cross Traffic

#### Restricted Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 lanes		2 or More lanes		Hour Ending											
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW												
2A	576	1080	600	900	654	654	654	654	654	654	654	654				
	COMPLIANCE %				61	61	61	61	61	61	61	61	61	484	61	
2B	60	113	50	75	43	43	43	43	43	43	43	43				
	COMPLIANCE %				38	38	38	38	38	38	38	38	38	306	38	
<b>Free Flow</b>					<b>Both 2A and 2B 100% Fullfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>
<b>Signal Justification 2:</b>					<b>Lesser of 2A or 2B at least 80% fulfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>

### Justification 3: Combination

#### Combination Justification 1 and 2

Justification Satisfied 80% or More				Two Justifications Satisfied 80% or More	
Justification 1	Minimum Vehicular Volume		NO		NO
Justification 2	Delay Cross Traffic		NO		NOT JUSTIFIED

### Justification 1: Minimum Vehicle Volumes

#### Restricted Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 Lanes		2 or More Lanes		Hour Ending											
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW												
1A	576	1080	600	900	821	821	821	821	821	821	821	821				
	COMPLIANCE %				76	76	76	76	76	76	76	76	76	608	76	
1B	144	383	120	170	136	136	136	136	136	136	136	136				
	COMPLIANCE %				36	36	36	36	36	36	36	36	36	284	36	
<b>Free Flow</b>					<b>Both 1A and 1B 100% Fullfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>
<b>Signal Justification 1:</b>					<b>Lesser of 1A or 1B at least 80% fulfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>

### Justification 2: Delay to Cross Traffic

#### Restricted Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 lanes		2 or More lanes		Hour Ending											
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW												
2A	576	1080	600	900	685	685	685	685	685	685	685	685				
	COMPLIANCE %				63	63	63	63	63	63	63	63	63	507	63	
2B	60	113	50	75	43	43	43	43	43	43	43	43				
	COMPLIANCE %				38	38	38	38	38	38	38	38	38	306	38	
<b>Free Flow</b>					<b>Both 2A and 2B 100% Fullfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>
<b>Signal Justification 2:</b>					<b>Lesser of 2A or 2B at least 80% fulfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>

### Justification 3: Combination

#### Combination Justification 1 and 2

Justification Satisfied 80% or More				Two Justifications Satisfied 80% or More	
Justification 1	Minimun Vehicular Volume		NO		NO
Justification 2	Delay Cross Traffic		NO		NOT JUSTIFIED

**Justification 1: Minimum Vehicle Volumes**

**Restricted Urban Conditions**

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 Lanes		2 or More Lanes		Hour Ending											
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW												
1A	576	1080	600	900	193	193	193	193	193	193	193	193				
	COMPLIANCE %				18	18	18	18	18	18	18	18	18	143	18	
1B	144	383	120	170	56	56	56	56	56	56	56	56				
	COMPLIANCE %				15	15	15	15	15	15	15	15	15	117	15	
<b>Free Flow</b>					<b>Both 1A and 1B 100% Fulfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>
<b>Signal Justification 1:</b>					<b>Lesser of 1A or 1B at least 80% fulfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>

**Justification 2: Delay to Cross Traffic**

**Restricted Urban Conditions**

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 lanes		2 or More lanes		Hour Ending											
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW												
2A	576	1080	600	900	136	136	136	136	136	136	136	136				
	COMPLIANCE %				13	13	13	13	13	13	13	13	13	101	13	
2B	60	113	50	75	0	0	0	0	0	0	0	0				
	COMPLIANCE %				0	0	0	0	0	0	0	0	0	0	0	
<b>Free Flow</b>					<b>Both 2A and 2B 100% Fulfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>
<b>Signal Justification 2:</b>					<b>Lesser of 2A or 2B at least 80% fulfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>

**Justification 3: Combination**

**Combination Justification 1 and 2**

Justification Satisfied 80% or More				Two Justifications Satisfied 80% or More	
Justification 1	Minimun Vehicular Volume		NO		NO
Justification 2	Delay Cross Traffic		NO		NOT JUSTIFIED

