2430 St. Paul Avenue

Traffic Impact and Parking Study

9431870 Canada Corp

06 March 2024

The Power of Commitment

Executive Summary

GHD Limited is pleased to provide the following Traffic Impact Study for a residential development located at 2430 St. Paul Avenue in the City of Niagara Falls.

This report determines the site related traffic and subsequent traffic related impacts on the adjacent road network and site driveways during the weekday a.m. and p.m. peak hours. These impacts are based on the projected future background traffic and road network conditions derived for 2026, and 2031 future planning horizon years.

Based on the approved Terms of Reference for the study, the following intersections were included in the study area:

- St. Paul Avenue and Mountain Road
- Mountain Road and Dorchester Road
- Portage Road and Stanley Avenue
- St. Paul Avenue and Proposed Site Driveway
- Mountain Road and Proposed Site Driveway

The proposed site plan was prepared by ACK Architects Studio Inc. and consists of a 15-storey building with 154 units and 19-storey building with 141 units.

Access to the subject site is proposed via two accesses, a right-in/out/left-in access on St. Paul Avenue and a full moves access on Mountain Road. A similar access layout for both accesses was previously approved by the City and Region under a former Site Plan Application for the subject site.

Based on ITE Trip Generation rates, the subject site is expected to generate a total of 84 two-way trips during the a.m. peak hour consisting of 22 inbound and 62 outbound trips. During the p.m. peak hour, it is expected to generate 100 new two-way vehicles trips consisting of 62 inbound and 38 outbound trips.

Under existing traffic conditions, all intersections are operating at acceptable v/c ratios and levels of service during the a.m. peak and p.m. peak hours.

Under the 2026 and 2031 future background traffic conditions, all intersections are reported to continue to operate with acceptable v/c ratios, delays, and queuing.

Under the 2026 and 2031 future total traffic conditions, all intersections are reported to continue to operate with acceptable v/c ratios, delays, and queuing.

Application of the City of Niagara Falls By-Law 79-200 parking rates to the subject site results in a required minimum of 413 vehicular parking spaces. Application of the City's By-law 2019-44 rates to the subject site results in a requirement of 11 barrier free spaces.

The subject site provides a total of 373 vehicular parking spaces, including 11 barrier free spaces. The 373 vehicle parking spaces represent a shortfall of 40 spaces from the City's By-Law requirement.

The proposed parking supply of 1.26 spaces per unit exceeds the minimum parking By-Law requirements from nearby municipalities within the Region and is supported by the 2016 TTS survey data for auto ownership within the surrounding planning zones. The proposed parking supply also exceeds the approved parking rate for a nearby site at 7711 Green Vista Gate which is a 10-storey residential located near Thundering Waters Golf Course in Niagara Falls.

Additionally, TDM measures are proposed for the subject site to encourage residents to explore various modes of transportation in order to reduce their dependency on single occupancy vehicle trips. These measures include a reduction in the parking supply, pedestrian connections to the municipal rights-of-way and transit information packages.

The traffic study confirms that the proposed residential development can be accommodated on the existing/planned road network.

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

Sincerely,

GHD

Rafael Andrenacci, B.Eng

Transportation Planner

William Maria, P. Eng.

Transportation Planning Lead

Contents

Table index

Figure Index

Appendices

1. Introduction

1.1 Retainer and Objective

GHD Limited was retained to prepare a Traffic Impact Study for a proposed residential development located at 2430 St. Paul Avenue in the City of Niagara Falls.

The site location is illustrated in **Figure 1**.

The purpose of this study is to:

- Establish baseline traffic conditions for the study area in 2024 and determine future background operating conditions for a future planning horizon in 2026 and 2031.
- Estimate the site trips generated by the proposed development and distribute the traffic to the adjacent road network.
- Determine future operating traffic conditions during the weekday peak periods through intersection capacity analysis.
- Conduct a site access and swept path review of the proposed site plan.
- Recommend TDM measures to reduce single occupancy vehicle trips to the site.

1.2 Study Team

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

- William Maria, P. Eng., Transportation Planning Lead
- Rafael Andrenacci, B.Eng., Transportation Planner

Figure 1 Site Location

2. Site Characteristics

2.1 Study Area

As per the agreed Terms of Reference for the study attached in **Appendix A**, the following intersections were included in the study area:

- Mountain Road and Dorchester Road
- St. Paul Avenue and Mountain Road
- Portage Road and Stanley Avenue
- St. Paul Avenue and Proposed Site Driveway
- Mountain Road and Proposed Site Driveway

2.2 Proposed Development Content

A site plan prepared for the proposed development is shown in **Figure 2** and provided in **Appendix B**. It consists of two towers with a 15-storey building with 154 units and a 19-storey building with 141 units.

Access to the subject site is proposed via a right-in/out/left-in access on St. Paul Avenue and a full moves access on Mountain Road.

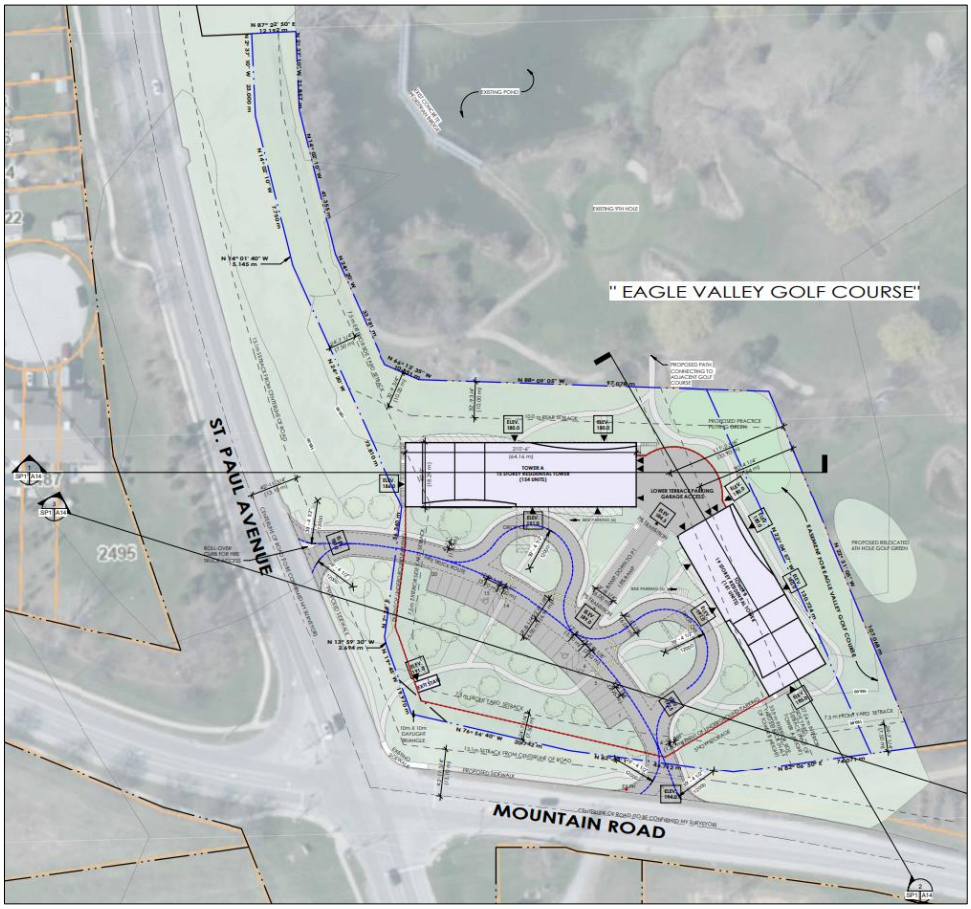


Figure 2 Proposed Site Plan

3. Existing Conditions

3.1 Existing Road Network

St. Paul Avenue is a north/south arterial road under the jurisdiction of Niagara Region. Within the study area it has one lane in each direction. The intersection with St. Paul Avenue/ Mountain Road is signalized with an auxiliary left-turn and right-turn lanes in both the northbound and southbound directions. The posted speed limit along St. Paul Avenue is 50 km/h.

Mountain Road is an east/west arterial road under the jurisdiction of Niagara Region. Within the study area it has one lane in each direction. The intersection Mountain Road/St. Paul Avenue is signalized with an auxiliary left-turn and a shared right and through lanes for both eastbound and westbound directions. The posted speed limit of Mountain Road east of St. Paul Avenue is 60 km/h and west of St. Paul Avenue is 50 km/h.

Stanley Avenue is a north/south arterial road under the jurisdiction of Niagara Region. Within the study area, it has one lane in each direction. The intersection Stanley Avenue/Portage Road is signalized with an auxiliary left-turn and a shared right and through lanes in both the northbound and southbound directions. The posted speed limit along Stanley Avenue is 60 km/h.

Dorchester Road is a north/south road under the jurisdiction of the City of Niagara Falls that operates as an arterial road south of Mountain Road and a local road north of Mountain Road. Within the study area, it has one lane in each direction. Dorchester Road north of Mountain Road has no lane markings. The intersection Dorchester Road/ Mountain Road is signalized with a separate left-turn and a shared right and through lane in the northbound direction. The posted speed limit of Dorchester Road north of Mountain Road is 60 km/h and south of Mountain Road is 50 km/h.

Portage Road is an east/west road under the jurisdiction of Niagara Region that operates as an arterial road north of Mountain Road and a collector road south of it. Within the study area, it has one lane in each direction. The intersection Portage Road/Stanley Avenue is signalized with an auxiliary left-turn and a shared right and through lanes in both the eastbound and westbound directions. The posted speed limit along Portage Avenue is 50 km/h.

The existing lane configurations and intersection control are illustrated in the following figure.

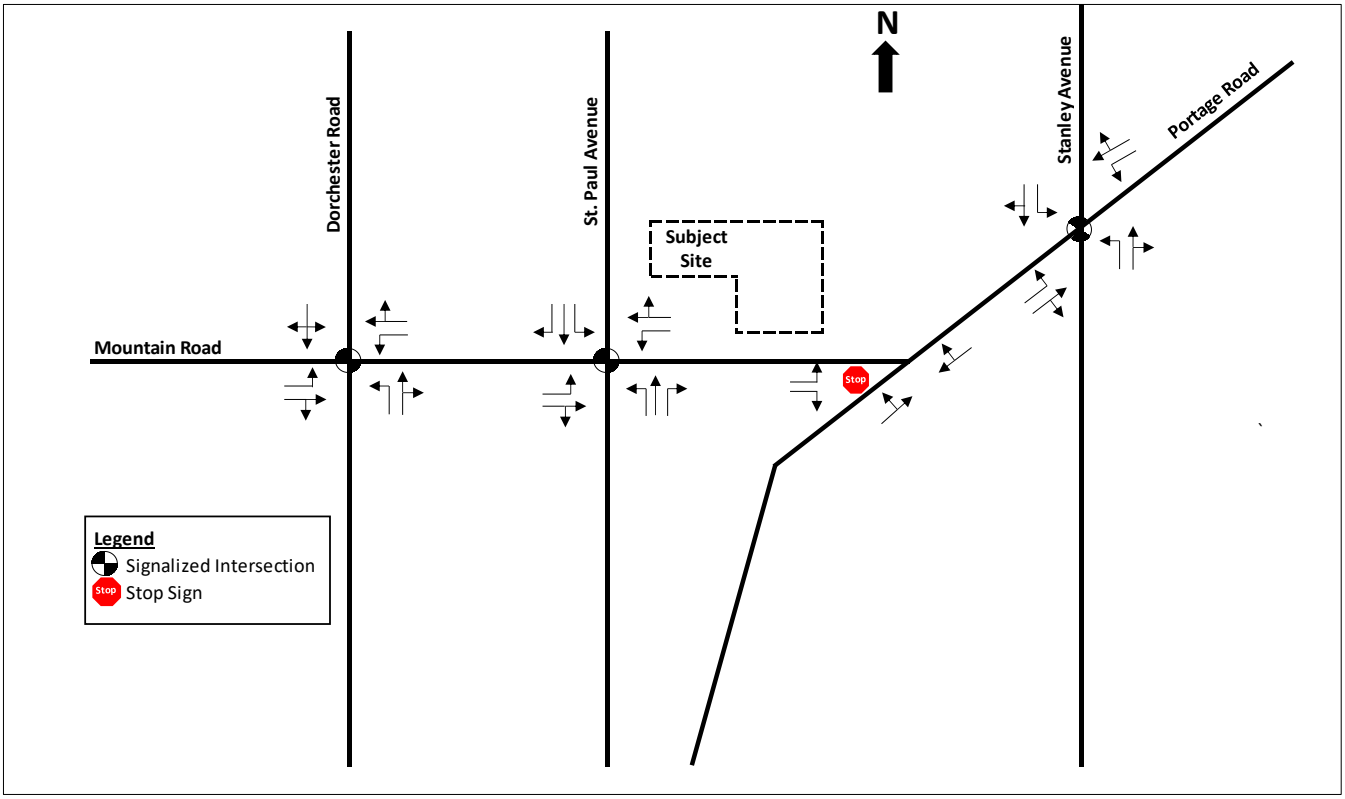


Figure 3 Existing Lane Configuration and Traffic Controls

3.2 Pedestrian and Bicycle Facilities

Within the study area, sidewalks are provided on both sides of Dorchester Road, Portage Road (south of Mountain Road), Stanley Avenue (north of Portage Road) and Mountain Road (west of St. Paul Avenue).

Sidewalks are also provided on the west side of St. Paul Avenue (north of Mountain Road), east side of Portage Road (north of Mountain Road), west side of Stanley Avenue (south of Portage Road) and on the south side of Mountain Road for approximately 200 metres west of Portage Road.

The existing pedestrian sidewalks are illustrated in **Figure 4**.

Figure 4 Existing Active Transportation Facilities

3.3 Transit Services

Niagara Region Transit currently does not provide any transit services within the study area. The closest Niagara Regional Transit stop is for the Route #107 and Route #214, which passes through the St. Paul Avenue and Riall Street intersection that is located south of the proposed development. The transit stop is located approximately 715 metres away.

Figure 5 Nearby Transit Stops

3.4 Existing Traffic Data

GHD contracted Spectrum Traffic Inc. to conduct updated turning movement counts at all the study intersections in May 2023. The baseline 2023 traffic volumes for the a.m. and p.m. peak hours are summarized in **Figure 6** below with the full turning movement counts provided in **Appendix C.**

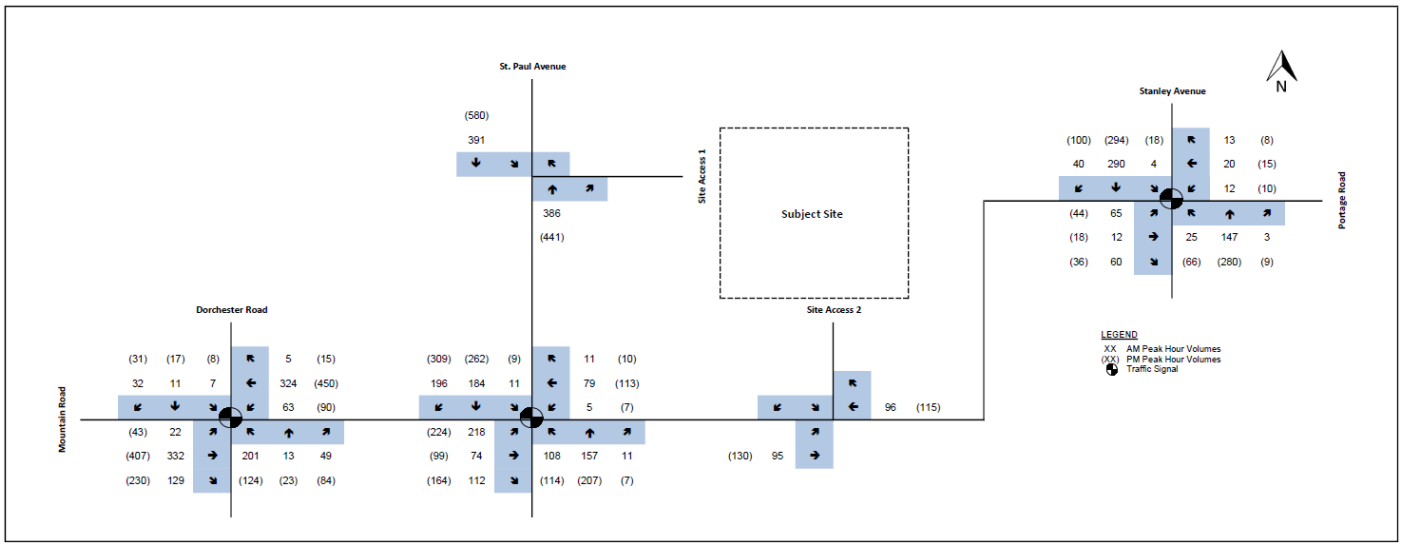


Figure 6 Baseline 2024 Traffic Volumes

4. Future Conditions

4.1 Study Horizon Year

Future horizon years of 2026, and 2031 representing full build-out and five years post build-out were selected for the analysis of future traffic conditions, generally consistent with the City's traffic study guidelines and was agreed to in the Terms of Reference for this project.

4.2 Corridor Growth

A 2% growth rate was applied to all movements along each road within the study area to estimate corridor growth up to the future horizon years as agreed to in the Terms of Reference with City and Region Staff.

4.3 Background Development Traffic

City of Niagara staff have indicated that there are no background developments located near the subject site that would contribute traffic volumes at the study intersections.

4.4 Future Background Traffic Volumes

The background traffic volumes for the 2026, and 2031 horizon years were derived by applying the respective growth rates to the study area roads. The resulting 2026, and 2031 future background traffic volumes are summarized in **Figure 7** and **Figure 8**.

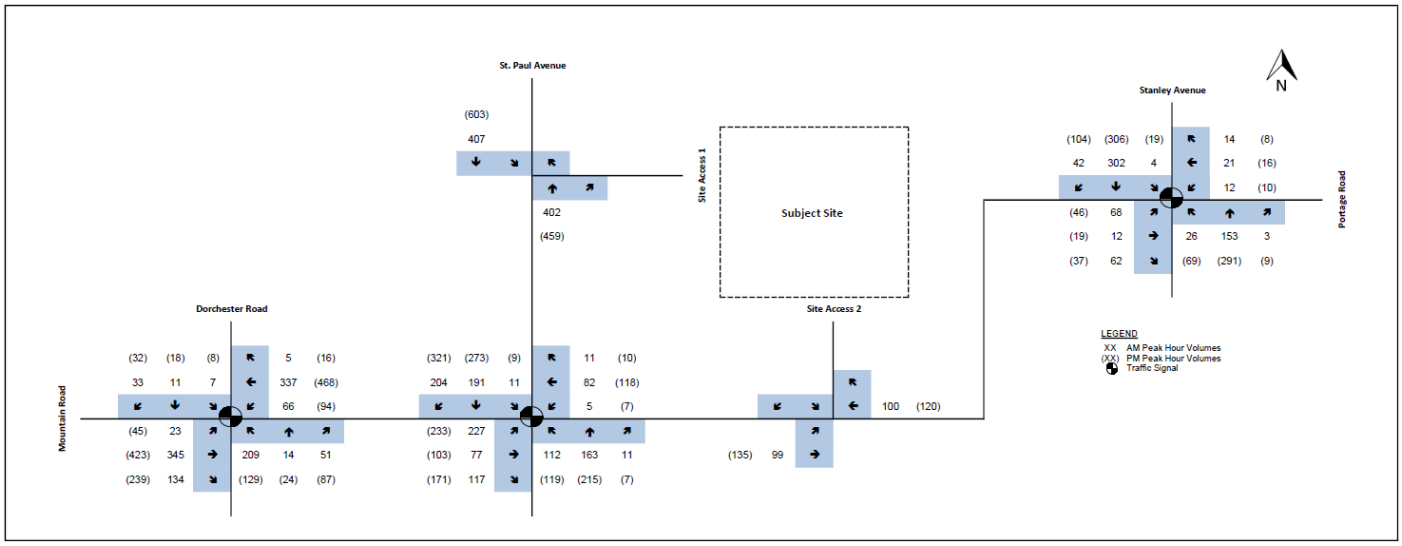


Figure 7 2026 Future Background Traffic Volumes

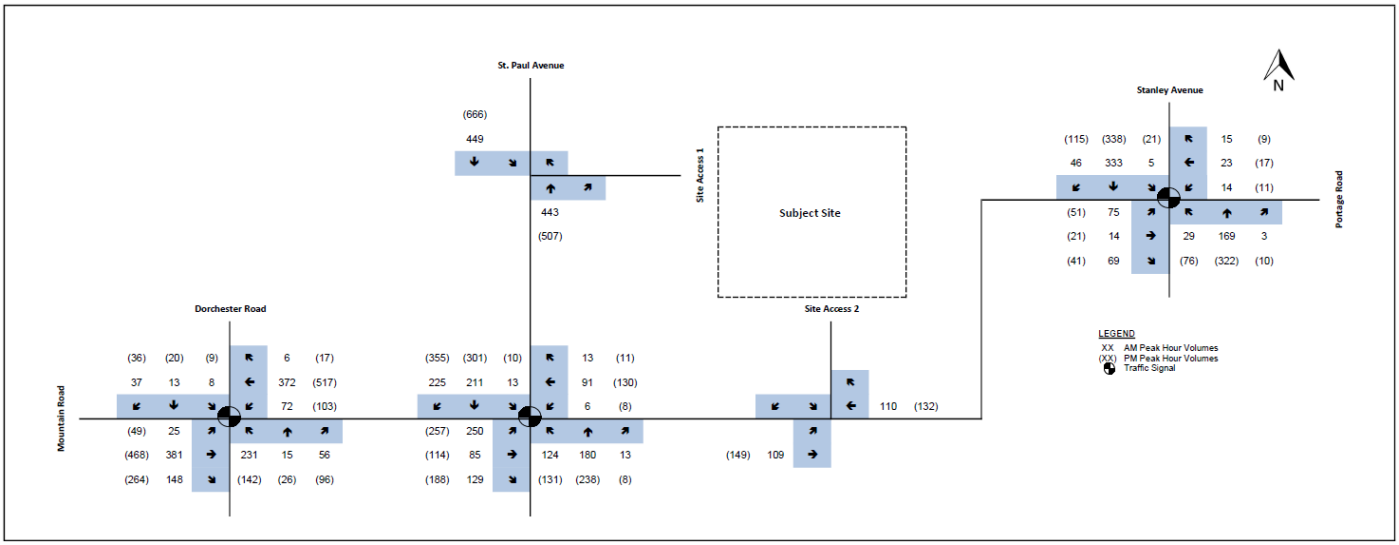


Figure 8 2031 Future Background Traffic Volumes

5. Site Generated Traffic

5.1 Modal Split

Analysis of future traffic conditions did not apply a transit modal split reduction to the estimated site generated trips.

5.2 Site Trip Generation

The proposed development consists of two high-rise residential buildings with a total of 295 dwelling units.

Site traffic generated by the proposed development for the weekday a.m. and p.m. peak hours was estimated by applying the trip rate for Land Use Code 222 Multifamily Housing (High-Rise) for the residential dwelling units in the 11th Edition of the Trip Generation Manual published by the Institute of Transportation Engineers (ITE).

Table 1 summarizes the estimated trip generation for the subject site. A comparison of the fitted curve equations and average rates for each individual Land Use Code was completed, whichever calculation resulted in a greater trip generation was used as a conservative measure.

Table 1 Total Site Trip Generation

Land Use Code	Dwelling Units/GFA	Parameters	Peak Hour Trip Generation					
			Weekday AM			Weekday PM		
			In	Out	Total	In	Out	Total
Multifamily Housing (High-Rise) LUC 222	295 dwelling units	Trip Rate	0.075	0.210	0.285	0.210	0.129	0.339
		Trip Ratio	26%	74%	100%	62%	38%	100%
		New Trips	**22**	**62**	**84**	**62**	**38**	**100**

The subject site is expected to generate a total of 84 new two-way trips during the a.m. peak hour consisting of 22 inbound and 62 outbound trips. During the p.m. peak hour, a total of 100 new two-way trips are generated consisting of 62 inbound and 38 outbound trips.

5.3 Site Traffic Distribution and Assignment

The directional distribution for site trips was based on TTS data and a review of the local traffic patterns and is summarized in **Table 2**. The site generated traffic assignment to the study area road network for the weekday a.m. and p.m. peak hours is illustrated in **Figure 9**.

Table 2 Site Traffic Distribution - Residential

Peak Period	Direction	North (St. Paul Avenue)	South (Dorchester Road)	South (St. Paul Avenue)	South (Stanley Avenue)	West (Mountain Road)
AM	Inbound	14%	0%	24%	24%	39%
	Outbound	13%	3%	19%	19%	46%
PM	Inbound	30%	0%	16%	16%	39%
	Outbound	7%	1%	22%	22%	48%

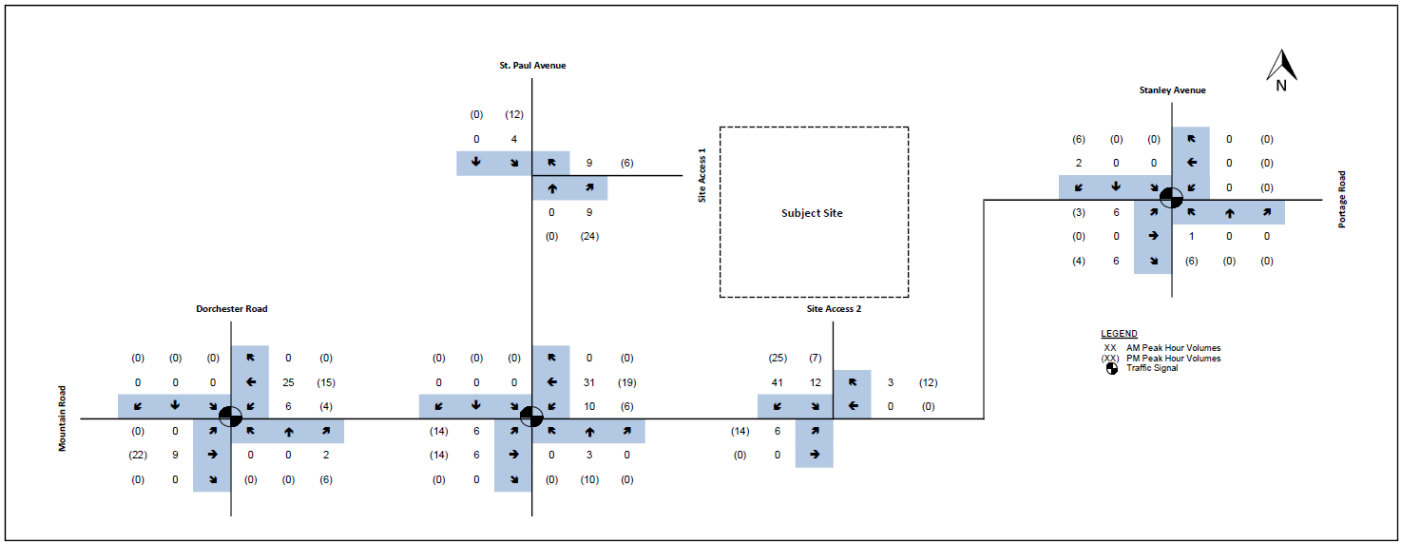


Figure 9 Proposed Site Generated Trips

6. Future Total Traffic

The future total traffic conditions in the weekday a.m. and p.m. peak hours for the 2026 and 2031 planning horizon years was derived by combining the projected future background traffic with the corresponding estimated site generated traffic. The resulting total traffic volumes are illustrated in **Figure 10** and **Figure 11** for the 2026 and 2032 horizon years respectively.

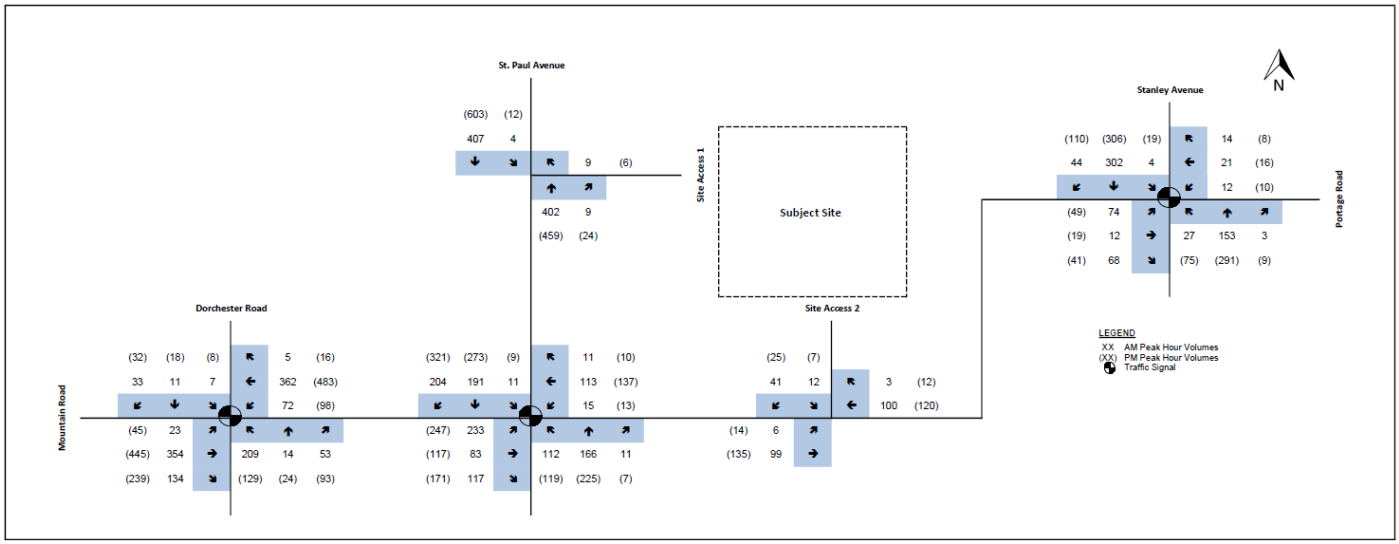


Figure 10 2026 Future Total Traffic Volumes

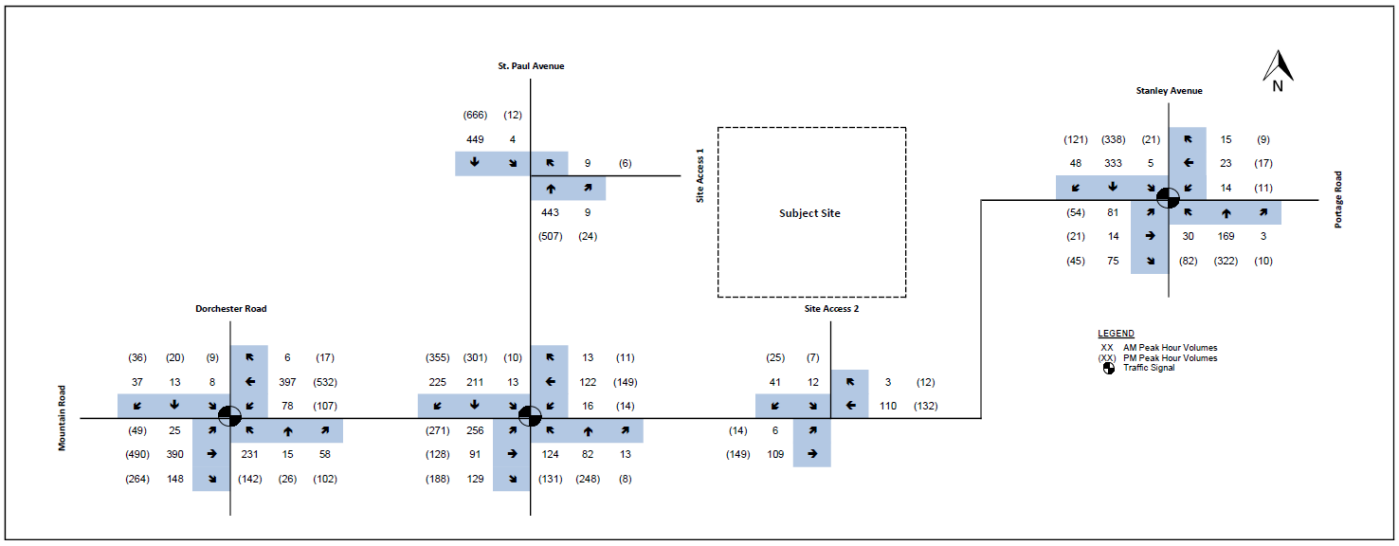


Figure 11 2031 Future Total Traffic Volumes

7. Capacity Analysis

The capacity analysis identifies how well the intersections and driveways are operating. The analysis contained within this report utilized the Highway Capacity Manual (HCM) 2000 procedure within the Synchro Version 11 Software package. The reported intersection volume-to-capacity ratios (v/c) are a measure of the saturation volume for each turning movement, while the levels-of-service (LOS) are a measure of the average delay for each turning movement. Queuing characteristics are reported as the predicted 95th percentile queue for each turning movement. Both pedestrian crossing volumes and heavy vehicle proportions are included in the analyses. The peak hour factors from the counts were used to analyze existing traffic conditions. Existing peak hour factors were also used for future traffic conditions.

The analysis includes identification and required modifications and improvements (if any) at intersections where the addition of background growth or background growth plus site-generated traffic volumes causes the following:

'Critical' intersections and movements for a signalized intersection include:

- V/C ratios for overall intersections operations, through movements, or shared through/turning movements increase to 0.85 or above;
- V/C ratios for exclusive movements increase to 0.95 or above; or
- 95th percentile queue length for individual movements that are projected to, or exceed, the storage length.

'Critical' intersections and movements for an unsignalized intersection include:

- Level of Services (LOS), based on average delay per vehicle, on individual movements exceeds LOS "E"; or
- Queue length for individual movements that exceeds the available queue storage.

The following tables summarize the HCM capacity results for the study intersections during the weekday a.m. and p.m. peak hours under existing (2024), future background (2026, and 2031) and future total (2026, and 2031) traffic conditions. The detailed calculation sheets are provided in **Appendix E**.

7.1 Dorchester Road and Mountain Road

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

Table 3 Capacity analysis of Dorchester Road and Mountain Road

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Existing 2024	Overall: 0.63 (B) 15 EBL = 0.07 (A) 8 EBTR = 0.6 (B) 13 WBL = 0.23 (A) 10 WBTR = 0.4 (B) 10 NBL = 0.68 (C) 26 NBTR = 0.1 (B) 18 SBTLR = 0.1 (B) 18	 EBL = 5 m EBTR = 80 m WBL = 15 m WBTR = 50 m NBL = 40 m NBTR = 5 m SBTLR = 10 m	Overall: 0.68 (B) 13 EBL = 0.12 (A) 6 EBTR = 0.7 (B) 12 WBL = 0.32 (A) 9 WBTR = 0.46 (A) 8 NBL = 0.62 (C) 27 NBTR = 0.17 (C) 20 SBTLR = 0.18 (C) 21	 EBL = 10 m EBTR = 100 m WBL = 20 m WBTR = 60 m NBL = 25 m NBTR = 10 m SBTLR = 15 m
Future Background 2026	Overall: 0.65 (B) 15 EBL = 0.08 (A) 8 EBTR = 0.63 (B) 14 WBL = 0.26 (B) 10 WBTR = 0.42 (B) 11 NBL = 0.69 (C) 26 NBTR = 0.1 (B) 18 SBTLR = 0.1 (B) 18	 EBL = 5 m EBTR = 80 m WBL = 15 m WBTR = 55 m NBL = 45 m NBTR = 5 m SBTLR = 10 m	Overall: 0.70 (B) 14 EBL = 0.14 (A) 7 EBTR = 0.76 (B) 15 WBL = 0.41 (B) 12 WBTR = 0.5 (A) 10 NBL = 0.54 (C) 23 NBTR = 0.15 (B) 20 SBTLR = 0.16 (B) 20	 EBL = 10 m EBTR = 120 m WBL = 20 m WBTR = 65 m NBL = 30 m NBTR = 15 m SBTLR = 15 m
Future Total 2026	Overall: 0.66 (B) 15 EBL = 0.08 (A) 8 EBTR = 0.65 (B) 14 WBL = 0.29 (B) 11 WBTR = 0.45 (B) 11 NBL = 0.69 (C) 26 NBTR = 0.11 (B) 18 SBTLR = 0.1 (B) 17	 EBL = 5 m EBTR = 85 m WBL = 15 m WBTR = 60 m NBL = 45 m NBTR = 5 m SBTLR = 10 m	Overall: 0.77 (B) 18 EBL = 0.18 (A) 8 EBTR = **0.86** (C) 21 WBL = 0.67 (C) 27 WBTR = 0.57 (B) 11 NBL = 0.54 (C) 23 NBTR = 0.21 (B) 19 SBTLR = 0.16 (B) 19	 EBL = 10 m EBTR = 140 m WBL = 35 m WBTR = 75 m NBL = 30 m NBTR = 5 m SBTLR = 10 m
Future Background 2031	Overall: 0.72 (B) 17 EBL = 0.09 (A) 8 EBTR = 0.72 (B) 17 WBL = 0.35 (B) 13 WBTR = 0.48 (B) 12 NBL = 0.73 (C) 28	 EBL = 5 m EBTR = 100 m WBL = 15 m WBTR = 60 m NBL = 50 m	Overall: 0.77 (B) 18 EBL = 0.17 (A) 8 EBTR = **0.85** (C) 21 WBL = 0.65 (C) 28 WBTR = 0.56 (B) 11 NBL = 0.57 (C) 24	 EBL = 10 m EBTR = 150 m WBL = 35 m WBTR = 80 m NBL = 30 m

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
	NBTR = 0.11 (B) 17 SBTLR = 0.11 (B) 17	NBTR = 5 m SBTLR = 10 m	NBTR = 0.17 (B) 19 SBTLR = 0.18 (B) 19	NBTR = 15 m SBTLR = 15 m
Future Total 2031	Overall: 0.73 (B) 17 EBL = 0.1 (A) 9 EBTR = 0.73 (B) 18 WBL = 0.39 (B) 14 WBTR = 0.51 (B) 12 NBL = 0.73 (C) 28 NBTR = 0.11 (B) 17 SBTLR = 0.11 (B) 17	 EBL = 5 m EBTR = 105 m WBL = 20 m WBTR = 65 m NBL = 50 m NBTR = 5 m SBTLR = 10 m	Overall: 0.79 (B) 20 EBL = 0.18 (A) 8 EBTR = **0.88** (C) 23 WBL = 0.77 (D) 42 WBTR = 0.58 (B) 11 NBL = 0.57 (C) 23 NBTR = 0.17 (B) 19 SBTLR = 0.18 (B) 19	 EBL = 10 m EBTR = 155 m WBL = 40 m WBTR = 80 m NBL = 30 m NBTR = 15 m SBTLR = 15 m

Under existing traffic conditions, the intersection is operating with an overall v/c ratio of 0.63 LOS B during the a.m. peak hour and 0.68 LOS B during the p.m. peak hour. There are no critical movements.

With the addition of corridor growth for the 2026 future background traffic scenario, the overall v/c ratio is expected to increase to 0.65 LOS B during the a.m. peak hour and 0.70 LOS B during the p.m. peak hour. There are no reported critical movements.

Under the 2026 future total traffic scenario, including the site generated traffic, the overall v/c ratio for the intersection is expected to increase to 0.66 LOS B during the a.m. peak hour and 0.77 LOS B during the p.m. peak hour. The eastbound shared through/right-turn movement begins to operate at a critical level with a reported v/c ratio of 0.86 LOS C.

With continued corridor growth under the 2031 future background horizon period, the overall v/c of the intersection is reported at 0.72 LOS B during the a.m. peak hour and 0.77 LOS B during the p.m. peak hour. The eastbound shared through/right-turn movement continues to operate at a critical level with a reported v/c ratio of 0.85 LOS C.

With the addition of site generated traffic under the 2031 future total traffic conditions, the intersection is expected to continue to operate efficiently with the overall v/c ratio slightly increasing from 0.72 to 0.73 LOS B during the a.m. peak hour and from 0.77 to 0.79 LOS B during the p.m. peak hour. The eastbound shared through/right-turn movement continues to operate at a critical level with the reported v/c ratio increasing to 0.88 LOS C while remaining below the theoretical capacity levels.

Based on the results of the capacity analysis, there are no improvements to the intersection recommended to accommodate the subject site.

7.2 St. Paul Avenue and Mountain Road

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

Table 4 Capacity analysis of St. Paul Avenue and Mountain Road

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Existing 2024	Overall: 0.41 (C) 24 EBL = 0.72 (D) 38 EBTR = 0.33 (C) 30 WBL = 0.07 (D) 42 WBTR = 0.59 (D) 49 NBL = 0.18 (A) 10 NBT = 0.19 (B) 10 NBR = 0.01 (A) 9	 EBL = 55 m EBTR = 35 m WBL = 5 m WBTR = 35 m NBL = 20 m NBT = 30 m NBR = 0 m	Overall: 0.48 (C) 24 EBL = 0.62 (C) 32 EBTR = 0.54 (C) 31 WBL = 0.09 (D) 39 WBTR = 0.6 (D) 46 NBL = 0.24 (B) 12 NBT = 0.21 (B) 12 NBR = 0.01 (B) 10	 EBL = 55 m EBTR = 50 m WBL = 5 m WBTR = 45 m NBL = 20 m NBT = 40 m NBR = 0 m

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
	SBL = 0.04 (B) 15 SBT = 0.25 (B) 17 SBR = 0.14 (B) 16	SBL = 5 m SBT = 45 m SBR = 15 m	SBL = 0.03 (B) 17 SBT = 0.4 (C) 21 SBR = 0.33 (C) 20	SBL = 5 m SBT = 65 m SBR = 45 m
Future Background 2026	Overall: 0.43 (C) 24 EBL = 0.74 (D) 40 EBTR = 0.35 (C) 30 WBL = 0.07 (D) 42 WBTR = 0.6 (D) 50 NBL = 0.19 (A) 10 NBT = 0.2 (B) 10 NBR = 0.01 (A) 9 SBL = 0.04 (B) 15 SBT = 0.26 (B) 17 SBR = 0.15 (B) 16	 EBL = 55 m EBTR = 35 m WBL = 5 m WBTR = 35 m NBL = 20 m NBT = 30 m NBR = 0 m SBL = 5 m SBT = 50 m SBR = 15 m	Overall: 0.50 (C) 25 EBL = 0.64 (C) 32 EBTR = 0.56 (C) 31 WBL = 0.09 (D) 39 WBTR = 0.61 (D) 46 NBL = 0.26 (B) 12 NBT = 0.22 (B) 12 NBR = 0.01 (B) 10 SBL = 0.03 (B) 17 SBT = 0.43 (C) 22 SBR = 0.35 (C) 21	 EBL = 55 m EBTR = 55 m WBL = 5 m WBTR = 45 m NBL = 25 m NBT = 40 m NBR = 0 m SBL = 5 m SBT = 70 m SBR = 45 m
Future Total 2026	Overall: 0.44 (C) 24 EBL = 0.69 (C) 34 EBTR = 0.34 (C) 27 WBL = 0.15 (D) 39 WBTR = 0.61 (D) 46 NBL = 0.21 (B) 11 NBT = 0.22 (B) 12 NBR = 0.01 (B) 10 SBL = 0.04 (B) 17 SBT = 0.28 (B) 20 SBR = 0.15 (B) 18	 EBL = 55 m EBTR = 35 m WBL = 10 m WBTR = 45 m NBL = 20 m NBT = 30 m NBR = 0 m SBL = 5 m SBT = 50 m SBR = 15 m	Overall: 0.55 (C) 25 EBL = 0.72 (C) 34 EBTR = 0.5 (C) 28 WBL = 0.13 (D) 38 WBTR = 0.65 (D) 47 NBL = 0.26 (B) 13 NBT = 0.3 (B) 14 NBR = 0.01 (B) 11 SBL = 0.04 (B) 18 SBT = 0.42 (C) 23 SBR = 0.34 (C) 22	 EBL = 55 m EBTR = 55 m WBL = 10 m WBTR = 50 m NBL = 25 m NBT = 45 m NBR = 0 m SBL = 5 m SBT = 75 m SBR = 40 m
Future Background 2031	Overall: 0.48 (C) 24 EBL = 0.76 (D) 38 EBTR = 0.37 (C) 29 WBL = 0.07 (D) 40 WBTR = 0.55 (D) 45 NBL = 0.23 (B) 11 NBT = 0.23 (B) 12 NBR = 0.01 (A) 10 SBL = 0.05 (B) 17 SBT = 0.3 (B) 20 SBR = 0.19 (B) 18	 EBL = 60 m EBTR = 40 m WBL = 5 m WBTR = 35 m NBL = 25 m NBT = 35 m NBR = 0 m SBL = 5 m SBT = 55 m SBR = 20 m	Overall: 0.57 (C) 26 EBL = 0.7 (C) 34 EBTR = 0.62 (C) 32 WBL = 0.1 (D) 38 WBTR = 0.64 (D) 46 NBL = 0.31 (B) 13 NBT = 0.25 (B) 13 NBR = 0.01 (B) 11 SBL = 0.04 (B) 18 SBT = 0.48 (C) 24 SBR = 0.41 (C) 23	 EBL = 60 m EBTR = 60 m WBL = 5 m WBTR = 50 m NBL = 25 m NBT = 45 m NBR = 0 m SBL = 5 m SBT = 80 m SBR = 60 m
Future Total 2031	Overall: 0.49 (C) 26 EBL = 0.75 (D) 36 EBTR = 0.37 (C) 27 WBL = 0.16 (D) 39 WBTR = 0.63 (D) 47 NBL = 0.24 (B) 12 NBT = 0.11 (B) 12 NBR = 0.01 (B) 11 SBL = 0.04 (B) 18 SBT = 0.32 (C) 21 SBR = 0.19 (B) 20	 EBL = 60 m EBTR = 40 m WBL = 10 m WBTR = 45 m NBL = 25 m NBT = 20 m NBR = 0 m SBL = 5 m SBT = 55 m SBR = 20 m	Overall: 0.59 (C) 27 EBL = 0.74 (C) 35 EBTR = 0.64 (C) 32 WBL = 0.16 (D) 38 WBTR = 0.67 (D) 46 NBL = 0.32 (B) 14 NBT = 0.27 (B) 14 NBR = 0.01 (B) 11 SBL = 0.04 (B) 19 SBT = 0.5 (C) 25 SBR = 0.42 (C) 24	 EBL = 60 m EBTR = 65 m WBL = 10 m WBTR = 55 m NBL = 25 m NBT = 50 m NBR = 0 m SBL = 5 m SBT = 80 m SBR = 60 m

Under existing traffic conditions, the intersection is operating with an overall v/c ratio of 0.41 LOS C during the a.m. peak hour and 0.48 LOS C during the p.m. peak hour with no reported critical movements.