**Justification 1: Minimum Vehicle Volumes**

**Restricted Urban Conditions**

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 Lanes		2 or More Lanes		Hour Ending											
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW												
1A	576	1080	600	900	215	215	215	215	215	215	215	215				
	COMPLIANCE %				20	20	20	20	20	20	20	20	20	159	20	
1B	144	383	120	170	56	56	56	56	56	56	56	56				
	COMPLIANCE %				15	15	15	15	15	15	15	15	15	117	15	
<b>Free Flow</b>					<b>Both 1A and 1B 100% Fullfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>
<b>Signal Justification 1:</b>					<b>Lesser of 1A or 1B at least 80% fulfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>

**Justification 2: Delay to Cross Traffic**

**Restricted Urban Conditions**

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 lanes		2 or More lanes		Hour Ending											
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW												
2A	576	1080	600	900	159	159	159	159	159	159	159	159				
	COMPLIANCE %				15	15	15	15	15	15	15	15	15	118	15	
2B	60	113	50	75	0	0	0	0	0	0	0	0				
	COMPLIANCE %				0	0	0	0	0	0	0	0	0	0	0	
<b>Free Flow</b>					<b>Both 2A and 2B 100% Fullfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>
<b>Signal Justification 2:</b>					<b>Lesser of 2A or 2B at least 80% fulfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>

**Justification 3: Combination**

**Combination Justification 1 and 2**

Justification Satisfied 80% or More				Two Justifications Satisfied 80% or More	
Justification 1	Minimun Vehicular Volume		NO		NO
Justification 2	Delay Cross Traffic		NO		NOT JUSTIFIED

**Justification 1: Minimum Vehicle Volumes**

**Restricted Urban Conditions**

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 Lanes		2 or More Lanes		Hour Ending											
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW												
1A	576	1080	600	900	221	221	221	221	221	221	221	221				
	COMPLIANCE %				20	20	20	20	20	20	20	20	20	164	20	
1B	144	383	120	170	66	66	66	66	66	66	66	66				
	COMPLIANCE %				17	17	17	17	17	17	17	17	17	138	17	
<b>Free Flow</b>					<b>Both 1A and 1B 100% Fulfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>
<b>Signal Justification 1:</b>					<b>Lesser of 1A or 1B at least 80% fulfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>

**Justification 2: Delay to Cross Traffic**

**Restricted Urban Conditions**

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 lanes		2 or More lanes		Hour Ending											
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW												
2A	576	1080	600	900	155	155	155	155	155	155	155	155				
	COMPLIANCE %				14	14	14	14	14	14	14	14	14	115	14	
2B	60	113	50	75	5	5	5	5	5	5	5	5				
	COMPLIANCE %				4	4	4	4	4	4	4	4	4	36	4	
<b>Free Flow</b>					<b>Both 2A and 2B 100% Fulfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>
<b>Signal Justification 2:</b>					<b>Lesser of 2A or 2B at least 80% fulfilled each of 8 hours</b>								<b>Yes</b>	<b>FALSE</b>	<b>No</b>	<b>TRUE</b>

**Justification 3: Combination**

**Combination Justification 1 and 2**

Justification Satisfied 80% or More				Two Justifications Satisfied 80% or More	
Justification 1	Minimun Vehicular Volume		NO		NO
Justification 2	Delay Cross Traffic		NO		NOT JUSTIFIED

## **Appendix G: All-Way Stop Control Warrants**



**All-Way Stop Control Warrant**

Bradford Highlands - Street A & Street B

September 2023 - BA Group

**Intersection Peak Hour Movement Volumes**

Movement	AM Peak	PM Peak
NBL	0	0
NBT	250	185
NBR	5	25
SBL	25	80
SBT	100	330
SBR	0	0
EBL	0	0
EBT	0	0
EBR	0	0
WBL	40	15
WBT	0	0
WBR	70	50