With the addition of corridor growth for the 2026 future background traffic scenario, the overall v/c for the intersection increase slightly to 0.43 LOS C during the a.m. peak hour and 0.50 LOS C during the p.m. peak hour and continue to report no critical movements during either peak hour.

Under the 2026 future total traffic scenario including site traffic, the overall intersection v/c is expected to increase to 0.44 LOS C during the a.m. peak hour and 0.55 LOS C during the p.m. peak hour. The additional traffic generated by the proposed development does not result in any movements becoming critical.

With the addition of further corridor growth for the 2031 future background traffic scenario, the overall v/c for the intersection increase slightly to 0.48 LOS C during the a.m. peak hour and 0.57 LOS C during the p.m. peak hour and continue to report no critical movements during either peak hour.

Under 2031 future total traffic scenarios, the overall intersection v/c ratios are expected to increase to a maximum of 0.49 LOS C during the a.m. peak hour and 0.59 LOS C during the p.m. peak hour. No individual turning movements are reported to approach critical levels.

No improvements have been recommended at this intersection to accommodate the subject site.

7.3 Stanley Avenue and Portage Road

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

Table 5 Capacity analysis of Stanley Avenue and Portage Road

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Existing 2024	Overall: 0.34 (B) 12 EBL = 0.56 (C) 34 EBTR = 0.13 (C) 28 WBL = 0.16 (C) 29 WBTR = 0.14 (C) 28 NBL = 0.06 (A) 4 NBTR = 0.16 (A) 4 SBL = 0.01 (A) 4 SBTR = 0.3 (A) 5	 EBL = 20 m EBTR = 10 m WBL = 5 m WBTR = 10 m NBL = 5 m NBTR = 15 m SBL = 5 m SBTR = 35 m	Overall: 0.41 (A) 10 EBL = 0.54 (C) 34 EBTR = 0.17 (C) 29 WBL = 0.09 (C) 28 WBTR = 0.11 (C) 28 NBL = 0.12 (A) 4 NBTR = 0.25 (A) 5 SBL = 0.04 (A) 4 SBTR = 0.39 (A) 6	 EBL = 15 m EBTR = 10 m WBL = 5 m WBTR = 10 m NBL = 10 m NBTR = 30 m SBL = 5 m SBTR = 40 m
Future Background 2026	Overall: 0.35 (B) 12 EBL = 0.57 (C) 34 EBTR = 0.13 (C) 28 WBL = 0.16 (C) 29 WBTR = 0.15 (C) 28 NBL = 0.06 (A) 4 NBTR = 0.17 (A) 4 SBL = 0.01 (A) 4 SBTR = 0.31 (A) 5	 EBL = 20 m EBTR = 10 m WBL = 5 m WBTR = 10 m NBL = 5 m NBTR = 20 m SBL = 5 m SBTR = 40 m	Overall: 0.43 (A) 10 EBL = 0.55 (C) 35 EBTR = 0.18 (C) 29 WBL = 0.09 (C) 28 WBTR = 0.11 (C) 28 NBL = 0.13 (A) 4 NBTR = 0.26 (A) 5 SBL = 0.04 (A) 4 SBTR = 0.41 (A) 6	 EBL = 15 m EBTR = 10 m WBL = 5 m WBTR = 10 m NBL = 10 m NBTR = 35 m SBL = 5 m SBTR = 45 m
Future Total 2026	Overall: 0.36 (B) 13 EBL = 0.59 (C) 35 EBTR = 0.14 (C) 28 WBL = 0.15 (C) 28 WBTR = 0.15 (C) 28 NBL = 0.06 (A) 4 NBTR = 0.17 (A) 4 SBL = 0.01 (A) 4 SBTR = 0.32 (A) 5	 EBL = 20 m EBTR = 10 m WBL = 5 m WBTR = 10 m NBL = 5 m NBTR = 20 m SBL = 5 m SBTR = 40 m	Overall: 0.40 (A) 9 EBL = 0.47 (C) 33 EBTR = 0.18 (C) 30 WBL = 0.15 (C) 30 WBTR = 0.13 (C) 29 NBL = 0.19 (A) 4 NBTR = 0.33 (A) 5 SBL = 0.08 (A) 4 SBTR = 0.39 (A) 5	 EBL = 15 m EBTR = 10 m WBL = 5 m WBTR = 10 m NBL = 10 m NBTR = 30 m SBL = 5 m SBTR = 45 m

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Future Background 2031	Overall: 0.39 (B) 13 EBL = 0.6 (C) 35 EBTR = 0.15 (C) 28 WBL = 0.18 (C) 28 WBTR = 0.15 (C) 28 NBL = 0.07 (A) 4 NBTR = 0.19 (A) 5 SBL = 0.02 (A) 4 SBTR = 0.35 (A) 6	 EBL = 20 m EBTR = 10 m WBL = 5 m WBTR = 10 m NBL = 5 m NBTR = 20 m SBL = 5 m SBTR = 45 m	Overall: 0.47 (B) 10 EBL = 0.58 (D) 35 EBTR = 0.19 (C) 28 WBL = 0.09 (C) 28 WBTR = 0.11 (C) 28 NBL = 0.16 (A) 5 NBTR = 0.29 (A) 5 SBL = 0.05 (A) 4 SBTR = 0.45 (A) 6	 EBL = 15 m EBTR = 10 m WBL = 5 m WBTR = 10 m NBL = 15 m NBTR = 40 m SBL = 5 m SBTR = 50 m
Future Total 2031	Overall: 0.40 (B) 13 EBL = 0.62 (D) 35 EBTR = 0.15 (C) 28 WBL = 0.17 (C) 28 WBTR = 0.15 (C) 28 NBL = 0.08 (A) 4 NBTR = 0.19 (A) 5 SBL = 0.02 (A) 4 SBTR = 0.35 (A) 6	 EBL = 20 m EBTR = 10 m WBL = 5 m WBTR = 10 m NBL = 5 m NBTR = 20 m SBL = 5 m SBTR = 45 m	Overall: 0.49 (B) 10 EBL = 0.6 (D) 36 EBTR = 0.19 (C) 28 WBL = 0.09 (C) 27 WBTR = 0.11 (C) 28 NBL = 0.18 (A) 5 NBTR = 0.29 (A) 5 SBL = 0.05 (A) 4 SBTR = 0.46 (A) 7	 EBL = 15 m EBTR = 10 m WBL = 5 m WBTR = 10 m NBL = 15 m NBTR = 40 m SBL = 5 m SBTR = 55 m

Under existing traffic conditions, the intersection is operating with an overall v/c ratio of 0.34 LOS B during the a.m. peak hour and 0.41 LOS A during the p.m. peak hour. And with no critical movements.

With the addition of corridor growth for the 2026 future background traffic scenario, the overall v/c ratio is increased to 0.35 LOS B during the a.m. peak hour and 0.43 LOS A during the p.m. peak hour. There are no reported critical movements during either peak hour.

Under the 2026 future total traffic scenario, the introduction of site trips, the overall intersection v/c is expected to increase to 0.36 LOS B during the a.m. peak hour and 0.40 LOS A during the p.m. peak hour. No critical movements have been reported during either peak hour.

With continued corridor growth under the 2031 future background horizon period, the v/c is expected to increase to 0.39 LOS B during the a.m. peak hour and 0.47 LOS B during the p.m. peak hour. There are no critical movements.

With the addition of site generated traffic, the 2031 future total traffic conditions continue to operate satisfactorily. The overall intersection v/c ratio increases slightly from 0.39 to 0.40 LOS B during the a.m. peak hour and 0.47 to 0.49 LOS B during the p.m. peak hour. There are no critical movements reported in either peak hour.

No improvements have been recommended at this intersection to accommodate the subject site.

7.4 St. Paul Avenue and Site Access 1

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

Table 6 Capacity analysis of St. Paul Avenue and Site Access 1

Scenario	Am Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Future Total 2026	WBR = 0.01 (B) 10 NBTR = 0.26 (A) 0 SBTL = 0 (A) 0	WBR = 5 m NBTR = 0 m SBTL = 5 m	WBR = 0.01 (B) 11 NBTR = 0.31 (A) 0 SBTL = 0.01 (A) 0	WBR = 5 m NBTR = 0 m SBTL = 5 m

Scenario	Am Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Future Total 2031	WBR = 0.02 (B) 11 NBTR = 0.29 (A) 0 SBTL = 0 (A) 0	WBR = 5 m NBTR = 0 m SBTL = 5 m	WBR = 0.01 (B) 11 NBTR = 0.34 (A) 0 SBTL = 0.01 (A) 0	WBR = 5 m NBTR = 0 m SBTL = 5 m

Under all future traffic conditions, the proposed site access onto St. Paul Avenue is expected to operate efficiently with acceptable delay and queuing and with no critical.

7.5 Mountain Road and Site Access 2

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

Table 7 Capacity analysis of Mountain Road and Site Access 2

Scenario	Am Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Future Total 2026	EBTL = 0 (A) 0 WBTR = 0.07 (A) 0 SBLR = 0.07 (A) 9	EBTL = 5 m WBTR = 0 m SBLR = 5 m	EBTL = 0.01 (A) 1 WBTR = 0.08 (A) 0 SBLR = 0.04 (A) 10	EBTL = 5 m WBTR = 0 m SBLR = 5 m
Future Total 2031	EBTL = 0 (A) 0 WBTR = 0.07 (A) 0 SBLR = 0.07 (A) 9	EBTL = 5 m WBTR = 0 m SBLR = 5 m	EBTL = 0.01 (A) 1 WBTR = 0.09 (A) 0 SBLR = 0.04 (A) 10	EBTL = 5 m WBTR = 0 m SBLR = 5 m

Under all future traffic conditions, the proposed site access onto St. Paul Avenue is expected to operate efficiently with acceptable delay and queuing and with no critical.

8. Left Turn Lane Warrant Analysis

Left turn lane warrant analysis was completed using the estimated 2031 future total p.m. peak hour volume for the two site accesses along Mountain Road and St. Paul Avenue based on MTO Design Supplement: Appendix 9A Volume Warrants for Left-turn Lanes. The design speed for both roads is 60 km/h.

Table 8 summarizes the left-turn lane requirements for St. Paul Avenue and Mountain Road site accesses. Refer to **Appendix H** for detailed results of the left-turn lane warrants.

Table 8 Left Turn Lane Requirements for both Site Accesses

Scenario: 2031 Future Total PM	St. Paul Avenue Access	Mountain Road
Design Speed	60 km/h	60 km/h
Advancing Traffic Volume	678	163
Opposing Traffic Volume	530	144
Left Turn Volume	12	14
% Left-turning Traffic	1.8%	8.6%
Required	Yes	No

Table 8 shows that the left turn lane for Mountain Road is not required. However, **Table 8** shows that the St. Paul Avenue site access (southbound left) is required. While the warrant indicates the need for a left-turn lane, the percentage of left turning vehicles is under 2%. Through an analysis, it can be noted that the southbound left-turn lane would be warranted for even a single left-turning vehicle. In this instance, the implementation of southbound left turn along St. Paul Avenue access would not yield any operational benefits, nor is it anticipated to provide an improvement to safety given the low levels of queuing.

9. Sightline Assessment

The sightline assessment was completed for the two site accesses along St. Paul Avenue and Mountain Road. St. Paul Avenue has a posted speed limit of 50 km/h while Mountain Road has a posted speed of 60 km/h along the site accesses. The design speed of 60 km/h along St. Paul Avenue and 70 km/h along Mountain Road.

Section 9.9 of the TAC GDCR provides intersection sight distances for different scenarios, with the following scenarios used to complete the intersection sight distance analysis:

- Case B1 – Left turn from the minor road
- Case B2 – Right turn from the minor road
- Case F – Left turns from the major road

For the purpose of the assessment, the minor road is assumed to be site driveway.

A vehicle entering the major road (Mountain Road and Mountain Road) from the site access is assumed to stop approximately 4.5 metres to the pavement edge on the major road as recommended by TAC. In this stopped position, the driver will be required to look left and right in order to perceive and react to approaching vehicles prior to initiating a turning movement onto the intersecting drive aisle.

The required intersection sight distances are provided in TAC GDGCR Tables 9.9.4, 9.9.6 and 9.9.12 for passenger vehicles turning left from stop, turning right from stop, or turning left from the major road, respectively, and are summarized in the following table. The required intersection sight distances summarized in the tables below are based on a 60 km/h design speed along St. Paul Avenue and 70 km/h design speed along Mountain Road.

Case (Design Speed of 50 km/h)	Required Intersection Sight Distance for Passenger Cars (TAC 2017)	Available Intersection Sight Distance (St. Paul Avenue)	Available Intersection Sight Distance (Mountain Road)	TAC Reference
B1: Vehicles turning left from stop	150 m (Mountain Road	N/A	>150 metres (east) >150 metres (west)	Table 9.9.4
B2: Vehicles turning right from stop	110 m (St. Paul Avenue) 130 m (Mountain Road)	>125 metres (south)	>150 metres (east) >150 metres (west)	Table 9.9.6
F: Left turns from the major road	95 m (St. Paul Avenue) 110 m (Mountain Road)	>125 metres (south)	>150 metres (east)	Table 9.9.12

The required intersection sight distance is calculated from the equation.

$$ISD = 0.278\, V_{major}\, t_g$$

Where:

$$ISD = intersection\ sight\ distance$$

$$V_{major} = design\ speed\ of\ the\ major\ road\ \left(\frac{km}{h}\right)$$

$$t_g = time\ gap\ for\ the\ minor\ road\ vehicle\ to\ enter\ the\ major\ road\ (s)$$

The intersection site distance requirement for passenger cars was determined through the equation above, where the time gap for the minor road vehicle to enter the major road for passenger vehicles is 7.5 seconds for turning left from stop, 6.5 seconds for vehicles turning right from a stop and 5.5 seconds for left turns from the major road.

9.1 St. Paul Avenue and Site Access

St. Paul Avenue Site Access will be a right-in, right-out, and left-in access. The access will not allow for a left out of the site and as a result Case B1 does not apply. At the site access along St. Paul Avenue, there is currently over 210 metres of available sightline distance south of the driveway towards the intersection of Mountain Road and St. Paul Avenue.

The available stopping sight distance along St. Paul Avenue is illustrated in **Figure 12**.

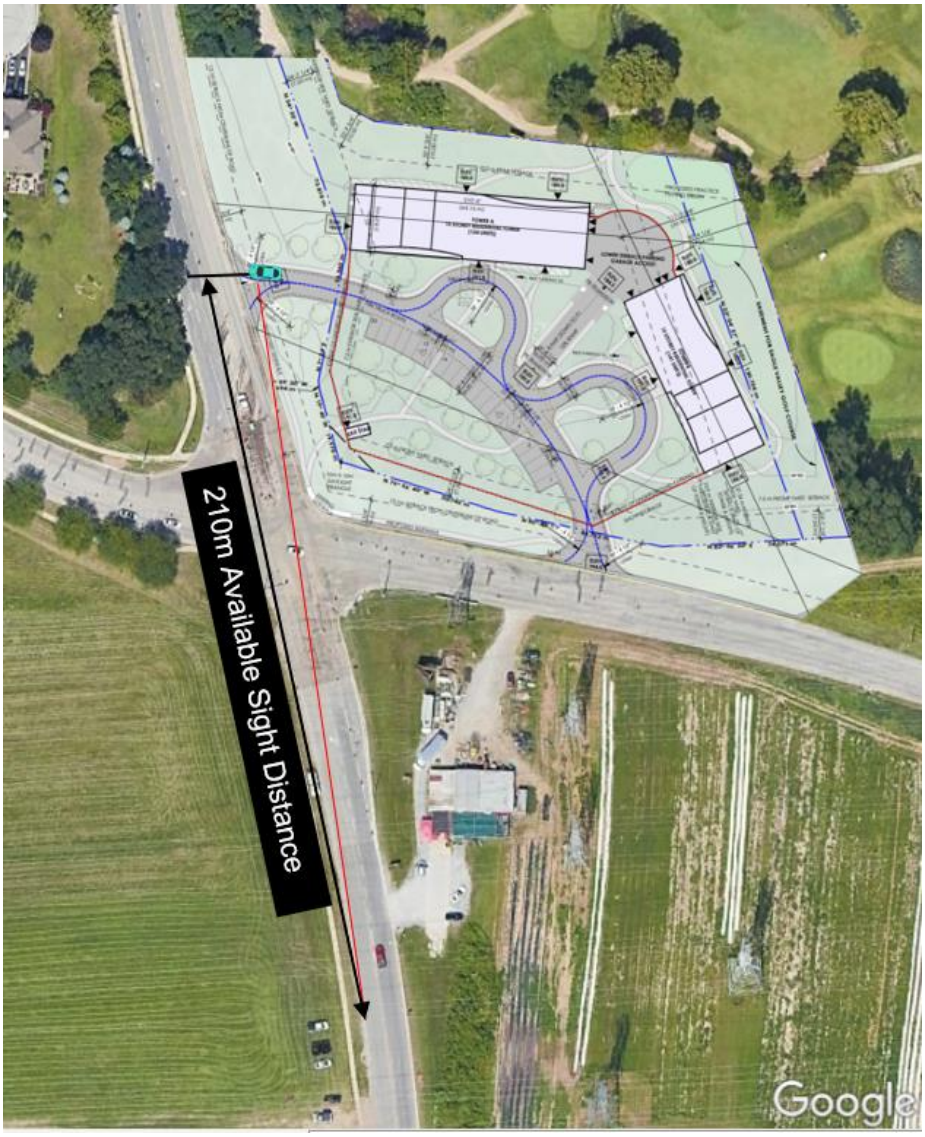


Figure 12 Intersection Sight Distance on St. Paul Avenue

9.2 Mountain Road and Site Access

Mountain Road Site Access will allow full movement. At the site access along Mountain Road, there are currently no issues with any sight line distance. Since there is ample sight line distance, driveway traffic operations are expected to run efficiently.

The available stopping sight distance along Mountain Road is illustrated in **Figure 13**.

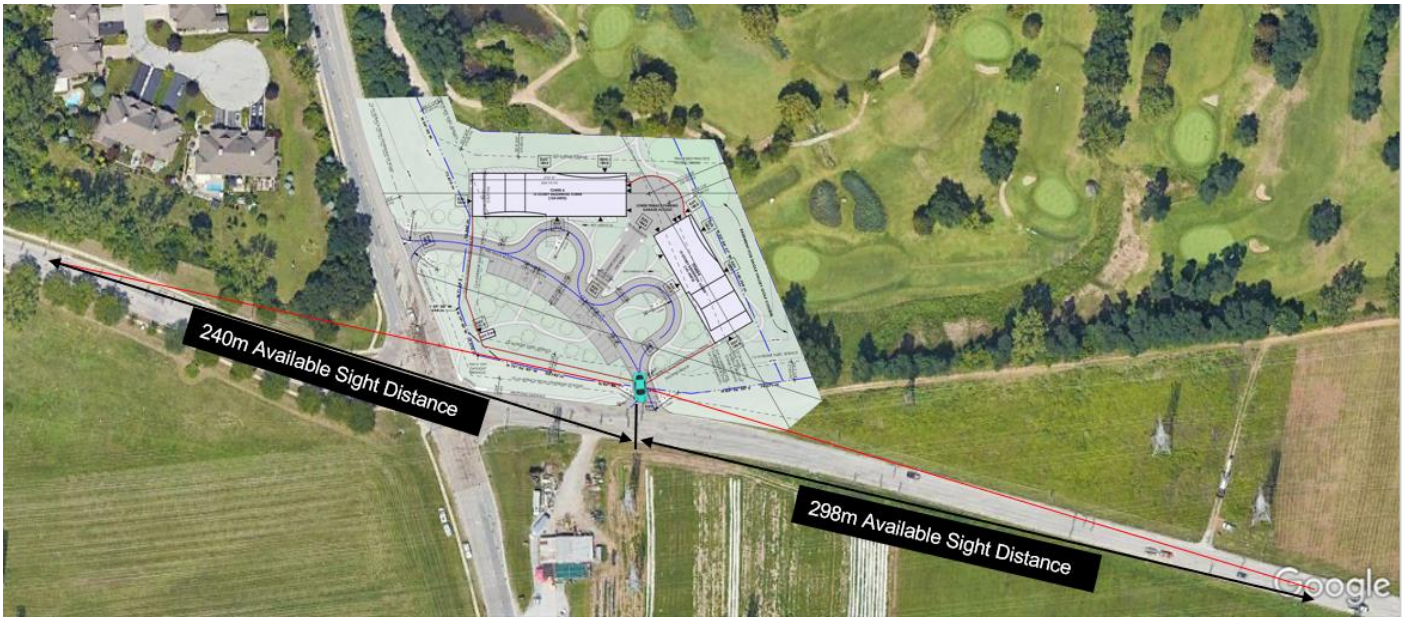


Figure 13 Intersection Sight Distance on Mountain Road

10. Access Management

The proposed access locations and turning restrictions were previously approved by the City and Region under City Site Plan application number SPC-2010-013 and Region application number D.19.04.sp-01433. The previously approved site plan application included a full-moves access onto Mountain Road and a right-in/right-out/left-out access along St. Paul Avenue located generally within the same distance from the signalized intersection of Mountain Road and St. Paul Avenue. The subject site proposes to maintain the site accesses generally within the same locations that were previously approved in addition to maintain the approved operations of each access (only restricting the left-out of the site along St. Paul Avenue).

GHD reviewed the proposed site plan with respect to its geometric layout compared to the Niagara Region Access Management Guidelines (AMG) and note the following:

Minimum Downstream Functional Distance

- Table 1 of AMG provides the minimum downstream functional distance of 100 metres for Mountain Road and 75 metres for St. Paul Avenue. The proposed site accesses along St. Paul Avenue and Mountain Road abide the guidelines for minimum downstream functional distance set in AMG.

Throat Length

- Table 4 of AMG requires a minimum throat length of 30 metres. St. Paul Avenue has a throat length of approximately 30 metres and a throat length of approximately 25 metres for Mountain Road. Although, the throat length is slightly reduced for Mountain Road, no traffic issues are expected considering it is only visitor parking that is located within the throat length.

Driveway width, Driveway Curb Radii, Access Spacing

- The proposed location and design of both site accesses is consistent with what was previously approved with the exception that the proposed access on Mountain Road is located slightly further east along Mountain Road away from the intersection of St. Paul Avenue which will result in improved operation.

11. Parking Assessment

GHD reviewed the City's current Zoning By-Law parking requirements for the subject site.

11.1 City of Niagara Falls Zoning By-Law 79-200

11.1.1 Vehicular Parking

The current City of Niagara Falls Zoning By-Law 79-200 minimum parking requirements are found in Section 4.19.1, Table 1. The minimum By-Law requirement for the subject site is as follow:

- Dwelling containing 3 or more dwelling units save and except an on-street townhouse dwelling:
    - 1.4 parking space per dwelling unit

The minimum parking required for the residential development is as follow:

- 1.4 parking space per dwelling unit x 295 units = 413 spaces

Therefore, 413 vehicle parking space are required under the City's By-Law 79-200.

11.1.2 Barrier Free Parking

The current City of Niagara Falls Zoning By-Law 2019-44 provides the minimum barrier free parking requirement. The barrier free parking requirement for a building built after April 9, 2019 is based on the total number of parking spaces and is as follows:

- 0-12 parking spaces: 1 barrier free space
- 13 – 100 parking spaces: 4% of the total number of parking spaces, rounding up to the nearest whole number.
- 101 – 200 parking spaces: 1 plus 3% of the total number of parking spaces, rounding up to the nearest whole number.
- 201 – 1000 parking spaces: 2 plus 2% of the total number of parking spaces, rounding up to the nearest whole number.
- More than 1,000: 11 plus 1% of the total number of parking spaces, rounding up to the nearest whole number.

Based on the By-Law required 413 parking spaces, 11 accessible parking spaces are required. The site plan illustrates that there will be 11 accessible parking spaces.

11.2 Proposed Site Parking

The following table summarizes the minimum By-law requirements and the proposed parking supply for the subject site.

Table 9 Parking Requirements and Provisions

Type	Dwelling Unit/GFA	By-Law Requirement	Provided
Vehicle Parking	295 dwelling units	413 vehicle parking spaces (1.40 spaces per unit)	373 vehicle spaces (1.26 spaces per unit)
Barrier Free Parking		11 barrier free spaces	11 barrier free spaces

The subject site proposes to provide a total of 373 parking spaces including 11 barrier free parking spaces. This represents a shortfall of 40 spaces from the City's By-law requirement.

11.3 Parking Assessment

11.3.1 Ontario's Five-Year Climate Change Action Plan

The purpose of Ontario's Climate Change Action Plan, announced in 2016, is to address climate change through transportation and land-use measures. The plan aims to reduce emissions, create more liveable, mixed-use communities, and prioritize addressing climate change at the municipal level.

In terms of development, the plan outlines key actions such as supporting cycling and walking, reducing single-passenger vehicle trips, and eliminating minimum parking requirements. These actions are aimed at promoting alternative modes of transportation and creating complete, compact, and mixed-use communities. The elimination of minimum parking requirements is also a change in perspective toward auto-ownership and travel and is becoming a more common in urban areas as population increases, transit expands, and auto-ownership declines.

As the population of Niagara Falls continues to grow, transit infrastructure is expected to expand across the city, and personal vehicle ownership declines, more residential buildings with reduced parking standards relative to the Zoning By-law requirements is becoming more commonplace. Although the applicant is not requesting that the proposed development provide no parking spaces, this trend away from providing excess residential parking reflects a noticeable shift in perspective with regards to personal vehicle ownership, transportation, and the need for more affordable housing.

11.3.2 TTS Vehicle Ownership

GHD has also reviewed the 2016 TTS data of vehicle ownership per apartment dwelling units in the subject site's zone and surrounding zones to the site as illustrated in the figure below.

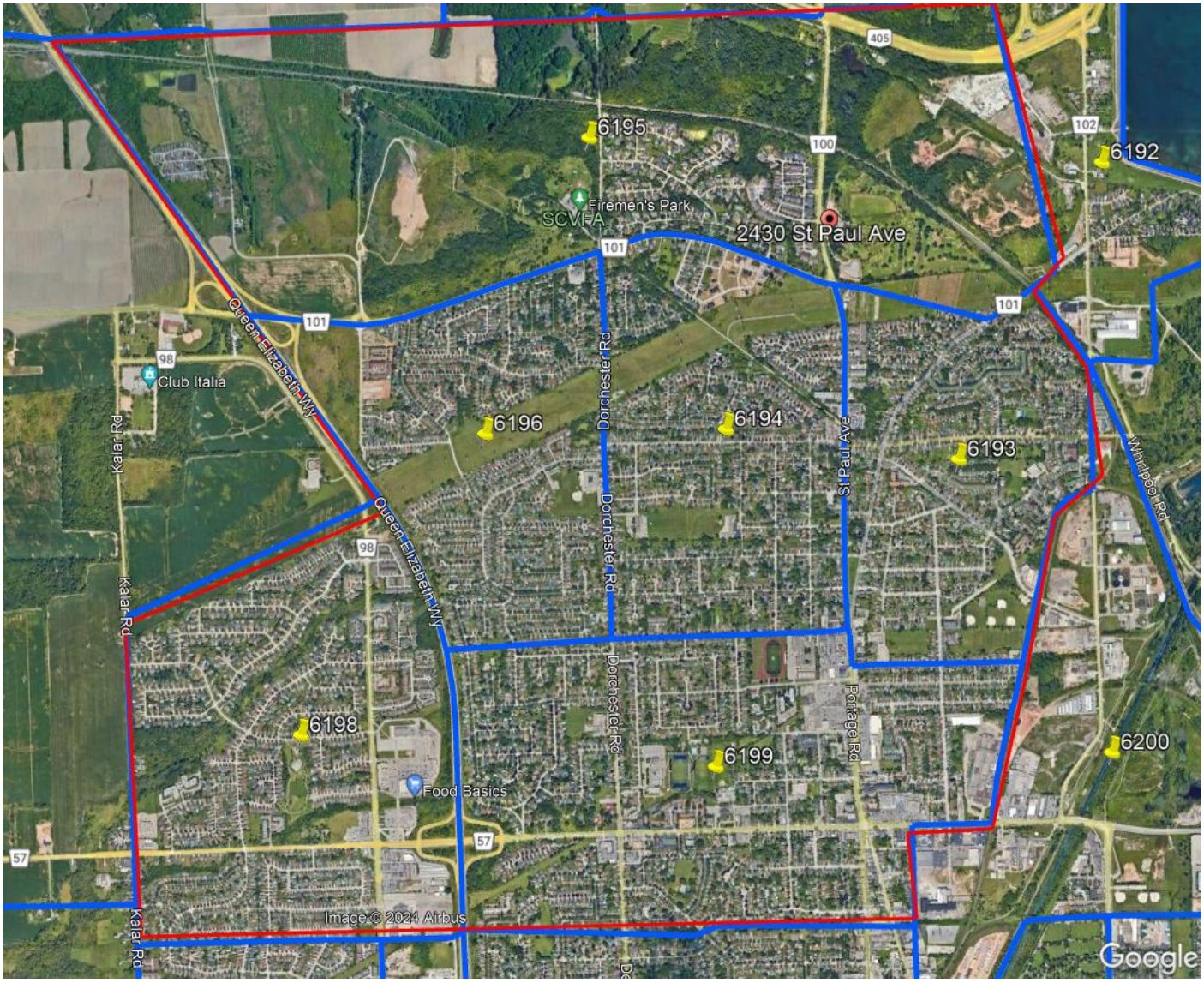


Figure 14 TTS Zones Selected for Vehicle Ownership Data

Table 10 TTS Vehicle Ownership TTS Data for Apartments Units

Vehicles per Household	Number of Households	Total number of vehicles
0 vehicles	379	0
1 vehicle	791	791
2 vehicles	96	192
3 vehicles	6	18
Total	**1,272**	**1,001 (0.79 vehicles per household)**

The 2016 TTS data confirms that the proposed residential rate of 1.26 spaces per unit is more than the TTS based demand for resident parking within the city which for 2016 was 0.79 vehicles per apartment unit.

11.3.3 Parking Proxy Site

The existing residential development located at 7711 Green Vista Gate is a 10-storey residential located near Thundering Waters Golf Course in Niagara Falls, Ontario. The site consists of 150 units and is also located close to a

golf course. The closest transit stop is approximately 715 metres away, similar to the proximity of transit at the subject site.

The 7711 Green Vista Gate was approved at a rate of 1.25 parking spaces per unit which is slightly less than the 1.26 parking spaces per unit proposed for the subject site.

11.3.4 ITE Parking Generation

The parking demand generated by the proposed development for the weekday a.m. and p.m. peak hours was estimated by using the 5th edition of the Parking Generation Manual. Table 11 summarizes the estimated parking demand base on 295 residential units.

Table 11 ITE Total Parking Generation

Time Period	Land Use Code	Dwelling Units	Average	Equation
Weekday (Monday – Friday)	Multifamily Housing (High-Rise) LUC 222	295 dwelling units	0.98 spaces per unit **290 Parking Spaces**	Peak Parking Demand (P) = 1.25 (X) – 105.47 **264 Parking Spaces** 0.90 spaces per unit

The proposed 373 parking spaces is more than the required parking of 290 spaces (maximum value between the average rate and equation) based on the 5th edition of the Parking Generation Manual.

The ITE Parking Generation Manual also provides the 85th percentile peak parking demand based on the 295 residential units of 351 parking spaces (1.19 spaces per unit). The 85th percentile parking demand, as referenced in the Institute of Transportation Engineers (ITE) Parking Generation Manual, is a statistical measure used to estimate the maximum parking demand for a specific type of development under normal conditions. This value is essentially saying that 85% of the time, the observed parking demand will be at or below a rate of 1.19 spaces per unit. At the 85th percentile peak parking demand, the subject would have an excess parking supply of 22 spaces.

11.3.5 Surrounding Municipality Parking Rates

GHD also reviewed existing By-law parking requirement rates for municipalities located within Niagara Region. The resident parking requirement is summarized in the table below and includes the municipalities of Niagara-on-the-Lake, Pelham, Port Colborne, St. Catharines, Thorold, and Welland as summarized in the table below. All require 1 to 1.25 parking spaces per dwelling unit including visitor parking which is less than the 1.26 spaces per unit proposed for the subject site.

Table 12 Parking Requirements in Surrounding Municipalities)

Municipality	Parking Requirement (spaces per dwelling unit)	Source
Niagara-on-the-Lake	1 per dwelling unit	Comprehensive Zoning By-Law 4316-09, Table 6-5
Pelham	1.25 per dwelling unit	Comprehensive Zoning By-law 4481 (2022), Section 4.1.1

Port Colborne	1.25 per dwelling unit	Comprehensive Zoning By-law 6575/30/18, Section 3.1.1
St. Catharines	1.25 per dwelling unit	Comprehensive Zoning By-law 2013-283, Section 3.12.1
Thorold	1.25 per dwelling unit (under appeal) 1.25 per dwelling unit	Comprehensive Zoning By-law No. 60-2019, Table 4.1
Welland	1 per dwelling unit	New Comprehensive Zoning By-Law 2017-117, Table 6.4.1

11.4 Parking Conclusion

Providing off-street residential parking influences a commuter choice on whether to drive or choose alternate forms of transportation. Providing more parking in general leads to a higher percentage of auto ownership and auto usage as well. Changing travel behaviour is best done when a prospective buyer is looking to purchase a unit and providing the opportunity for a prospective buyer to easily purchase a parking space either through making it affordable, at no additional cost, or having an excess in number of spaces available to purchase can introduce travel behaviour into an area that once established is hard to change.

Sustainable transportation is a crucial component of achieving climate change adaption and environmental protection goals and reducing traffic related air pollutant and greenhouse gas emissions.

The proposed parking supply of 1.26 spaces per unit exceeds the expected parking demand based on the ITE Parking Generation Manual, provides more parking than expected based on the 2016 TTS auto ownership information, provides parking at a rate that exceeds the minimum parking requirement within nearby municipalities within Niagara Region and exceeds the parking supply approved at the residential building located at 7711 Green Vista Gate which is also near a golf course and similar proximity to transit as the subject site.

Considering the above, the proposed parking supply of 1.26 spaces per unit which is less than the current By-Law requirement of 1.40 spaces per unit is supportable and expected to meet the parking demand of the site. To support the proposed parking supply, the development is proposing some Travel Demand Management (TDM) measures, as outlined in **Section 10** of the report including planning and design, reduced parking supply, education and promotional material to make alternatives more competitive to driving, reducing the dependency on auto trips, and the need to provide an excessive supply of parking.

12. Travel Demand Management

12.1 Travel Demand Management

Travel Demand Management (TDM) refers to a variety of strategies to reduce congestion, minimize the number of single-occupant vehicles, encourage non-auto modes of travel, and reduce vehicle dependency to create a sustainable transportation system. TDM strategies have multiple benefits including the following:

- Reduced auto-related emissions to improve air quality;
- Decreased traffic congestion to reduce travel time;
- Increased travel options for businesses and commuters;
- Reduced personal transportation costs and energy consumptions; and
- Support Provincial smart growth objectives.

The combined benefits listed above will assist in creating a more active and livable community through improvements to overall active transportation standards for the local businesses and surrounding community.

12.2 Existing TDM Opportunities

12.2.1 Walking

Sidewalks are currently provided throughout the study area. Signalized crosswalks are provided on all four legs on all the intersections within the study area.

12.2.2 Transit

The subject site is currently not serviced by any Niagara Transit Routes; however, the nearest transit stop is located approximately 715 metres south of the subject site and services Niagara Transit Routes 107, 114, and 214. The routes run along Riall Street, Church's Lane, and St. Paul Avenue south of Riall Street.

The nearby transit stops, and transit routes are identified in **Figure 15** below.

Figure 15 Nearby Transit Routes

12.3 Recommended TDM Measures

The table below summarizes the recommended TDM strategies for the subject site.

Table 13 Recommended TDM Strategies

TDM Measure	Responsibility	Cost	Note
Hard Measures			
Pedestrian connections	Applicant	Integrated into the overall development cost	Site plan includes a walkway system providing a connection to the municipal sidewalks
Land use Integration	Applicant	Integrated into the overall development cost	The site is a residential development with a golf course and other amenities which provides opportunities for living and/or working without having to drive
Reduced Parking Supply	Applicant	Integrated into the overall development cost	Reduced parking supply encourages residents and visitors to reconsider the use of ownership of a vehicle
Soft Measures			
Information packages (Niagara Region Transit, GO schedules, cycling maps)	Applicant	To be determined.	Distributed at the sales office with Purchase and Sales Agreement
Unbundled vehicle parking sales	Applicant	Integrated into the overall development cost	Proposed to unbundle the sales of the parking space and unit to provide residents with the true cost of the parking space

13. Conclusion

The proposed site plan consists of a 15-storey building with 154 units and 19-storey building with 141 units.

Access to the subject site is proposed via a right-in/out/left-in access on St. Paul Avenue and a full moves access on Mountain Road. A similar access layout for both accesses was previously approved by the City and Region under a former Site Plan Application for the subject site.

The proposed site plan was prepared by ACK Architects Studio Inc. and consists of a 15-storey building and 19-storey building with a total of 295 dwelling units.

Based on ITE Trip Generation rates, the subject site is expected to generate a total of 84 two-way trips during the a.m. peak hour consisting of 22 inbound and 62 outbound trips. During the p.m. peak hour, it is expected to generate 100 new two-way vehicles trips consisting of 62 inbound and 38 outbound trips.

Under existing traffic conditions, all intersections are operating at acceptable v/c ratios and levels of service during the a.m. peak and p.m. peak hours.

Under the 2026 and 2031 future background traffic conditions, all intersections are reported to continue to operate with acceptable v/c ratios, delays, and queuing.

Under the 2026 and 2031 future total traffic conditions, all intersections are reported to continue to operate with acceptable v/c ratios, delays and queuing.

Application of the City of Niagara Falls By-Law 79-200 parking rates to the subject site results in a requirement of a minimum of 413 vehicular parking spaces. Application of the City's By-law 2019-44 rates to the subject site results in a requirement of 11 barrier free spaces.

The subject site provides a total of 373 vehicular parking spaces, including 11 barrier free spaces. The 373 vehicle parking spaces represent a shortfall of 40 spaces from the City's By-Law requirement.

The proposed parking supply of 1.26 spaces per unit exceeds the minimum parking By-Law requirements from nearby municipalities within the Region and with the 2016 TTS survey data for auto ownership within the surrounding planning zones to the subject site. It also exceeds to the approved parking rate for the site at 7711 Green Vista Gate which is a 10-storey residential located near Thundering Waters Golf Course in Niagara Falls.

TDM measures are proposed for the subject site to encourage residents to explore various modes of transportation in order to reduce their dependency on single occupancy vehicle trips.

The traffic study confirms that the proposed residential development can be accommodated on the existing/planned road network.

Appendices

Appendix A

Terms of Reference

Raf Andrenacci

From: John Grubich <jgrubich@niagarafalls.ca>
Sent: Monday, October 2, 2023 3:35 PM
To: Raf Andrenacci
Cc: Will Maria; Dunsmore, Susan
Subject: RE: Terms of Reference - 2430 St. Paul Avenue

Good day Raf;

Thank you for forwarding your terms of reference for the redevelopment of 2430 St. Paul Avenue, in Niagara Falls.

The City does not a require a traffic impact study as the impact is directly on the Niagara Regional road system. However, at the pre-consultation meeting, it was noted that a 328-unit residential development requires 459 parking spaces at a City By-law rate of 1.4 parking spaces per unit. A total of 382 parking spaces are proposed, at a rate of 1.16 parking spaces per unit. It was further identified that there is no transit service on Mountain Road or St. Paul Avenue next to the site. The closest Niagara Regional Transit stop is for the #114/214 route, which passes through the St Paul Avenue and Riall Street intersection that is to the south of the proposed development. The transit stop is more than 800 metres away.

If the plan is the same, then a parking demand study is required to justify the requested rate. The study will need to evaluate a similar use, that does not have direct transit service, next to a golf course, as the proposed development looks to be marketed towards golfers. At least 2 proxy sites are required. Please identify two comparable sites for approval prior to undertaking field work.

Please let me if you have any questions or wish to discuss in further detail.

John Grubich, C.E.T. | Traffic Planning Supervisor | Municipal Works - Transportation Services | City of Niagara Falls
8208 Heartland Forest Road | Niagara Falls, ON L2H 0L7 | (905) 356-7521 ext 5214 | Fax 905-356-5576 | jgrubich@niagarafalls.ca

---

From: Dunsmore, Susan <Susan.Dunsmore@niagararegion.ca>
Sent: Wednesday, September 27, 2023 7:42 AM
To: Raf Andrenacci <Raf.Andrenacci@ghd.com>; John Grubich <jgrubich@niagarafalls.ca>
Cc: Will Maria <William.Maria@ghd.com>; Stephen Bureau <stephen.bureau@niagararegion.ca>; Development Planning Applications <devtplanningapplications@niagararegion.ca>
Subject: RE: Terms of Reference - 2430 St. Paul Avenue

Good Morning

Transportation planning staff have reviewed the term of reference, their comments are below in green. For Regional traffic data please use the following link: https://www.niagararegion.ca/living/roads/permits/traffic-data-requests.aspx. For any upgrades/change to regional intersections or roads, please include a functional drawing in the TIS. If you require anything further please contact me at your convenience.