**Approach Volumes for Top 8 Hours**

Hour	Based on AM Volumes				Based on PM Volumes				Adopted (Averaged & Rounded)				Relative Share	Intersection Total
	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB		
7:00 - 8:00 AM	271	133	-	117	159	310	-	49	215	220	-	85	6.5%	520
8:00 - 9:00 AM	255	125	-	110	255	125	-	110	255	125	-	110	6.2%	490
1:00 - 2:00 PM	251	123	-	108	147	287	-	46	200	205	-	75	6.1%	480
2:00 - 3:00 PM	274	134	-	118	161	313	-	50	215	225	-	85	6.6%	525
3:00 - 4:00 PM	309	151	-	133	181	354	-	56	245	250	-	95	7.5%	590
4:00 - 5:00 PM	370	181	-	160	217	424	-	67	295	300	-	115	8.9%	710
5:00 - 6:00 PM	210	410	-	65	210	410	-	65	210	410	-	65	8.7%	685
6:00 - 7:00 PM	297	146	-	128	174	340	-	54	235	245	-	90	7.2%	570
<b>8 Hour Total</b>	<b>2237</b>	<b>1404</b>	<b>-</b>	<b>939</b>	<b>1504</b>	<b>2563</b>	<b>-</b>	<b>496</b>	<b>1870</b>	<b>1980</b>	<b>-</b>	<b>720</b>		

\* Peak hour volumes were assumed to occur at 8 AM-9 AM and 5 PM-6 PM for the AM and PM peak hours, respectively

**Minimum Volume Warrant for Collector Roads**

Total Volume Exceeds 375 for each of 8 hours	MET
Minor (WB) Street Volume Exceeds 150 for each of 8 hours	NOT MET
Minor Street (WB) Volume Split Exceeds 25% of Total Volume	NOT MET
Minor Street Split: 16%	



**All-Way Stop Control Warrant**  
Bradford Highlands - Street A & Street C

September 2023 - BA Group

**Intersection Peak Hour Movement Volumes**

Movement	AM Peak	PM Peak
NBL	5	15
NBT	170	160
NBR	0	5
SBL	10	40
SBT	110	195
SBR	5	10
EBL	10	10
EBT	0	0
EBR	5	5
WBL	35	10
WBT	0	0
WBR	25	15

**Approach Volumes for Top 8 Hours**

Hour	Based on AM Volumes				Based on PM Volumes				Adopted (Averaged & Rounded)				Relative Share	Intersection Total
	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB		
7:00 - 8:00 AM	185	135	15	64	136	185	11	19	160	160	15	40	6.5%	375
8:00 - 9:00 AM	175	125	15	60	175	125	15	60	175	125	15	60	6.2%	375
1:00 - 2:00 PM	170	125	15	60	126	172	11	18	150	150	15	40	6.1%	355
2:00 - 3:00 PM	190	135	15	65	138	187	11	19	165	160	15	40	6.6%	380
3:00 - 4:00 PM	210	150	20	75	155	211	13	22	185	180	15	50	7.5%	430
4:00 - 5:00 PM	255	180	20	85	186	253	15	26	220	215	20	55	8.9%	510
5:00 - 6:00 PM	180	245	15	25	180	245	15	25	180	245	15	25	8.7%	465
6:00 - 7:00 PM	205	145	15	70	149	203	12	21	175	175	15	45	7.2%	410
<b>8 Hour Total</b>	1570	1240	130	504	1245	1582	104	209	1410	1410	125	355		

\* Peak hour volumes were assumed to occur at 8 AM-9 AM and 5 PM-6 PM for the AM and PM peak hours, respectively

**Minimum Volume Warrant for Collector Roads**

Total Volume Exceeds 375 for each of 8 hours	MET
Minor (WB,EB) Street Volume Exceeds 150 for each of 8 hours	NOT MET
Minor Street (WB,EB) Volume Split Exceeds 30% of Total Volume	NOT MET
Minor Street Split: 15%	NOT MET

**All-Way Stop Control Warrant**

Bradford Highlands - Street A & Street L

September 2023 - BA Group

**Intersection Peak Hour Movement Volumes**

Movement	AM Peak	PM Peak
NBL	0	0
NBT	70	125
NBR	5	10
SBL	5	10
SBT	145	120
SBR	0	0
EBL	0	0
EBT	0	0
EBR	0	0
WBL	10	5
WBT	0	0
WBR	10	10