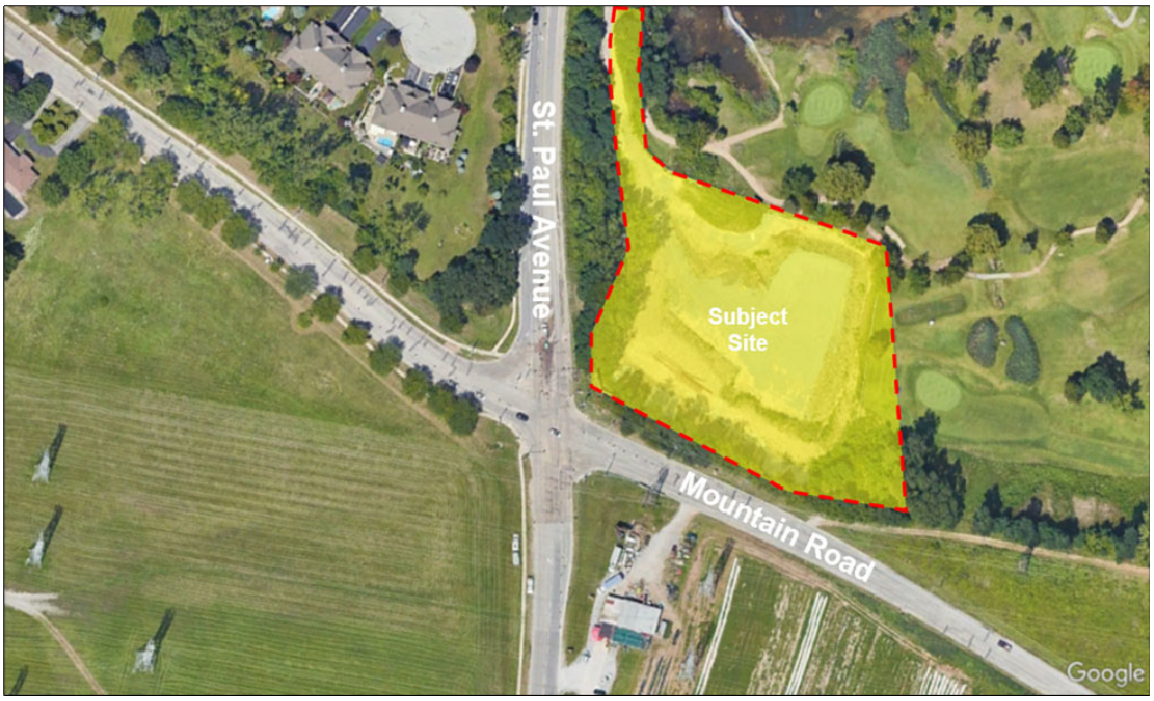
Thank you

Susan M. Dunsmore, P.Eng.
MANAGER, DEVELOPMENT ENGINEERING
Niagara Region, 1815 Sir Isaac Brock Way, Thorold, ON, L2V 4T7
P : (905) 980 - 6000 ext. 3661
W : www.niagararegion.ca
E : susan.dunsmore@niagararegion.ca

From: Raf Andrenacci <Raf.Andrenacci@ghd.com>
Sent: Tuesday, September 26, 2023 9:04 AM
To: John Grubich <jgrubich@niagarafalls.ca>; Dunsmore, Susan <Susan.Dunsmore@niagararegion.ca>
Cc: Will Maria <William.Maria@ghd.com>
Subject: Terms of Reference - 2430 St. Paul Avenue

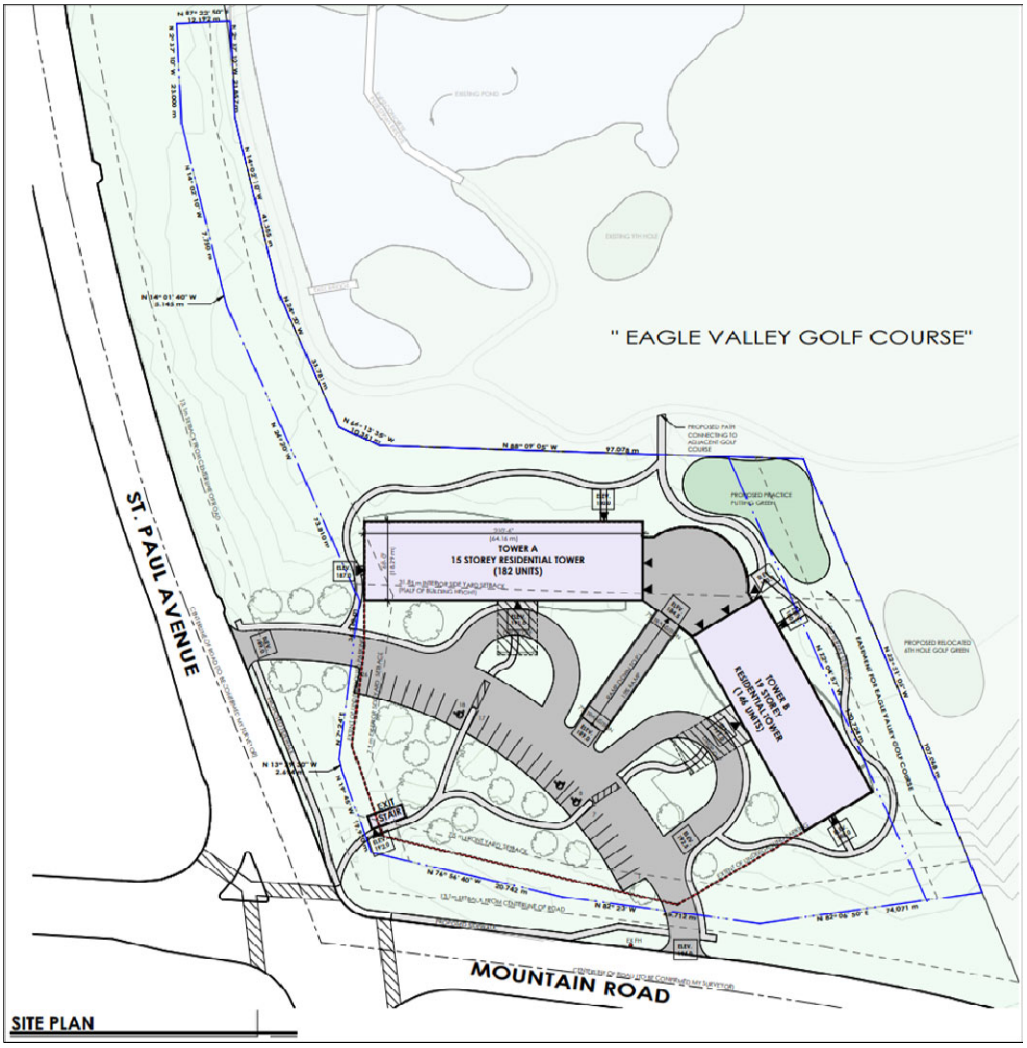
Hello,

GHD Inc. has been retained to prepare a Transportation Impact Study for a proposed residential development located on lands with municipal address of 2430 St. Paul Avenue in the City of Niagara Falls.



The subject site consists of one 15-storey and one 19-storey residential building with a total of 328 residentials units.

Access to the subject site is proposed via a full-moves driveway on St. Paul Avenue and on Mountain Road providing access to surface parking spaces, loading spaces, and access ramp to the underground parking garage.



In order to properly scope this project, we ask that the City and Region review and provide comments on the following scope and confirm if there are any additional items required as part of the study.

Study intersections

- St. Paul Avenue and Mountain Road
- St. Paul Avenue and the proposed site driveway
- Mountain Road and the proposed site driveway
- Mountain Road and Dorchester Road
- Portage Road and Stanley Avenue

Traffic Data
Updated traffic counts at the existing study intersections will be undertaken during the a.m. and p.m. peak hours.

Study Peak Hours
Weekday a.m. and p.m. peak hours

Study Horizon Year
2023 (existing), 2025 (Build-out), and 2030 (5 years post build-out), as per the Region's TIS Guidelines.

Background Growth Rate
GHD will review historic traffic data available for the study area, however, due to Covid traffic growth and patterns based on historic traffic data is not accurate and may not be an appropriate approach. Staff to advise if a general growth rate of 2% can be used for planning purposes or whether the City or Region have growth rates based on modelling. A growth rate of 2% matches the Regional updated traffic growth model.

Background Development Traffic
City staff to advise if there are any proposed background development to include in the study.
For any background development, please provide a copy of the traffic study so that GHD can identify site trip generation and assignment plus confirm if any planned improvements are proposed to accommodate the background development.

Trip Generation
Will be completed using rates published by the ITE Trip Generation 11th Edition, LUC 222 Multifamily Housing (High-Rise) for the residential development.

The directional distribution of traffic approaching and departing the site will be determined based on TTS 2016 data, existing local patterns and first principles.

The analysis will Identify the transportation system requirements and other measures required to ensure the acceptable operation of the study intersections, including auxiliary turning lanes and other transportation infrastructure improvements.

TAC and City guidelines will be reviewed in order to complete an access management.
Review for the site access that reviews corner clearance, driveway spacing, auxiliary lanes, corner radii, and clear throat distance. (The attached Regional Access Management Guidelines to be used as a reference)

GHD will complete a sightline assessment and a left-turn lane warrant analysis.

Complete AutoTurn assessment of the proposed development.

Existing TDM opportunities will be identified and future TDM opportunities will be recommended for the site.

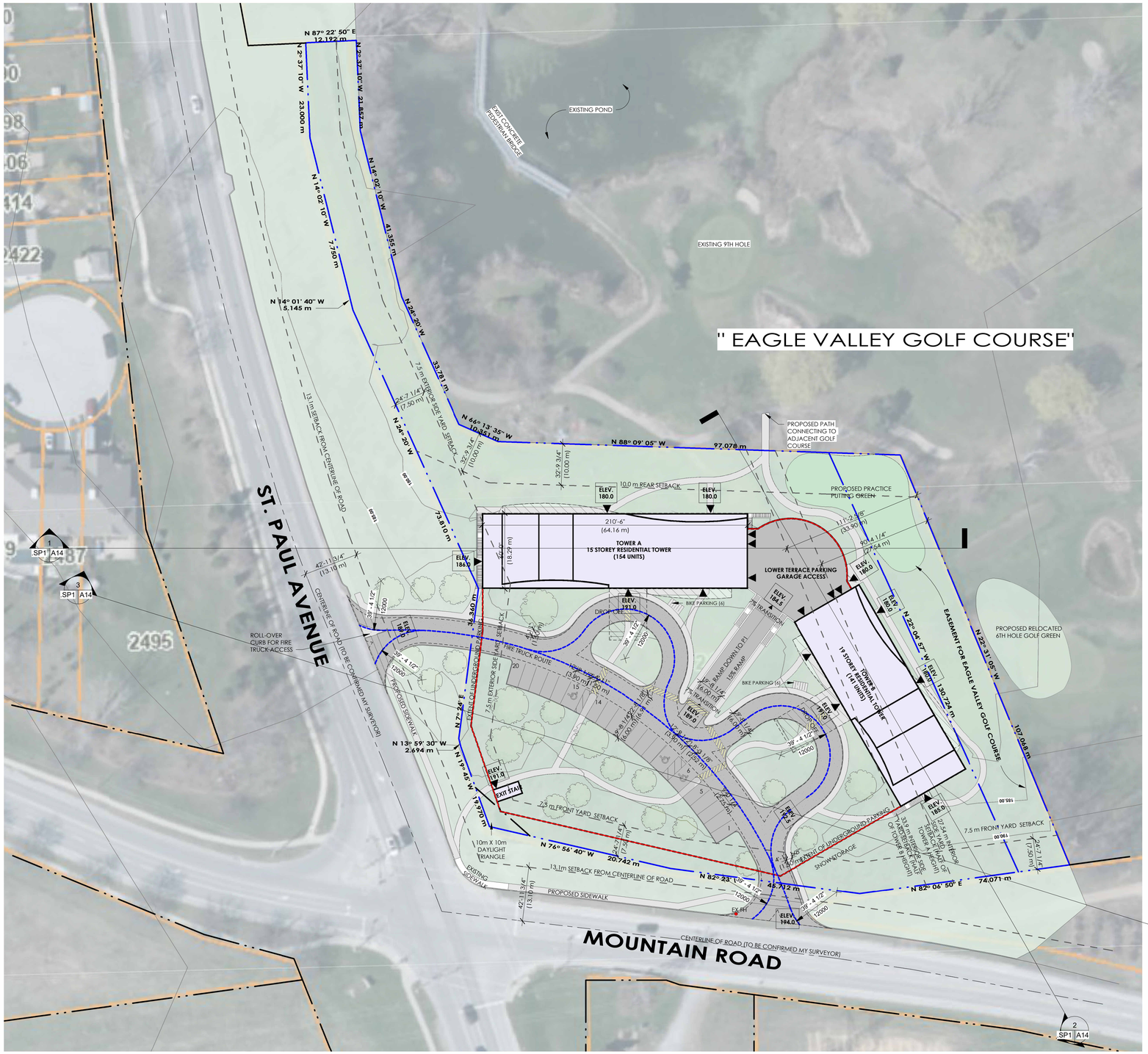
The parking supply will be reviewed in accordance with the City's Zoning By-law

If the above scope is acceptable to the City and Region, it will form the basis of our scope of work.

Thank you,
Raf

Appendix B

Site Plan

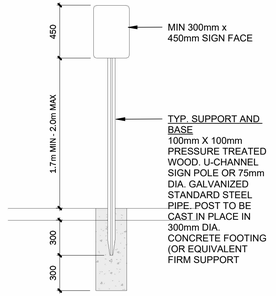


SITE PLAN - CONCEPTUAL

1 : 500

KEY MAP

SCALE : NTS



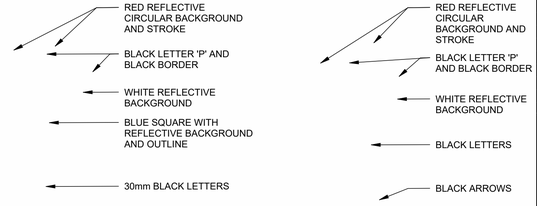
NOTES:

1. AUTHORIZED SIGNS WILL BE PLACED IN THE CENTRE OF THE REAR PORTION OF EACH PARKING SPACE IN THE DISABLED PARKING AREA.

2. WHERE THE DESIGNATED SPACES ABUT THE FACE OF A BUILDING, DISABLED PARKING SIGNS MAY BE AFFIXED TO THE FACE OF THE BUILDING AT A MINIMUM HEIGHT OF SIX AND ONE HALF (6 ½) FEET, AND A MAXIMUM HEIGHT OF NINE (9) FEET. WHERE THE DESIGNATED SPACES ABUT A SIDEWALK OR LANDSCAPED AREA, DISABLED PARKING SIGNS WILL BE ERECTED ON PERMANENT POSTS AT A MINIMUM HEIGHT OF SIX AND ONE HALF (6 ½) FEET AND A MAXIMUM OF NINE (9) FEET.

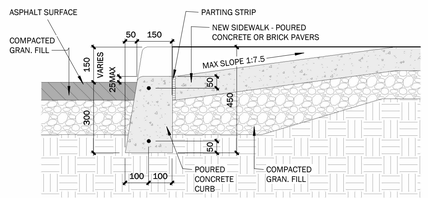
SIGNAGE POST INSTALLATION

NTS



BARRIER-FREE PARKING SIGNAGE

NTS

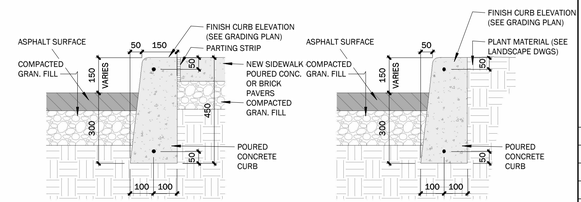


FIRE ROUTE SIGNAGE

NTS

CURB RAMP DETAIL

1:10



TYP CONC. CURB & SIDEWALK

1:10

TYP CONC. CURB

1:10

GENERAL NOTES

LEGEND

- CONDO
- CANOPIES/PROJECTIONS
- LANDSCAPING
- PROPERTY LINE
- FIRE TRUCK ROUTE
- ELEV. xxx.x — DOOR ELEVATION
- ELEV. xxx.x — FLOOR ELEVATION

NO.	DATE:	REVISION:	BY:
0	02/01/2022	MASSING CONCEPT	JKC
1	03/03/2022	ALT. SITE PLAN / MASSING	JKC
2	11/08/2023	REV. CONCEPT	JKC
3	02/08/2024	SHADOW STUDY	DD
4	02/12/2024	REV. ARCH PACAKGE	JKC

COMMISSION:

ST PAUL DEVELPOMENT

2430 ST PAUL AVE, NIAGARA FALLS, ON L2E 6S4

N

A · C · K
architects
STUDIO INC.
Architectural Office:
290 Glendale Ave. St. Catharines, ON, L2T 2L3
905 984 5545

SHEET TITLE:

SITE PLAN - CONCEPTUAL

Issued for Re-Zoning	
Issued for Site Plan Agreement:	
Issued for Permit:	
Issued for Tender:	
Issued for Construction:	
DRAWN BY:	JC
CHECKED BY:	MAJR
DATE:	NOV 30 2022
SCALE:	AS SHOWN
PROJECT No.:	2022-187

DWG. No. .SP1

Appendix C

Traffic Data

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	St. Paul Ave & Mountain Rd
Site Code:	2335600001
Municipality:	Niagara Falls
Count Date:	Nov 01, 2023

St. Paul Ave - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	5	69	105	0	179	0	65	85	6	0	156	0	335
08:00 - 09:00	11	184	196	0	391	0	108	157	11	0	276	0	667
BREAK													
16:00 - 17:00	13	252	293	0	558	0	107	186	7	0	300	0	858
17:00 - 18:00	10	233	242	0	485	0	100	174	8	0	282	0	767
GRAND TOTAL	**39**	**738**	**836**	**0**	**1613**	**0**	**380**	**602**	**32**	**0**	**1014**	**0**	**2627**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	St. Paul Ave & Mountain Rd
Site Code:	2335600001
Municipality:	Niagara Falls
Count Date:	Nov 01, 2023

Mountain Rd - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	9	89	9	0	107	0	162	62	49	0	273	2	380
08:00 - 09:00	5	79	11	0	95	0	218	74	112	0	404	0	499
BREAK													
16:00 - 17:00	10	110	12	0	132	0	234	97	163	0	494	1	626
17:00 - 18:00	10	87	11	0	108	0	210	90	149	0	449	4	557
GRAND TOTAL	**34**	**365**	**43**	**0**	**442**	**0**	**824**	**323**	**473**	**0**	**1620**	**7**	**2062**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: St. Paul Ave & Mountain Rd
Site Code: 2335600001
Count Date: Nov 01, 2023
Period: 07:00 - 09:00

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

Start Time	North Approach St. Paul Ave						South Approach St. Paul Ave						East Approach Mountain Rd						West Approach Mountain Rd						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
08:00	4	31	46	0	0	81	19	27	2	0	0	48	2	22	3	0	0	27	48	22	23	0	0	93	249
08:15	3	52	57	0	0	112	29	25	2	0	0	56	2	15	2	0	0	19	41	14	26	0	0	81	268
08:30	4	48	48	0	0	100	27	52	3	0	0	82	0	22	3	0	0	25	62	19	32	0	0	113	320
08:45	0	53	45	0	0	98	33	53	4	0	0	90	1	20	3	0	0	24	67	19	31	0	0	117	329
Grand Total	**11**	**184**	**196**	**0**	**0**	**391**	**108**	**157**	**11**	**0**	**0**	**276**	**5**	**79**	**11**	**0**	**0**	**95**	**218**	**74**	**112**	**0**	**0**	**404**	**1166**
Approach %	2.8	47.1	50.1	0		-	39.1	56.9	4	0		-	5.3	83.2	11.6	0		-	54	18.3	27.7	0		-	
Totals %	0.9	15.8	16.8	0		33.5	9.3	13.5	0.9	0		23.7	0.4	6.8	0.9	0		8.1	18.7	6.3	9.6	0		34.6	
PHF	**0.69**	**0.87**	**0.86**	**0**		**0.87**	**0.82**	**0.74**	**0.69**	**0**		**0.77**	**0.63**	**0.9**	**0.92**	**0**		**0.88**	**0.81**	**0.84**	**0.88**	**0**		**0.86**	**0.89**
Cars	8	175	191	0		374	107	154	10	0		271	5	68	9	0		82	208	66	112	0		386	1113
% Cars	72.7	95.1	97.4	0		95.7	99.1	98.1	90.9	0		98.2	100	86.1	81.8	0		86.3	95.4	89.2	100	0		95.5	95.5
Trucks	3	9	5	0		17	1	3	1	0		5	0	11	2	0		13	10	8	0	0		18	53
% Trucks	27.3	4.9	2.6	0		4.3	0.9	1.9	9.1	0		1.8	0	13.9	18.2	0		13.7	4.6	10.8	0	0		4.5	4.5
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: St. Paul Ave & Mountain Rd
Site Code: 2335600001
Count Date: Nov 01, 2023
Period: 16:00 - 18:00

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

Start Time	North Approach St. Paul Ave						South Approach St. Paul Ave						East Approach Mountain Rd						West Approach Mountain Rd						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:15	1	52	74	0	0	127	26	54	2	0	0	82	1	29	3	0	0	33	62	21	55	0	0	138	380
16:30	4	60	70	0	0	134	28	44	1	0	0	73	2	32	0	0	0	34	49	26	34	0	0	109	350
16:45	2	82	86	0	0	170	26	53	2	0	0	81	1	25	5	0	0	31	64	31	38	0	1	133	415
17:00	2	68	79	0	0	149	34	56	2	0	0	92	3	27	2	0	0	32	49	21	37	0	3	107	380
Grand Total	**9**	**262**	**309**	**0**	**0**	**580**	**114**	**207**	**7**	**0**	**0**	**328**	**7**	**113**	**10**	**0**	**0**	**130**	**224**	**99**	**164**	**0**	**4**	**487**	**1525**
Approach %	1.6	45.2	53.3	0		-	34.8	63.1	2.1	0		-	5.4	86.9	7.7	0		-	46	20.3	33.7	0		-	
Totals %	0.6	17.2	20.3	0		38	7.5	13.6	0.5	0		21.5	0.5	7.4	0.7	0		8.5	14.7	6.5	10.8	0		31.9	
PHF	**0.56**	**0.8**	**0.9**	**0**		**0.85**	**0.84**	**0.92**	**0.88**	**0**		**0.89**	**0.58**	**0.88**	**0.5**	**0**		**0.96**	**0.88**	**0.8**	**0.75**	**0**		**0.88**	**0.92**
Cars	9	257	296	0		562	113	206	5	0		324	7	112	6	0		125	220	83	161	0		464	1475
% Cars	100	98.1	95.8	0		96.9	99.1	99.5	71.4	0		98.8	100	99.1	60	0		96.2	98.2	83.8	98.2	0		95.3	96.7
Trucks	0	5	13	0		18	1	1	2	0		4	0	1	3	0		4	4	16	3	0		23	49
% Trucks	0	1.9	4.2	0		3.1	0.9	0.5	28.6	0		1.2	0	0.9	30	0		3.1	1.8	16.2	1.8	0		4.7	3.2
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	1	0		1	0	0	0	0		0	1
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	10	0		0.8	0	0	0	0		0	0.1
Peds					0	-					0	-					0	-					4	-	4
% Peds					0	-					0	-					0	-					100	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

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

Intersection: St. Paul Ave & Mountain Rd
Site Code: 2335600001
Count Date: Nov 01, 2023

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: St. Paul Ave runs N/S

North Approach

	Out	In	Total
Cars	374	371	745
Trucks	17	15	32
Bicycles	0	0	0
	391	**386**	**777**

St. Paul Ave

Bicycles	0	0	0	0
Trucks	5	9	3	0
Cars	191	175	8	0
Totals	**196**	**184**	**11**	**0**

East Approach

	Out	In	Total
Cars	82	84	166
Trucks	13	12	25
Bicycles	0	0	0
	95	**96**	**191**

Mountain Rd

Bicycles	Trucks	Cars	Totals	
0	0	0	**0**	
0	10	208	**218**	
0	8	66	**74**	
0	0	112	**112**	

Peds: 0

Peds: 0

Peds: 0

Mountain Rd

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	11	9	2	0
	79	68	11	0
	5	5	0	0

West Approach

	Out	In	Total
Cars	386	366	752
Trucks	18	17	35
Bicycles	0	0	0
	404	**383**	**787**

Totals	**108**	**157**	**11**	**0**
Cars	107	154	10	0
Trucks	1	3	1	0
Bicycles	0	0	0	0

St. Paul Ave

South Approach

	Out	In	Total
Cars	271	292	563
Trucks	5	9	14
Bicycles	0	0	0
	276	**301**	**577**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

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

Intersection: St. Paul Ave & Mountain Rd
Site Code: 2335600001
Count Date: Nov 01, 2023

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: St. Paul Ave runs N/S

North Approach

	Out	In	Total
Cars	562	432	994
Trucks	18	8	26
Bicycles	0	1	1
	580	**441**	**1021**

St. Paul Ave

Bicycles	0	0	0	0
Trucks	13	5	0	0
Cars	296	257	9	0
Totals	**309**	**262**	**9**	**0**

East Approach

	Out	In	Total
Cars	125	97	222
Trucks	4	18	22
Bicycles	1	0	1
	130	**115**	**245**

Peds: 0

Mountain Rd

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	4	220	**224**
0	16	83	**99**
0	3	161	**164**

Peds: 4

Peds: 0

Mountain Rd

Totals	Cars	Trucks	Bicycles
0	0	0	0
10	6	3	1
113	112	1	0
7	7	0	0

Peds: 0

West Approach

	Out	In	Total
Cars	464	521	985
Trucks	23	15	38
Bicycles	0	0	0
	487	**536**	**1023**

Totals	**114**	**207**	**7**	**0**
Cars	113	206	5	0
Trucks	1	1	2	0
Bicycles	0	0	0	0

St. Paul Ave

South Approach

	Out	In	Total
Cars	324	425	749
Trucks	4	8	12
Bicycles	0	0	0
	328	**433**	**761**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Mountain Rd & Dorchester Rd
Site Code:	2335600002
Municipality:	Niagara Falls
Count Date:	Nov 01, 2023

Dorchester Rd - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	2	7	18	0	27	0	120	8	39	0	167	2	194
08:00 - 09:00	10	15	30	0	55	0	194	14	54	0	262	0	317
BREAK													
16:00 - 17:00	6	15	33	0	54	2	132	18	99	0	249	0	303
17:00 - 18:00	11	20	27	0	58	2	98	21	68	0	187	0	245
GRAND TOTAL	**29**	**57**	**108**	**0**	**194**	**4**	**544**	**61**	**260**	**0**	**865**	**2**	**1059**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Mountain Rd & Dorchester Rd
Site Code:	2335600002
Municipality:	Niagara Falls
Count Date:	Nov 01, 2023

Mountain Rd - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	35	250	4	0	289	2	7	255	60	0	322	2	611
08:00 - 09:00	69	328	5	0	402	0	20	329	114	0	463	0	865
BREAK													
16:00 - 17:00	94	426	15	0	535	1	38	404	206	0	648	2	1183
17:00 - 18:00	73	357	10	0	440	9	33	368	195	0	596	3	1036
GRAND TOTAL	**271**	**1361**	**34**	**0**	**1666**	**12**	**98**	**1356**	**575**	**0**	**2029**	**7**	**3695**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection:	Mountain Rd & Dorchester Rd
Site Code:	2335600002
Count Date:	Nov 01, 2023
Period:	07:00 - 09:00

Peak Hour Data (07:45 - 08:45)

Start Time	North Approach Dorchester Rd						South Approach Dorchester Rd						East Approach Mountain Rd						West Approach Mountain Rd						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
07:45	1	4	9	0	0	14	43	3	11	0	1	57	17	71	2	0	0	90	6	93	31	0	1	130	291
08:00	1	1	5	0	0	7	58	6	18	0	0	82	13	76	0	0	0	89	9	66	42	0	0	117	295
08:15	2	2	8	0	0	12	52	2	9	0	0	63	13	92	2	0	0	107	3	74	32	0	0	109	291
08:30	3	4	10	0	0	17	48	2	11	0	0	61	20	85	1	0	0	106	4	99	24	0	0	127	311
Grand Total	**7**	**11**	**32**	**0**	**0**	**50**	**201**	**13**	**49**	**0**	**1**	**263**	**63**	**324**	**5**	**0**	**0**	**392**	**22**	**332**	**129**	**0**	**1**	**483**	**1188**
Approach %	14	22	64	0		-	76.4	4.9	18.6	0		-	16.1	82.7	1.3	0		-	4.6	68.7	26.7	0		-	
Totals %	0.6	0.9	2.7	0		4.2	16.9	1.1	4.1	0		22.1	5.3	27.3	0.4	0		33	1.9	27.9	10.9	0		40.7	
PHF	**0.58**	**0.69**	**0.8**	**0**		**0.74**	**0.87**	**0.54**	**0.68**	**0**		**0.8**	**0.79**	**0.88**	**0.63**	**0**		**0.92**	**0.61**	**0.84**	**0.77**	**0**		**0.93**	**0.95**
Cars	5	9	32	0		46	198	13	48	0		259	61	309	4	0		374	22	311	126	0		459	1138
% Cars	71.4	81.8	100	0		92	98.5	100	98	0		98.5	96.8	95.4	80	0		95.4	100	93.7	97.7	0		95	95.8
Trucks	2	2	0	0		4	3	0	1	0		4	2	15	1	0		18	0	21	3	0		24	50
% Trucks	28.6	18.2	0	0		8	1.5	0	2	0		1.5	3.2	4.6	20	0		4.6	0	6.3	2.3	0		5	4.2
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					0	-					1	-					0	-					1	-	2
% Peds					0	-					50	-					0	-					50	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Mountain Rd & Dorchester Rd
Site Code: 2335600002
Count Date: Nov 01, 2023
Period: 16:00 - 18:00

Peak Hour Data (16:30 - 17:30)

Start Time	North Approach Dorchester Rd						South Approach Dorchester Rd						East Approach Mountain Rd						West Approach Mountain Rd						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:30	2	4	11	0	0	17	28	6	25	0	0	59	24	120	2	0	1	146	15	92	53	0	0	160	382
16:45	1	4	5	0	2	10	32	4	26	0	0	62	22	111	6	0	0	139	8	110	59	0	1	177	388
17:00	0	4	7	0	0	11	34	6	17	0	0	57	24	114	4	0	0	142	11	85	51	0	1	147	357
17:15	5	5	8	0	0	18	30	7	16	0	0	53	20	105	3	0	4	128	9	120	67	0	1	196	395
Grand Total	**8**	**17**	**31**	**0**	**2**	**56**	**124**	**23**	**84**	**0**	**0**	**231**	**90**	**450**	**15**	**0**	**5**	**555**	**43**	**407**	**230**	**0**	**3**	**680**	**1522**
Approach %	14.3	30.4	55.4	0		-	53.7	10	36.4	0		-	16.2	81.1	2.7	0		-	6.3	59.9	33.8	0		-	
Totals %	0.5	1.1	2	0		3.7	8.1	1.5	5.5	0		15.2	5.9	29.6	1	0		36.5	2.8	26.7	15.1	0		44.7	
PHF	**0.4**	**0.85**	**0.7**	**0**		**0.78**	**0.91**	**0.82**	**0.81**	**0**		**0.93**	**0.94**	**0.94**	**0.63**	**0**		**0.95**	**0.72**	**0.85**	**0.86**	**0**		**0.87**	**0.96**
Cars	8	17	31	0		56	121	23	82	0		226	87	440	15	0		542	43	391	230	0		664	1488
% Cars	100	100	100	0		100	97.6	100	97.6	0		97.8	96.7	97.8	100	0		97.7	100	96.1	100	0		97.6	97.8
Trucks	0	0	0	0		0	3	0	2	0		5	3	10	0	0		13	0	15	0	0		15	33
% Trucks	0	0	0	0		0	2.4	0	2.4	0		2.2	3.3	2.2	0	0		2.3	0	3.7	0	0		2.2	2.2
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	1
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0.2	0	0		0.1	0.1
Peds					2	-					0	-					5	-					3	-	10
% Peds					20	-					0	-					50	-					30	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	07:00:00	From:	07:45:00
To:	09:00:00	To:	08:45:00

Intersection: Mountain Rd & Dorchester Rd
Site Code: 2335600002
Count Date: Nov 01, 2023

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Mountain Rd runs E/W

North Approach

	Out	In	Total
Cars	46	39	85
Trucks	4	1	5
Bicycles	0	0	0
	50	**40**	**90**

Dorchester Rd

Bicycles	0	0	0	0
Trucks	0	2	2	0
Cars	32	9	5	0
Totals	**32**	**11**	**7**	**0**

East Approach

	Out	In	Total
Cars	374	364	738
Trucks	18	24	42
Bicycles	0	0	0
	392	**388**	**780**

Peds: 0

Mountain Rd

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	0	22	**22**
0	21	311	**332**
0	3	126	**129**

Peds: 1

Peds: 0

Mountain Rd

Totals	Cars	Trucks	Bicycles
0	0	0	0
5	4	1	0
324	309	15	0
63	61	2	0

Peds: 1

West Approach

	Out	In	Total
Cars	459	539	998
Trucks	24	18	42
Bicycles	0	0	0
	483	**557**	**1040**

Dorchester Rd

Totals	**201**	**13**	**49**	**0**
Cars	198	13	48	0
Trucks	3	0	1	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	259	196	455
Trucks	4	7	11
Bicycles	0	0	0
	263	**203**	**466**

Cars - Trucks - Bicycles

Comments

Peak Hour Diagram

Specified Period
From: 16:00:00
To: 18:00:00

One Hour Peak
From: 16:30:00
To: 17:30:00

Intersection: Mountain Rd & Dorchester Rd
Site Code: 2335600002
Count Date: Nov 01, 2023

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Mountain Rd runs E/W

North Approach

	Out	In	Total
Cars	56	81	137
Trucks	0	0	0
Bicycles	0	0	0
	56	**81**	**137**

Dorchester Rd

Bicycles	0	0	0	0
Trucks	0	0	0	0
Cars	31	17	8	0
Totals	**31**	**17**	**8**	**0**

East Approach

	Out	In	Total
Cars	542	481	1023
Trucks	13	17	30
Bicycles	0	1	1
	555	**499**	**1054**

Peds: 2

Mountain Rd

Bicycles	Trucks	Cars	Totals	
0	0	0	**0**	
0	0	43	**43**	
1	15	391	**407**	
0	0	230	**230**	

Peds: 3

Peds: 5

Mountain Rd

Totals	Cars	Trucks	Bicycles
0	0	0	0
15	15	0	0
450	440	10	0
90	87	3	0

Peds: 0

West Approach

	Out	In	Total
Cars	664	592	1256
Trucks	15	13	28
Bicycles	1	0	1
	680	**605**	**1285**

Totals	**124**	**23**	**84**	**0**
Cars	121	23	82	0
Trucks	3	0	2	0
Bicycles	0	0	0	0

Dorchester Rd

South Approach

	Out	In	Total
Cars	226	334	560
Trucks	5	3	8
Bicycles	0	0	0
	231	**337**	**568**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Portage Rd & Stanley Ave
Site Code:	2335600003
Municipality:	Niagara Falls
Count Date:	Nov 01, 2023

Stanley Ave - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	1	204	59	0	264	0	15	145	2	0	162	1	426
08:00 - 09:00	3	278	46	0	327	0	29	147	3	0	179	4	506
BREAK													
16:00 - 17:00	16	286	92	0	394	2	68	284	10	0	362	4	756
17:00 - 18:00	10	253	88	0	351	0	42	235	10	0	287	0	638
GRAND TOTAL	**30**	**1021**	**285**	**0**	**1336**	**2**	**154**	**811**	**25**	**0**	**990**	**9**	**2326**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Portage Rd & Stanley Ave
Site Code:	2335600003
Municipality:	Niagara Falls
Count Date:	Nov 01, 2023

Portage Rd - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	3	17	10	0	30	1	49	6	28	0	83	0	113
08:00 - 09:00	12	16	13	0	41	0	60	10	60	0	130	1	171
BREAK													
16:00 - 17:00	10	15	6	0	31	3	46	16	35	0	97	1	128
17:00 - 18:00	6	11	8	0	25	0	41	21	36	0	98	0	123
GRAND TOTAL	**31**	**59**	**37**	**0**	**127**	**4**	**196**	**53**	**159**	**0**	**408**	**2**	**535**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection:	Portage Rd & Stanley Ave
Site Code:	2335600003
Count Date:	Nov 01, 2023
Period:	07:00 - 09:00

Peak Hour Data (07:45 - 08:45)

Start Time	North Approach Stanley Ave						South Approach Stanley Ave						East Approach Portage Rd						West Approach Portage Rd						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
07:45	1	74	9	0	0	84	4	47	0	0	0	51	0	7	3	0	0	10	15	4	15	0	0	34	179
08:00	1	70	8	0	0	79	9	34	0	0	0	43	1	2	6	0	0	9	14	3	18	0	0	35	166
08:15	0	80	12	0	0	92	9	42	2	0	2	53	6	5	2	0	0	13	13	3	9	0	0	25	183
08:30	2	66	11	0	0	79	3	24	1	0	2	28	5	6	2	0	0	13	23	2	18	0	1	43	163
Grand Total	**4**	**290**	**40**	**0**	**0**	**334**	**25**	**147**	**3**	**0**	**4**	**175**	**12**	**20**	**13**	**0**	**0**	**45**	**65**	**12**	**60**	**0**	**1**	**137**	**691**
Approach %	1.2	86.8	12	0		-	14.3	84	1.7	0		-	26.7	44.4	28.9	0		-	47.4	8.8	43.8	0		-	
Totals %	0.6	42	5.8	0		48.3	3.6	21.3	0.4	0		25.3	1.7	2.9	1.9	0		6.5	9.4	1.7	8.7	0		19.8	
PHF	**0.5**	**0.91**	**0.83**	**0**		**0.91**	**0.69**	**0.78**	**0.38**	**0**		**0.83**	**0.5**	**0.71**	**0.54**	**0**		**0.87**	**0.71**	**0.75**	**0.83**	**0**		**0.8**	**0.94**
Cars	2	279	29	0		310	21	132	2	0		155	10	19	12	0		41	60	11	52	0		123	629
% Cars	50	96.2	72.5	0		92.8	84	89.8	66.7	0		88.6	83.3	95	92.3	0		91.1	92.3	91.7	86.7	0		89.8	91
Trucks	2	11	11	0		24	4	15	1	0		20	2	1	1	0		4	5	1	8	0		14	62
% Trucks	50	3.8	27.5	0		7.2	16	10.2	33.3	0		11.4	16.7	5	7.7	0		8.9	7.7	8.3	13.3	0		10.2	9
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					0	-					4	-					0	-					1	-	5
% Peds					0	-					80	-					0	-					20	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection:	Portage Rd & Stanley Ave
Site Code:	2335600003
Count Date:	Nov 01, 2023
Period:	16:00 - 18:00

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

Start Time	North Approach Stanley Ave						South Approach Stanley Ave						East Approach Portage Rd						West Approach Portage Rd						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:15	7	93	31	0	1	131	17	72	3	0	0	92	4	2	3	0	0	9	4	6	8	0	1	18	250
16:30	6	70	22	0	0	98	18	75	1	0	0	94	3	6	1	0	0	10	17	3	10	0	0	30	232
16:45	3	70	16	0	0	89	17	70	4	0	2	91	3	3	2	0	1	8	13	1	12	0	0	26	214
17:00	2	61	31	0	0	94	14	63	1	0	0	78	0	4	2	0	0	6	10	8	6	0	0	24	202
Grand Total	**18**	**294**	**100**	**0**	**1**	**412**	**66**	**280**	**9**	**0**	**2**	**355**	**10**	**15**	**8**	**0**	**1**	**33**	**44**	**18**	**36**	**0**	**1**	**98**	**898**
Approach %	4.4	71.4	24.3	0		-	18.6	78.9	2.5	0		-	30.3	45.5	24.2	0		-	44.9	18.4	36.7	0		-	
Totals %	2	32.7	11.1	0		45.9	7.3	31.2	1	0		39.5	1.1	1.7	0.9	0		3.7	4.9	2	4	0		10.9	
PHF	**0.64**	**0.79**	**0.81**	**0**		**0.79**	**0.92**	**0.93**	**0.56**	**0**		**0.94**	**0.63**	**0.63**	**0.67**	**0**		**0.83**	**0.65**	**0.56**	**0.75**	**0**		**0.82**	**0.9**
Cars	18	289	98	0		405	63	268	9	0		340	10	15	8	0		33	25	18	36	0		79	857
% Cars	100	98.3	98	0		98.3	95.5	95.7	100	0		95.8	100	100	100	0		100	56.8	100	100	0		80.6	95.4
Trucks	0	5	2	0		7	3	12	0	0		15	0	0	0	0		0	19	0	0	0		19	41
% Trucks	0	1.7	2	0		1.7	4.5	4.3	0	0		4.2	0	0	0	0		0	43.2	0	0	0		19.4	4.6
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					1	-					2	-					1	-					1	-	5
% Peds					20	-					40	-					20	-					20	-	

Peak Hour Diagram

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Specified Period
From: 07:00:00
To: 09:00:00

One Hour Peak
From: 07:45:00
To: 08:45:00

Intersection: Portage Rd & Stanley Ave
Site Code: 2335600003
Count Date: Nov 01, 2023

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Stanley Ave runs N/S

North Approach

	Out	In	Total
Cars	310	204	514
Trucks	24	21	45
Bicycles	0	0	0
	334	**225**	**559**

Stanley Ave

Bicycles	0	0	0	0
Trucks	11	11	2	0
Cars	29	279	2	0
Totals	**40**	**290**	**4**	**0**

East Approach

	Out	In	Total
Cars	41	15	56
Trucks	4	4	8
Bicycles	0	0	0
	45	**19**	**64**

Peds: 0

Portage Rd

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	5	60	**65**
0	1	11	**12**
0	8	52	**60**

Peds: 1

Peds: 0

Portage Rd

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	13	12	1	0
	20	19	1	0
	12	10	2	0

Peds: 4

West Approach

	Out	In	Total
Cars	123	69	192
Trucks	14	16	30
Bicycles	0	0	0
	137	**85**	**222**

Totals	**25**	**147**	**3**	**0**
Cars	21	132	2	0
Trucks	4	15	1	0
Bicycles	0	0	0	0

Stanley Ave

South Approach

	Out	In	Total
Cars	155	341	496
Trucks	20	21	41
Bicycles	0	0	0
	175	**362**	**537**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period
From: 16:00:00
To: 18:00:00

One Hour Peak
From: 16:15:00
To: 17:15:00

Intersection: Portage Rd & Stanley Ave
Site Code: 2335600003
Count Date: Nov 01, 2023

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Stanley Ave runs N/S

North Approach

	Out	In	Total
Cars	405	301	706
Trucks	7	31	38
Bicycles	0	0	0
	412	**332**	**744**

Stanley Ave

Bicycles	0	0	0	0
Trucks	2	5	0	0
Cars	98	289	18	0
Totals	**100**	**294**	**18**	**0**

East Approach

	Out	In	Total
Cars	33	45	78
Trucks	0	0	0
Bicycles	0	0	0
	33	**45**	**78**

Peds: 1

Portage Rd

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	19	25	**44**
0	0	18	**18**
0	0	36	**36**

Peds: 1

Peds: 1

Portage Rd

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	8	8	0	0
	15	15	0	0
	10	10	0	0

Peds: 2

West Approach

	Out	In	Total
Cars	79	176	255
Trucks	19	5	24
Bicycles	0	0	0
	98	**181**	**279**

Stanley Ave

Totals	**66**	**280**	**9**	**0**
Cars	63	268	9	0
Trucks	3	12	0	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	340	335	675
Trucks	15	5	20
Bicycles	0	0	0
	355	**340**	**695**

Cars - Trucks - Bicycles

Comments

Signal Code: 100101

Intersection: RR100 (ST. PAUL AVE) & RR101 (MOUNTAIN RD)

Municipality: niagarafalls

Owner: Region

Last Modified: 2023-10-26 9:58:31 AM

Timing Parameters	NBD ADVANCE	NBD & SBD THRU	EBD ADVANCE	EBD & WBD THRU	n/a	n/a
Min Green	8	10	8	8	0	0
Walk	0	9	0	10	0	0
Ped Clearance	0	15	0	16	0	0
Vehicle Ext.	2.5	3	2.5	4	0	0
Max Green	10	30	15	25	0	0
Yellow	3	4.1	3	4.1	0	0
All Red	0	2.8	0	3.4	0	0

		Offset
Minimum Cycle	32.4	0
Pedestrian Cycle	64.4	
Maximum Cycle	97.4	0
Operation	FA	

Installed On:	2009-08-18
Count Date:	2016-10-20

FA = Fully Actuated SA = Semi Actuated FT = Fixed Time

Signal Code: 101DRC

Intersection: RR 101 (MOUNTAIN RD.) & DORCHESTER RD.