**Approach Volumes for Top 8 Hours**

Hour	Based on AM Volumes				Based on PM Volumes				Adopted (Averaged & Rounded)				Relative Share	Intersection Total
	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB		
7:00 - 8:00 AM	80	159	-	21	102	98	-	11	90	130	-	15	6.5%	235
8:00 - 9:00 AM	75	150	-	20	75	150	-	20	75	150	-	20	6.2%	245
1:00 - 2:00 PM	74	148	-	20	95	91	-	11	85	120	-	15	6.1%	220
2:00 - 3:00 PM	81	161	-	21	103	99	-	11	90	130	-	15	6.6%	235
3:00 - 4:00 PM	91	182	-	24	116	112	-	13	105	145	-	20	7.5%	270
4:00 - 5:00 PM	109	218	-	29	139	134	-	15	125	175	-	20	8.9%	320
5:00 - 6:00 PM	135	130	-	15	135	130	-	15	135	130	-	15	8.7%	280
6:00 - 7:00 PM	87	175	-	23	112	108	-	12	100	140	-	20	7.2%	260
<b>8 Hour Total</b>	<b>731</b>	<b>1322</b>	<b>-</b>	<b>174</b>	<b>878</b>	<b>923</b>	<b>-</b>	<b>109</b>	<b>805</b>	<b>1120</b>	<b>-</b>	<b>140</b>		

\* Peak hour volumes were assumed to occur at 8 AM-9 AM and 5 PM-6 PM for the AM and PM peak hours, respectively

**Minimum Volume Warrant for Collector Roads**

Total Volume Exceeds 375 for each of 8 hours	NOT MET
Minor (WB) Street Volume Exceeds 150 for each of 8 hours	NOT MET
Minor Street (WB) Volume Split Exceeds 25% of Total Volume	NOT MET
Minor Street Split: 7%	

**All-Way Stop Control Warrant**

Bradford Highlands - Street A & Street Q

September 2023 - BA Group

**Intersection Peak Hour Movement Volumes**

Movement	AM Peak	PM Peak
NBL	5	10
NBT	35	115
NBR	0	0
SBL	0	0
SBT	145	85
SBR	10	45
EBL	35	0
EBT	0	0
EBR	10	30
WBL	0	0
WBT	0	0
WBR	0	0

**Approach Volumes for Top 8 Hours**

Hour	Based on AM Volumes				Based on PM Volumes				Adopted (Averaged & Rounded)				Relative Share	Intersection Total
	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB		
7:00 - 8:00 AM	42	165	50	-	94	98	23	-	70	130	35	-	6.5%	235
8:00 - 9:00 AM	40	155	45	-	40	155	45	-	40	155	45	-	6.2%	240
1:00 - 2:00 PM	39	153	45	-	88	91	21	-	65	120	35	-	6.1%	220
2:00 - 3:00 PM	43	166	50	-	96	99	23	-	70	135	35	-	6.6%	240
3:00 - 4:00 PM	48	188	55	-	108	112	26	-	80	150	40	-	7.5%	270
4:00 - 5:00 PM	58	225	65	-	129	134	31	-	95	180	50	-	8.9%	325
5:00 - 6:00 PM	125	130	30	-	125	130	30	-	125	130	30	-	8.7%	285
6:00 - 7:00 PM	47	181	50	-	104	108	25	-	75	145	35	-	7.2%	255
<b>8 Hour Total</b>	<b>443</b>	<b>1362</b>	<b>390</b>	<b>-</b>	<b>783</b>	<b>928</b>	<b>223</b>	<b>-</b>	<b>620</b>	<b>1145</b>	<b>305</b>	<b>-</b>		

\* Peak hour volumes were assumed to occur at 8 AM-9 AM and 5 PM-6 PM for the AM and PM peak hours, respectively

**Minimum Volume Warrant for Collector Roads**

Total Volume Exceeds 375 for each of 8 hours	NOT MET
Minor (EB) Street Volume Exceeds 150 for each of 8 hours	NOT MET
Minor Street (EB) Volume Split Exceeds 25% of Total Volume	NOT MET
Minor Street Split: 15%	

### All-Way Stop Control Warrant

Bradford Highlands - Street B & Street F

September 2023 - BA Group

#### Intersection Peak Hour Movement Volumes

Movement	AM Peak	PM Peak
NBL	25	15
NBT	0	0
NBR	0	0
SBL	0	0
SBT	0	0
SBR	25	20
EBL	5	20
EBT	0	5
EBR	5	15
WBL	0	0
WBT	20	0
WBR	0	0

#### Approach Volumes for Top 4 Hours

Hour	Based on PM Volumes				Adopted (Rounded)				Relative Share	Intersection Total
	NB	SB	EB	WB	NB	SB	EB	WB		
3:00 - 4:00 PM	13	17	34	0	15	15	35	0	7.5%	65
4:00 - 5:00 PM	15	21	41	0	15	20	40	0	8.9%	75
5:00 - 6:00 PM	15	20	40	0	15	20	40	0	8.7%	75
6:00 - 7:00 PM	12	17	33	0	10	15	35	0	7.2%	60
<b>8 Hour Total</b>	56	74	149	0	55	70	150	0		

\* Peak hour volumes were assumed to occur at 5 PM-6 PM for the PM peak hour

#### Minimum Volume Warrant for Local Roads

Total Volume Exceeds 200 for each of 4 hours	NOT MET
Minor (NB,SB) Street Volume Exceeds 75 for each of 4 hours	NOT MET
Minor Street (NB,SB) Volume Split Exceeds 30% of Total Volume	MET
Minor Street Split: 45%	

### All-Way Stop Control Warrant

Bradford Highlands - Street C & Street L

September 2023 - BA Group

#### Intersection Peak Hour Movement Volumes

Movement	AM Peak	PM Peak
NBL	25	15
NBT	0	0
NBR	0	0
SBL	0	0
SBT	0	0
SBR	5	5
EBL	5	10
EBT	0	5
EBR	5	20
WBL	0	0
WBT	20	0
WBR	0	0

#### Approach Volumes for Top 4 Hours

Hour	Based on PM Volumes				Adopted (Rounded)				Relative Share	Intersection Total
	NB	SB	EB	WB	NB	SB	EB	WB		
3:00 - 4:00 PM	13	4	30	0	15	5	30	0	7.5%	50
4:00 - 5:00 PM	15	5	36	0	15	5	35	0	8.9%	55
5:00 - 6:00 PM	15	5	35	0	15	5	35	0	8.7%	55
6:00 - 7:00 PM	12	4	29	0	10	5	30	0	7.2%	45
<b>8 Hour Total</b>	56	19	130	0	55	20	130	0		

\* Peak hour volumes were assumed to occur at 5 PM-6 PM for the PM peak hour

#### Minimum Volume Warrant for Local Roads

Total Volume Exceeds 200 for each of 4 hours	NOT MET
Minor (NB,SB) Street Volume Exceeds 75 for each of 4 hours	NOT MET
Minor Street (NB,SB) Volume Split Exceeds 30% of Total Volume	MET
Minor Street Split: 37%	

ITE Vehicle Time of Day Distribution			
Land Use Code	210		
Land Use	Single-Family Detached Housing		
Setting	General Urban/Suburban		
Time Period	Weekday		
# Data Sites	7		
	% of 24-Hour Vehicle Trips		
Time	Total	Entering	Exiting
12:00 - 1:00 AM	0.3%	0.5%	0.2%
1:00 - 2:00 AM	0.2%	0.2%	0.1%
2:00 - 3:00 AM	0.2%	0.3%	0.1%
3:00 - 4:00 AM	0.2%	0.2%	0.2%
4:00 - 5:00 AM	0.6%	0.3%	0.8%
5:00 - 6:00 AM	1.2%	0.5%	2.0%
6:00 - 7:00 AM	3.7%	1.6%	5.8%
7:00 - 8:00 AM	6.5%	3.1%	10.0%
8:00 - 9:00 AM	6.2%	3.8%	8.5%
9:00 - 10:00 AM	4.6%	3.3%	5.8%
10:00 - 11:00 AM	4.9%	4.2%	5.6%
11:00 - 12:00 PM	5.3%	5.4%	5.1%
12:00 - 1:00 PM	5.7%	5.7%	5.7%
1:00 - 2:00 PM	6.1%	6.1%	6.0%
2:00 - 3:00 PM	6.6%	7.1%	6.1%
3:00 - 4:00 PM	7.5%	8.7%	6.2%
4:00 - 5:00 PM	8.9%	10.5%	7.4%
5:00 - 6:00 PM	8.7%	10.0%	7.3%
6:00 - 7:00 PM	7.2%	8.5%	5.9%
7:00 - 8:00 PM	5.1%	6.1%	4.2%
8:00 - 9:00 PM	4.6%	6.1%	3.1%
9:00 - 10:00 PM	3.3%	4.4%	2.3%
10:00 - 11:00 PM	1.6%	2.1%	1.0%
11:00 - 12:00 AM	1.0%	1.3%	0.6%

## **Appendix H: On-Street Parking Allocation Plan**







# Appendix I: Pedestrian Circulation Plan