Municipality: niagarafalls

Owner: region

Last Modified: 2020-07-06 5:19:32 PM

Timing Parameters	WBD/EBD THRU MOUNTAIN RD.	NBD/SBD THRU DORCHESTER RD.	n/a	n/a	n/a	n/a
Min Green	10	8	0	0	0	0
Walk	9	9	0	0	0	0
Ped Clearance	15	15	0	0	0	0
Vehicle Ext.	0	2.5	0	0	0	0
Max Green	30	20	0	0	0	0
Yellow	4.1	4.1	0	0	0	0
All Red	3	2.8	0	0	0	0

		Offset
Minimum Cycle	32	0
Pedestrian Cycle	62	
Maximum Cycle	64	0
Operation	SA	
Installed On:	--/--/----	
Count Date:	--/--/----	

FA = Fully Actuated SA = Semi Actuated FT = Fixed Time

Signal Code: 101102

Intersection: RR101 (PORTAGE RD) & RR102 (STANLEY AVE)

Municipality: niagarafalls

Owner: region

Last Modified: 2020-08-28 4:03:05 PM

Timing Parameters	NBD & SBD STANLEY AVE.	EBD & WBD PORTAGE AVE	n/a	n/a	n/a	n/a
Min Green	10	8	0	0	0	0
Walk	10	8	0	0	0	0
Ped Clearance	11	12	0	0	0	0
Vehicle Ext.	2.5	2.5	0	0	0	0
Max Green	35	25	0	0	0	0
Yellow	4.1	4.1	0	0	0	0
All Red	2.2	2.6	0	0	0	0

		Offset
Minimum Cycle	31	0
Pedestrian Cycle	54	
Maximum Cycle	73	0
Operation	FA	

Installed On:	2020-04-14
Count Date:	2017-09-07

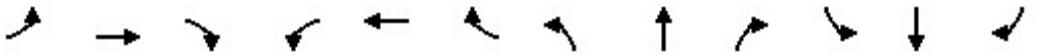
FA = Fully Actuated SA = Semi Actuated FT = Fixed Time

Appendix D

Background Development Site Traffic

Appendix E

Synchro Outputs

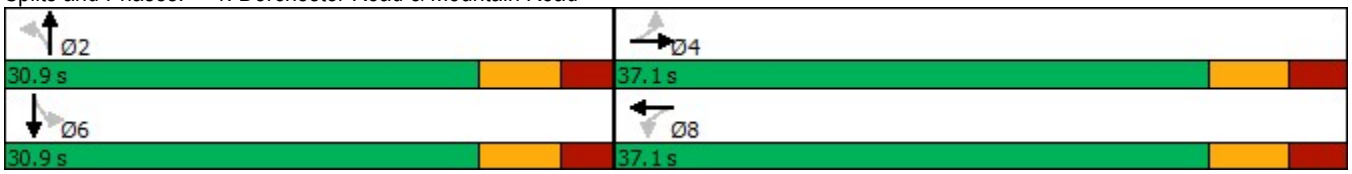


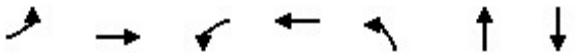
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	332	129	63	324	5	201	13	49	7	11	32
Future Volume (vph)	22	332	129	63	324	5	201	13	49	7	11	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	35.0		0.0	45.0		0.0	20.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		1.00			1.00				0.99	
Frt		0.955			0.997			0.887			0.921	
Flt Protected	0.950			0.950			0.950				0.991	
Satd. Flow (prot)	1825	1739	0	1772	1819	0	1789	1679	0	0	1583	0
Flt Permitted	0.526			0.362			0.713				0.940	
Satd. Flow (perm)	1011	1739	0	675	1819	0	1341	1679	0	0	1502	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			2			72			40	
Link Speed (k/h)		50			60			60			50	
Link Distance (m)		227.0			1033.3			340.9			499.3	
Travel Time (s)		16.3			62.0			20.5			35.9	
Confl. Peds. (#/hr)			1	1			1					1
Peak Hour Factor	0.61	0.84	0.77	0.79	0.88	0.63	0.87	0.54	0.68	0.58	0.69	0.80
Heavy Vehicles (%)	0%	6%	2%	3%	5%	20%	2%	0%	2%	29%	18%	0%
Adj. Flow (vph)	36	395	168	80	368	8	231	24	72	12	16	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	563	0	80	376	0	231	96	0	0	68	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	31.1	31.1		31.1	31.1		30.9	30.9		30.9	30.9	
Total Split (s)	37.1	37.1		37.1	37.1		30.9	30.9		30.9	30.9	
Total Split (%)	54.6%	54.6%		54.6%	54.6%		45.4%	45.4%		45.4%	45.4%	
Maximum Green (s)	30.0	30.0		30.0	30.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.1	4.1		4.1	4.1	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	9.0	9.0		9.0	9.0		9.0	9.0		9.0	9.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	32.1	32.1		32.1	32.1		15.7	15.7			15.7	
Actuated g/C Ratio	0.52	0.52		0.52	0.52		0.25	0.25			0.25	
v/c Ratio	0.07	0.61		0.23	0.40		0.68	0.20			0.17	
Control Delay	10.0	14.6		12.4	11.9		30.6	7.6			9.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	10.0	14.6		12.4	11.9		30.6	7.6			9.7	
LOS	A	B		B	B		C	A			A	
Approach Delay		14.4			12.0			23.8			9.7	
Approach LOS		B			B			C			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 68			
Actuated Cycle Length: 61.8			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 15.5		Intersection LOS: B	
Intersection Capacity Utilization 69.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Dorchester Road & Mountain Road





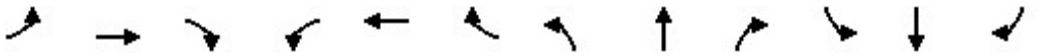
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	36	563	80	376	231	96	68
v/c Ratio	0.07	0.61	0.23	0.40	0.68	0.20	0.17
Control Delay	10.0	14.6	12.4	11.9	30.6	7.6	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.0	14.6	12.4	11.9	30.6	7.6	9.7
Queue Length 50th (m)	1.8	37.1	4.4	23.0	22.4	2.0	2.3
Queue Length 95th (m)	4.8	76.0	12.8	50.9	39.3	3.5	6.3
Internal Link Dist (m)		203.0		1009.3		316.9	475.3
Turn Bay Length (m)	35.0		45.0		20.0		
Base Capacity (vph)	524	921	350	944	522	698	610
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	0.07	0.61	0.23	0.40	0.44	0.14	0.11

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	332	129	63	324	5	201	13	49	7	11	32
Future Volume (vph)	22	332	129	63	324	5	201	13	49	7	11	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00			0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.96		1.00	1.00		1.00	0.89			0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1825	1740		1771	1818		1787	1680			1583	
Flt Permitted	0.53	1.00		0.36	1.00		0.71	1.00			0.94	
Satd. Flow (perm)	1010	1740		676	1818		1341	1680			1501	
Peak-hour factor, PHF	0.61	0.84	0.77	0.79	0.88	0.63	0.87	0.54	0.68	0.58	0.69	0.80
Adj. Flow (vph)	36	395	168	80	368	8	231	24	72	12	16	40
RTOR Reduction (vph)	0	19	0	0	1	0	0	54	0	0	30	0
Lane Group Flow (vph)	36	544	0	80	375	0	231	42	0	0	38	0
Confl. Peds. (#/hr)			1	1			1					1
Heavy Vehicles (%)	0%	6%	2%	3%	5%	20%	2%	0%	2%	29%	18%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	32.1	32.1		32.1	32.1		15.7	15.7			15.7	
Effective Green, g (s)	32.1	32.1		32.1	32.1		15.7	15.7			15.7	
Actuated g/C Ratio	0.52	0.52		0.52	0.52		0.25	0.25			0.25	
Clearance Time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	524	903		351	944		340	426			381	
v/s Ratio Prot		c0.31			0.21			0.03				
v/s Ratio Perm	0.04			0.12			c0.17				0.03	
v/c Ratio	0.07	0.60		0.23	0.40		0.68	0.10			0.10	
Uniform Delay, d1	7.4	10.4		8.1	9.0		20.8	17.6			17.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.3	3.0		1.5	1.3		5.3	0.1			0.1	
Delay (s)	7.7	13.4		9.6	10.2		26.1	17.7			17.8	
Level of Service	A	B		A	B		C	B			B	
Approach Delay (s)		13.0			10.1			23.6			17.8	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	61.8	Sum of lost time (s)	14.0
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

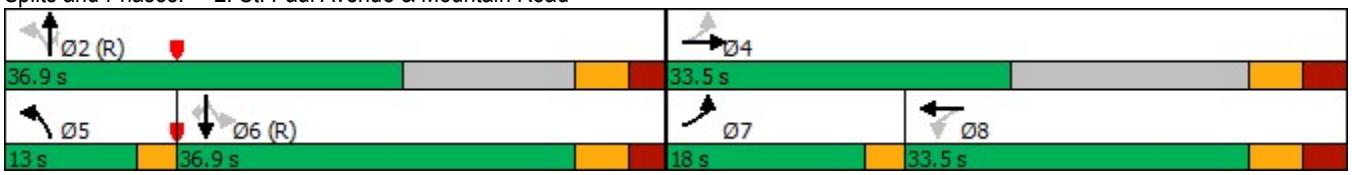


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	218	74	112	5	79	11	108	157	11	11	184	196
Future Volume (vph)	218	74	112	5	79	11	108	157	11	11	184	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	35.0		35.0	45.0		25.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.911			0.982				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1738	1675	0	1825	1648	0	1807	1883	1585	1437	1830	1585
Flt Permitted	0.530			0.624			0.585			0.625		
Satd. Flow (perm)	970	1675	0	1199	1648	0	1113	1883	1585	945	1830	1585
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		91			7				81			228
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1033.3			178.7			480.5			127.5	
Travel Time (s)		74.4			12.9			34.6			9.2	
Peak Hour Factor	0.81	0.84	0.88	0.63	0.90	0.92	0.82	0.74	0.69	0.69	0.87	0.86
Heavy Vehicles (%)	5%	11%	0%	0%	14%	18%	1%	2%	3%	27%	5%	3%
Adj. Flow (vph)	269	88	127	8	88	12	132	212	16	16	211	228
Shared Lane Traffic (%)												
Lane Group Flow (vph)	269	215	0	8	100	0	132	212	16	16	211	228
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	7	4		8	8		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.0	33.5		33.5	33.5		11.0	30.9	30.9	30.9	30.9	30.9
Total Split (s)	18.0	33.5		33.5	33.5		13.0	36.9	36.9	36.9	36.9	36.9
Total Split (%)	17.8%	33.0%		33.0%	33.0%		12.8%	36.4%	36.4%	36.4%	36.4%	36.4%
Maximum Green (s)	15.0	26.0		26.0	26.0		10.0	30.0	30.0	30.0	30.0	30.0
Yellow Time (s)	3.0	4.1		4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	0.0	3.4		3.4	3.4		0.0	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)		10.0		10.0	10.0			9.0	9.0	9.0	9.0	9.0
Flash Dont Walk (s)		16.0		16.0	16.0			15.0	15.0	15.0	15.0	15.0
Pedestrian Calls (#/hr)		0		0	0			0	0	0	0	0
Act Effct Green (s)	30.5	26.0		11.4	11.4		64.9	61.0	61.0	48.8	48.8	48.8
Actuated g/C Ratio	0.30	0.26		0.11	0.11		0.64	0.60	0.60	0.48	0.48	0.48
v/c Ratio	0.67	0.43		0.06	0.52		0.17	0.19	0.02	0.04	0.24	0.26
Control Delay	36.5	18.7		39.0	48.7		9.4	11.3	0.0	18.5	18.8	3.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.5	18.7		39.0	48.7		9.4	11.3	0.0	18.5	18.8	3.6
LOS	D	B		D	D		A	B	A	B	B	A
Approach Delay		28.6			48.0			10.1			11.2	
Approach LOS		C			D			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 101.4			
Actuated Cycle Length: 101.4			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 19.7		Intersection LOS: B	
Intersection Capacity Utilization 53.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: St. Paul Avenue & Mountain Road

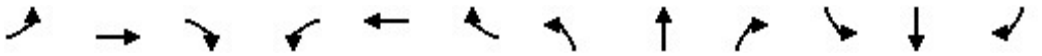


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	269	215	8	100	132	212	16	16	211	228
v/c Ratio	0.67	0.43	0.06	0.52	0.17	0.19	0.02	0.04	0.24	0.26
Control Delay	36.5	18.7	39.0	48.7	9.4	11.3	0.0	18.5	18.8	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.5	18.7	39.0	48.7	9.4	11.3	0.0	18.5	18.8	3.6
Queue Length 50th (m)	41.6	18.8	1.4	17.6	10.1	19.0	0.0	1.7	24.7	0.0
Queue Length 95th (m)	52.6	32.2	4.0	32.2	18.3	27.2	0.0	4.8	44.2	12.1
Internal Link Dist (m)		1009.3		154.7		456.5			103.5	
Turn Bay Length (m)	50.0		40.0		35.0		35.0	45.0		25.0
Base Capacity (vph)	408	778	307	427	782	1132	985	454	881	881
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.28	0.03	0.23	0.17	0.19	0.02	0.04	0.24	0.26

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	218	74	112	5	79	11	108	157	11	11	184	196
Future Volume (vph)	218	74	112	5	79	11	108	157	11	11	184	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.91		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1738	1675		1825	1648		1807	1883	1585	1437	1830	1585
Flt Permitted	0.53	1.00		0.62	1.00		0.59	1.00	1.00	0.63	1.00	1.00
Satd. Flow (perm)	970	1675		1198	1648		1113	1883	1585	946	1830	1585
Peak-hour factor, PHF	0.81	0.84	0.88	0.63	0.90	0.92	0.82	0.74	0.69	0.69	0.87	0.86
Adj. Flow (vph)	269	88	127	8	88	12	132	212	16	16	211	228
RTOR Reduction (vph)	0	66	0	0	6	0	0	0	7	0	0	122
Lane Group Flow (vph)	269	149	0	8	94	0	132	212	9	16	211	106
Heavy Vehicles (%)	5%	11%	0%	0%	14%	18%	1%	2%	3%	27%	5%	3%
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	27.5	27.5		9.8	9.8		59.5	59.5	59.5	47.3	47.3	47.3
Effective Green, g (s)	27.5	27.5		9.8	9.8		59.5	59.5	59.5	47.3	47.3	47.3
Actuated g/C Ratio	0.27	0.27		0.10	0.10		0.59	0.59	0.59	0.47	0.47	0.47
Clearance Time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	374	454		115	159		716	1104	930	441	853	739
v/s Ratio Prot	c0.10	0.09			0.06		0.02	c0.11			c0.12	
v/s Ratio Perm	c0.09			0.01			0.09		0.01	0.02		0.07
v/c Ratio	0.72	0.33		0.07	0.59		0.18	0.19	0.01	0.04	0.25	0.14
Uniform Delay, d1	31.9	29.6		41.7	43.9		9.4	9.8	8.7	14.7	16.3	15.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.5	0.4		0.3	5.5		0.1	0.4	0.0	0.2	0.7	0.4
Delay (s)	38.4	30.0		41.9	49.4		9.5	10.1	8.7	14.8	17.0	15.9
Level of Service	D	C		D	D		A	B	A	B	B	B
Approach Delay (s)		34.7			48.8			9.9			16.4	
Approach LOS		C			D			A			B	

Intersection Summary			
HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	101.4	Sum of lost time (s)	20.4
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



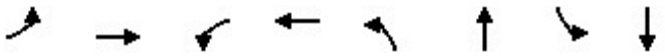
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	12	60	12	20	13	25	147	3	4	290	40
Future Volume (vph)	65	12	60	12	20	13	25	147	3	4	290	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	15.0		0.0	30.0		0.0	25.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98		0.99			1.00				1.00	
Frt		0.877			0.931			0.994			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1690	1470	0	1560	1681	0	1573	1721	0	1217	1752	0
Flt Permitted	0.723			0.700			0.543			0.634		
Satd. Flow (perm)	1286	1470	0	1142	1681	0	898	1721	0	812	1752	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		72			24			4			14	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		526.2			356.5			632.8			505.7	
Travel Time (s)		37.9			25.7			45.6			36.4	
Confl. Peds. (#/hr)			4	4			1					1
Peak Hour Factor	0.71	0.75	0.83	0.50	0.71	0.54	0.69	0.78	0.38	0.50	0.91	0.83
Heavy Vehicles (%)	8%	8%	13%	17%	5%	8%	16%	10%	33%	50%	4%	28%
Adj. Flow (vph)	92	16	72	24	28	24	36	188	8	8	319	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	92	88	0	24	52	0	36	196	0	8	367	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	26.7	26.7		26.7	26.7		27.3	27.3		27.3	27.3	
Total Split (s)	31.7	31.7		31.7	31.7		41.3	41.3		41.3	41.3	
Total Split (%)	43.4%	43.4%		43.4%	43.4%		56.6%	56.6%		56.6%	56.6%	
Maximum Green (s)	25.0	25.0		25.0	25.0		35.0	35.0		35.0	35.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.1	4.1		4.1	4.1	
All-Red Time (s)	2.6	2.6		2.6	2.6		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)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	8.0	8.0		8.0	8.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	11.0	11.0		11.0	11.0		53.2	53.2		53.2	53.2	
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.73	0.73		0.73	0.73	
v/c Ratio	0.47	0.31		0.14	0.19		0.06	0.16		0.01	0.29	
Control Delay	35.8	12.4		27.1	17.8		5.3	5.1		5.2	5.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	35.8	12.4		27.1	17.8		5.3	5.1		5.2	5.7	
LOS	D	B		C	B		A	A		A	A	
Approach Delay		24.4			20.8			5.1			5.7	
Approach LOS		C			C			A			A	

Intersection Summary

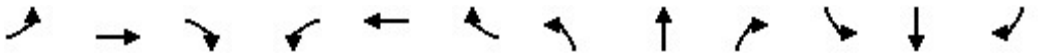
Area Type: Other
Cycle Length: 73
Actuated Cycle Length: 73
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.47
Intersection Signal Delay: 10.8 Intersection LOS: B
Intersection Capacity Utilization 42.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Stanley Avenue & Portage Rd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	92	88	24	52	36	196	8	367
v/c Ratio	0.47	0.31	0.14	0.19	0.06	0.16	0.01	0.29
Control Delay	35.8	12.4	27.1	17.8	5.3	5.1	5.2	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.8	12.4	27.1	17.8	5.3	5.1	5.2	5.7
Queue Length 50th (m)	11.8	1.9	2.9	3.4	1.4	8.1	0.3	16.5
Queue Length 95th (m)	17.7	8.6	4.6	8.2	3.7	15.6	1.0	34.6
Internal Link Dist (m)		502.2		332.5		608.8		481.7
Turn Bay Length (m)	60.0		15.0		30.0		25.0	
Base Capacity (vph)	440	550	391	591	654	1254	591	1280
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	0.21	0.16	0.06	0.09	0.06	0.16	0.01	0.29

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	12	60	12	20	13	25	147	3	4	290	40
Future Volume (vph)	65	12	60	12	20	13	25	147	3	4	290	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, 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	0.88		1.00	0.93		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1690	1470		1550	1681		1572	1721		1217	1753	
Flt Permitted	0.72	1.00		0.70	1.00		0.54	1.00		0.63	1.00	
Satd. Flow (perm)	1286	1470		1142	1681		898	1721		813	1753	
Peak-hour factor, PHF	0.71	0.75	0.83	0.50	0.71	0.54	0.69	0.78	0.38	0.50	0.91	0.83
Adj. Flow (vph)	92	16	72	24	28	24	36	188	8	8	319	48
RTOR Reduction (vph)	0	63	0	0	21	0	0	1	0	0	4	0
Lane Group Flow (vph)	92	25	0	24	31	0	36	195	0	8	363	0
Confl. Peds. (#/hr)			4	4			1					1
Heavy Vehicles (%)	8%	8%	13%	17%	5%	8%	16%	10%	33%	50%	4%	28%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	9.4	9.4		9.4	9.4		50.6	50.6		50.6	50.6	
Effective Green, g (s)	9.4	9.4		9.4	9.4		50.6	50.6		50.6	50.6	
Actuated g/C Ratio	0.13	0.13		0.13	0.13		0.69	0.69		0.69	0.69	
Clearance Time (s)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	165	189		147	216		622	1192		563	1215	
v/s Ratio Prot		0.02			0.02			0.11			c0.21	
v/s Ratio Perm	c0.07			0.02			0.04			0.01		
v/c Ratio	0.56	0.13		0.16	0.14		0.06	0.16		0.01	0.30	
Uniform Delay, d1	29.8	28.2		28.3	28.2		3.6	3.9		3.5	4.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.0	0.3		0.5	0.3		0.2	0.3		0.0	0.6	
Delay (s)	33.9	28.5		28.8	28.5		3.8	4.2		3.5	5.0	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		31.3			28.6			4.1			4.9	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	73.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	42.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

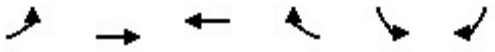
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	386	0	0	391
Future Volume (vph)	0	0	386	0	0	391
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1883	0	1883	0	0	1883
Flt Permitted						
Satd. Flow (perm)	1883	0	1883	0	0	1883
Link Speed (k/h)	48		50			50
Link Distance (m)	85.3		127.5			527.2
Travel Time (s)	6.4		9.2			38.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	420	0	0	425
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	420	0	0	425
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.9%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	386	0	0	391
Future Volume (Veh/h)	0	0	386	0	0	391
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	420	0	0	425
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			127			
pX, platoon unblocked	0.85	0.85			0.85	
vC, conflicting volume	845	420			420	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	733	236			236	
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)	331	686			1137	

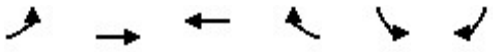
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	420	425
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1137
Volume to Capacity	0.00	0.25	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	23.9%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	95	96	0	0	0
Future Volume (vph)	0	95	96	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	1883	1883	0	1883	0
Flt Permitted						
Satd. Flow (perm)	0	1883	1883	0	1883	0
Link Speed (k/h)		50	50		48	
Link Distance (m)		178.7	488.3		63.0	
Travel Time (s)		12.9	35.2		4.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	103	104	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	103	104	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

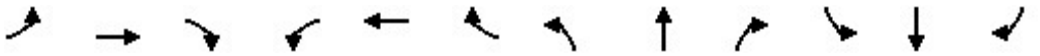
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 8.4%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	95	96	0	0	0
Future Volume (Veh/h)	0	95	96	0	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)	0	103	104	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)		179				
pX, platoon unblocked						
vC, conflicting volume	104				207	104
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	104				207	104
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)	1488				781	951

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	103	104	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1488	1700	1700
Volume to Capacity	0.00	0.06	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	8.4%	ICU Level of Service	A
Analysis Period (min)	15		

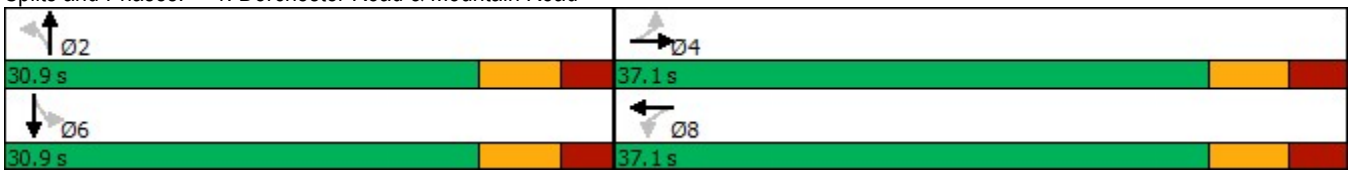


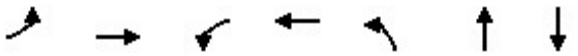
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	407	230	90	450	15	124	23	84	8	17	31
Future Volume (vph)	43	407	230	90	450	15	124	23	84	8	17	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	35.0		0.0	45.0		0.0	20.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00		1.00	0.98			0.99	
Frt		0.946			0.993			0.882			0.929	
Flt Protected	0.950			0.950			0.950				0.988	
Satd. Flow (prot)	1825	1772	0	1772	1870	0	1789	1633	0	0	1741	0
Flt Permitted	0.450			0.273			0.702				0.878	
Satd. Flow (perm)	863	1772	0	509	1870	0	1317	1633	0	0	1547	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		53			5			104			44	
Link Speed (k/h)		50			60			60			50	
Link Distance (m)		227.0			1033.3			340.9			499.3	
Travel Time (s)		16.3			62.0			20.5			35.9	
Confl. Peds. (#/hr)	2					2	3		5			3
Peak Hour Factor	0.72	0.85	0.86	0.94	0.94	0.63	0.91	0.82	0.81	0.40	0.85	0.70
Heavy Vehicles (%)	0%	4%	0%	3%	2%	0%	2%	0%	2%	0%	0%	0%
Adj. Flow (vph)	60	479	267	96	479	24	136	28	104	20	20	44
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	746	0	96	503	0	136	132	0	0	84	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	31.1	31.1		31.1	31.1		30.9	30.9		30.9	30.9	
Total Split (s)	37.1	37.1		37.1	37.1		30.9	30.9		30.9	30.9	
Total Split (%)	54.6%	54.6%		54.6%	54.6%		45.4%	45.4%		45.4%	45.4%	
Maximum Green (s)	30.0	30.0		30.0	30.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.1	4.1		4.1	4.1	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	9.0	9.0		9.0	9.0		9.0	9.0		9.0	9.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	34.8	34.8		34.8	34.8		11.2	11.2			11.2	
Actuated g/C Ratio	0.63	0.63		0.63	0.63		0.20	0.20			0.20	
v/c Ratio	0.11	0.66		0.30	0.43		0.51	0.32			0.24	
Control Delay	8.0	13.7		11.8	9.4		26.6	8.8			12.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	8.0	13.7		11.8	9.4		26.6	8.8			12.1	
LOS	A	B		B	A		C	A			B	
Approach Delay		13.3			9.8			17.8			12.1	
Approach LOS		B			A			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 68			
Actuated Cycle Length: 55.4			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 12.7		Intersection LOS: B	
Intersection Capacity Utilization 75.9%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Dorchester Road & Mountain Road





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	60	746	96	503	136	132	84
v/c Ratio	0.11	0.66	0.30	0.43	0.51	0.32	0.24
Control Delay	8.0	13.7	11.8	9.4	26.6	8.8	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.0	13.7	11.8	9.4	26.6	8.8	12.1
Queue Length 50th (m)	2.6	46.5	4.7	27.0	12.2	2.3	3.3
Queue Length 95th (m)	6.7	#97.7	16.7	57.8	25.5	10.8	11.1
Internal Link Dist (m)		203.0		1009.3		316.9	475.3
Turn Bay Length (m)	35.0		45.0		20.0		
Base Capacity (vph)	542	1133	319	1176	572	768	697
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.66	0.30	0.43	0.24	0.17	0.12

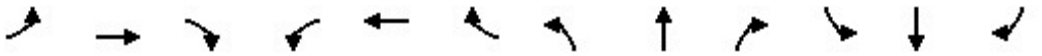
Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	407	230	90	450	15	124	23	84	8	17	31
Future Volume (vph)	43	407	230	90	450	15	124	23	84	8	17	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Lane Util. Factor	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	0.98			0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.95		1.00	0.99		1.00	0.88			0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1823	1772		1772	1870		1784	1634			1743	
Flt Permitted	0.45	1.00		0.27	1.00		0.70	1.00			0.88	
Satd. Flow (perm)	863	1772		509	1870		1319	1634			1549	
Peak-hour factor, PHF	0.72	0.85	0.86	0.94	0.94	0.63	0.91	0.82	0.81	0.40	0.85	0.70
Adj. Flow (vph)	60	479	267	96	479	24	136	28	104	20	20	44
RTOR Reduction (vph)	0	22	0	0	2	0	0	87	0	0	37	0
Lane Group Flow (vph)	60	724	0	96	501	0	136	45	0	0	47	0
Confl. Peds. (#/hr)	2					2	3		5			3
Heavy Vehicles (%)	0%	4%	0%	3%	2%	0%	2%	0%	2%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	33.3	33.3		33.3	33.3		9.5	9.5			9.5	
Effective Green, g (s)	33.3	33.3		33.3	33.3		9.5	9.5			9.5	
Actuated g/C Ratio	0.59	0.59		0.59	0.59		0.17	0.17			0.17	
Clearance Time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	505	1038		298	1096		220	273			259	
v/s Ratio Prot		c0.41			0.27			0.03				
v/s Ratio Perm	0.07			0.19			c0.10				0.03	
v/c Ratio	0.12	0.70		0.32	0.46		0.62	0.17			0.18	
Uniform Delay, d1	5.2	8.2		6.0	6.6		22.0	20.3			20.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.5	3.9		2.8	1.4		5.1	0.3			0.3	
Delay (s)	5.7	12.1		8.8	8.0		27.1	20.5			20.7	
Level of Service	A	B		A	A		C	C			C	
Approach Delay (s)		11.6			8.1			23.9			20.7	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	56.8	Sum of lost time (s)	14.0
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

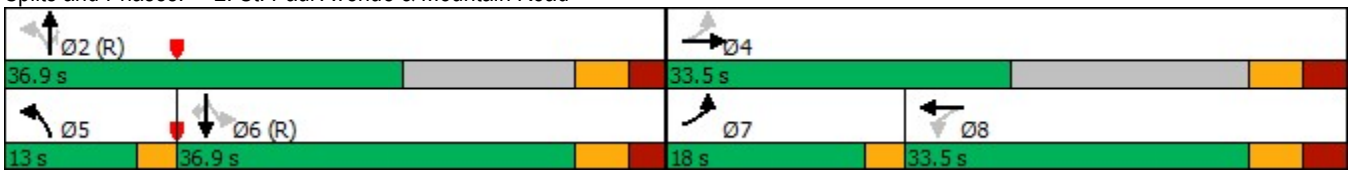


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	224	99	164	7	113	10	114	207	7	9	262	309
Future Volume (vph)	224	99	164	7	113	10	114	207	7	9	262	309
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	35.0		35.0	45.0		25.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					0.97
Frt		0.904			0.980				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	1622	0	1825	1794	0	1807	1921	1266	1825	1883	1570
Flt Permitted	0.525			0.555			0.455			0.618		
Satd. Flow (perm)	989	1622	0	1066	1794	0	862	1921	1266	1187	1883	1526
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		111			7				81			226
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1033.3			178.7			480.5			127.5	
Travel Time (s)		74.4			12.9			34.6			9.2	
Confl. Peds. (#/hr)							4					4
Peak Hour Factor	0.88	0.80	0.75	0.58	0.88	0.50	0.84	0.92	0.88	0.56	0.80	0.90
Heavy Vehicles (%)	2%	16%	2%	0%	1%	30%	1%	0%	29%	0%	2%	4%
Adj. Flow (vph)	255	124	219	12	128	20	136	225	8	16	328	343
Shared Lane Traffic (%)												
Lane Group Flow (vph)	255	343	0	12	148	0	136	225	8	16	328	343
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	7	4		8	8		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.0	33.5		33.5	33.5		11.0	30.9	30.9	30.9	30.9	30.9
Total Split (s)	18.0	33.5		33.5	33.5		13.0	36.9	36.9	36.9	36.9	36.9
Total Split (%)	17.8%	33.0%		33.0%	33.0%		12.8%	36.4%	36.4%	36.4%	36.4%	36.4%
Maximum Green (s)	15.0	26.0		26.0	26.0		10.0	30.0	30.0	30.0	30.0	30.0
Yellow Time (s)	3.0	4.1		4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	0.0	3.4		3.4	3.4		0.0	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)		10.0		10.0	10.0			9.0	9.0	9.0	9.0	9.0
Flash Dont Walk (s)		16.0		16.0	16.0			15.0	15.0	15.0	15.0	15.0
Pedestrian Calls (#/hr)		0		0	0			0	0	0	0	0
Act Effct Green (s)	35.3	30.8		13.3	13.3		60.1	56.2	56.2	43.8	43.8	43.8
Actuated g/C Ratio	0.35	0.30		0.13	0.13		0.59	0.55	0.55	0.43	0.43	0.43
v/c Ratio	0.56	0.60		0.09	0.61		0.23	0.21	0.01	0.03	0.40	0.44
Control Delay	29.3	23.9		37.6	50.0		11.1	13.0	0.0	20.1	23.3	9.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.3	23.9		37.6	50.0		11.1	13.0	0.0	20.1	23.3	9.7
LOS	C	C		D	D		B	B	A	C	C	A
Approach Delay		26.2			49.1			12.0			16.4	
Approach LOS		C			D			B			B	

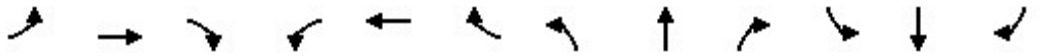
Intersection Summary			
Area Type:	Other		
Cycle Length: 101.4			
Actuated Cycle Length: 101.4			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 21.6		Intersection LOS: C	
Intersection Capacity Utilization 70.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: St. Paul Avenue & Mountain Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	255	343	12	148	136	225	8	16	328	343
v/c Ratio	0.56	0.60	0.09	0.61	0.23	0.21	0.01	0.03	0.40	0.44
Control Delay	29.3	23.9	37.6	50.0	11.1	13.0	0.0	20.1	23.3	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.3	23.9	37.6	50.0	11.1	13.0	0.0	20.1	23.3	9.7
Queue Length 50th (m)	37.4	38.1	2.1	26.6	11.1	21.4	0.0	1.8	43.3	13.8
Queue Length 95th (m)	52.4	49.9	4.5	42.5	20.6	38.5	0.0	4.0	65.4	41.3
Internal Link Dist (m)		1009.3		154.7		456.5			103.5	
Turn Bay Length (m)	50.0		40.0		35.0		35.0	45.0		25.0
Base Capacity (vph)	462	766	273	465	608	1065	738	512	813	787
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.45	0.04	0.32	0.22	0.21	0.01	0.03	0.40	0.44

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	224	99	164	7	113	10	114	207	7	9	262	309
Future Volume (vph)	224	99	164	7	113	10	114	207	7	9	262	309
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Lane Util. Factor	1.00	1.00		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	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.90		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	1623		1825	1794		1804	1921	1266	1825	1883	1526
Flt Permitted	0.52	1.00		0.55	1.00		0.46	1.00	1.00	0.62	1.00	1.00
Satd. Flow (perm)	989	1623		1066	1794		864	1921	1266	1187	1883	1526
Peak-hour factor, PHF	0.88	0.80	0.75	0.58	0.88	0.50	0.84	0.92	0.88	0.56	0.80	0.90
Adj. Flow (vph)	255	124	219	12	128	20	136	225	8	16	328	343
RTOR Reduction (vph)	0	77	0	0	6	0	0	0	4	0	0	128
Lane Group Flow (vph)	255	266	0	12	142	0	136	225	4	16	328	215
Confl. Peds. (#/hr)							4					4
Heavy Vehicles (%)	2%	16%	2%	0%	1%	30%	1%	0%	29%	0%	2%	4%
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	30.8	30.8		13.3	13.3		56.2	56.2	56.2	43.8	43.8	43.8
Effective Green, g (s)	30.8	30.8		13.3	13.3		56.2	56.2	56.2	43.8	43.8	43.8
Actuated g/C Ratio	0.30	0.30		0.13	0.13		0.55	0.55	0.55	0.43	0.43	0.43
Clearance Time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	414	492		139	235		566	1064	701	512	813	659
v/s Ratio Prot	c0.09	0.16			0.08		c0.02	0.12			c0.17	
v/s Ratio Perm	c0.10			0.01			0.11		0.00	0.01		0.14
v/c Ratio	0.62	0.54		0.09	0.60		0.24	0.21	0.01	0.03	0.40	0.33
Uniform Delay, d1	28.7	29.4		38.7	41.6		11.3	11.4	10.1	16.6	19.8	19.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.7	1.2		0.3	4.3		0.2	0.5	0.0	0.1	1.5	1.3
Delay (s)	31.5	30.6		39.0	45.9		11.6	11.9	10.1	16.7	21.3	20.4
Level of Service	C	C		D	D		B	B	B	B	C	C
Approach Delay (s)		31.0			45.4			11.7			20.7	
Approach LOS		C			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	24.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	101.4	Sum of lost time (s)	20.4
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		

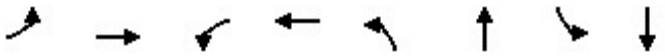
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	18	36	10	15	8	66	280	9	18	294	100
Future Volume (vph)	44	18	36	10	15	8	66	280	9	18	294	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	15.0		0.0	30.0		0.0	25.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00	0.99		1.00	1.00		1.00	0.99	
Frt		0.910			0.950			0.992			0.963	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1276	1723	0	1825	1812	0	1755	1834	0	1825	1804	0
Flt Permitted	0.734			0.705			0.461			0.568		
Satd. Flow (perm)	984	1723	0	1350	1812	0	851	1834	0	1090	1804	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		48			12			5			31	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		526.2			356.5			632.8			505.7	
Travel Time (s)		37.9			25.7			45.6			36.4	
Confl. Peds. (#/hr)	1		2	2		1	1		1	1		1
Peak Hour Factor	0.65	0.56	0.75	0.63	0.63	0.67	0.92	0.93	0.56	0.64	0.79	0.81
Heavy Vehicles (%)	43%	0%	0%	0%	0%	0%	4%	4%	0%	0%	2%	2%
Adj. Flow (vph)	68	32	48	16	24	12	72	301	16	28	372	123
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	80	0	16	36	0	72	317	0	28	495	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	26.7	26.7		26.7	26.7		27.3	27.3		27.3	27.3	
Total Split (s)	31.7	31.7		31.7	31.7		41.3	41.3		41.3	41.3	
Total Split (%)	43.4%	43.4%		43.4%	43.4%		56.6%	56.6%		56.6%	56.6%	
Maximum Green (s)	25.0	25.0		25.0	25.0		35.0	35.0		35.0	35.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.1	4.1		4.1	4.1	
All-Red Time (s)	2.6	2.6		2.6	2.6		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)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	8.0	8.0		8.0	8.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	11.0	11.0		11.0	11.0		53.2	53.2		53.2	53.2	
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.73	0.73		0.73	0.73	
v/c Ratio	0.46	0.27		0.08	0.13		0.12	0.24		0.04	0.37	
Control Delay	37.5	15.3		25.4	19.7		5.8	5.5		5.2	6.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	37.5	15.3		25.4	19.7		5.8	5.5		5.2	6.2	
LOS	D	B		C	B		A	A		A	A	
Approach Delay		25.5			21.4			5.5			6.2	
Approach LOS		C			C			A			A	

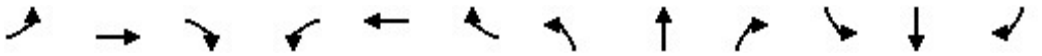
Intersection Summary			
Area Type:	Other		
Cycle Length: 73			
Actuated Cycle Length: 73			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.46			
Intersection Signal Delay: 9.2		Intersection LOS: A	
Intersection Capacity Utilization 55.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: Stanley Avenue & Portage Rd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	68	80	16	36	72	317	28	495
v/c Ratio	0.46	0.27	0.08	0.13	0.12	0.24	0.04	0.37
Control Delay	37.5	15.3	25.4	19.7	5.8	5.5	5.2	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.5	15.3	25.4	19.7	5.8	5.5	5.2	6.2
Queue Length 50th (m)	8.7	3.9	1.9	2.9	2.9	13.9	1.1	23.0
Queue Length 95th (m)	12.9	6.0	4.4	6.0	9.0	30.2	2.9	39.9
Internal Link Dist (m)		502.2		332.5		608.8		481.7
Turn Bay Length (m)	60.0		15.0		30.0		25.0	
Base Capacity (vph)	336	621	462	628	620	1337	794	1323
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	0.13	0.03	0.06	0.12	0.24	0.04	0.37

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	18	36	10	15	8	66	280	9	18	294	100
Future Volume (vph)	44	18	36	10	15	8	66	280	9	18	294	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.91		1.00	0.95		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1274	1723		1819	1812		1753	1835		1823	1803	
Flt Permitted	0.73	1.00		0.70	1.00		0.46	1.00		0.57	1.00	
Satd. Flow (perm)	984	1723		1350	1812		852	1835		1090	1803	
Peak-hour factor, PHF	0.65	0.56	0.75	0.63	0.63	0.67	0.92	0.93	0.56	0.64	0.79	0.81
Adj. Flow (vph)	68	32	48	16	24	12	72	301	16	28	372	123
RTOR Reduction (vph)	0	42	0	0	10	0	0	2	0	0	10	0
Lane Group Flow (vph)	68	38	0	16	26	0	72	315	0	28	485	0
Confl. Peds. (#/hr)	1		2	2		1	1		1	1		1
Heavy Vehicles (%)	43%	0%	0%	0%	0%	0%	4%	4%	0%	0%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	9.4	9.4		9.4	9.4		50.6	50.6		50.6	50.6	
Effective Green, g (s)	9.4	9.4		9.4	9.4		50.6	50.6		50.6	50.6	
Actuated g/C Ratio	0.13	0.13		0.13	0.13		0.69	0.69		0.69	0.69	
Clearance Time (s)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	126	221		173	233		590	1271		755	1249	
v/s Ratio Prot		0.02			0.01			0.17			c0.27	
v/s Ratio Perm	c0.07			0.01			0.08			0.03		
v/c Ratio	0.54	0.17		0.09	0.11		0.12	0.25		0.04	0.39	
Uniform Delay, d1	29.8	28.3		28.0	28.1		3.8	4.2		3.5	4.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.4	0.4		0.2	0.2		0.4	0.5		0.1	0.9	
Delay (s)	34.2	28.7		28.3	28.3		4.2	4.6		3.6	5.6	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		31.2			28.3			4.5			5.5	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	73.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

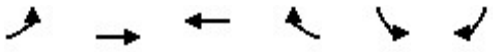
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	441	0	0	580
Future Volume (vph)	0	0	441	0	0	580
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1883	0	1883	0	0	1883
Flt Permitted						
Satd. Flow (perm)	1883	0	1883	0	0	1883
Link Speed (k/h)	48		50			50
Link Distance (m)	85.3		127.5			527.2
Travel Time (s)	6.4		9.2			38.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	479	0	0	630
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	479	0	0	630
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.9%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	441	0	0	580
Future Volume (Veh/h)	0	0	441	0	0	580
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	479	0	0	630
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			127			
pX, platoon unblocked	0.84	0.84			0.84	
vC, conflicting volume	1109	479			479	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1034	284			284	
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)	216	634			1073	

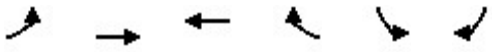
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	479	630
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1073
Volume to Capacity	0.00	0.28	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	33.9%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	130	115	0	0	0
Future Volume (vph)	0	130	115	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	1883	1883	0	1883	0
Flt Permitted						
Satd. Flow (perm)	0	1883	1883	0	1883	0
Link Speed (k/h)		50	50		48	
Link Distance (m)		178.7	488.3		63.0	
Travel Time (s)		12.9	35.2		4.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	141	125	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	141	125	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

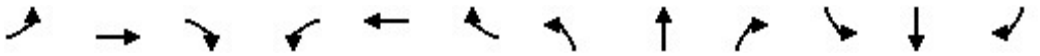
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 10.2%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	130	115	0	0	0
Future Volume (Veh/h)	0	130	115	0	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)	0	141	125	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)		179				
pX, platoon unblocked						
vC, conflicting volume	125				266	125
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	125				266	125
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)	1462				723	926

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	141	125	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1462	1700	1700
Volume to Capacity	0.00	0.07	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	

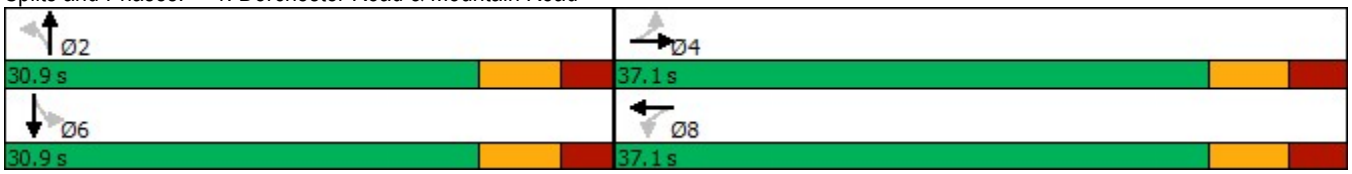


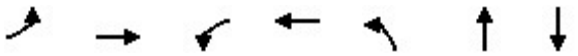
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	345	134	66	337	5	209	14	51	7	11	33
Future Volume (vph)	23	345	134	66	337	5	209	14	51	7	11	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	35.0		0.0	45.0		0.0	20.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		1.00			1.00				0.99	
Frt		0.955			0.997			0.889			0.920	
Flt Protected	0.950			0.950			0.950				0.991	
Satd. Flow (prot)	1825	1739	0	1772	1819	0	1789	1683	0	0	1583	0
Flt Permitted	0.510			0.341			0.712				0.940	
Satd. Flow (perm)	980	1739	0	636	1819	0	1339	1683	0	0	1502	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			2			75			41	
Link Speed (k/h)		50			60			60			50	
Link Distance (m)		227.0			1033.3			340.9			499.3	
Travel Time (s)		16.3			62.0			20.5			35.9	
Confl. Peds. (#/hr)			1	1			1					1
Peak Hour Factor	0.61	0.84	0.77	0.79	0.88	0.63	0.87	0.54	0.68	0.58	0.69	0.80
Heavy Vehicles (%)	0%	6%	2%	3%	5%	20%	2%	0%	2%	29%	18%	0%
Adj. Flow (vph)	38	411	174	84	383	8	240	26	75	12	16	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	585	0	84	391	0	240	101	0	0	69	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	31.1	31.1		31.1	31.1		30.9	30.9		30.9	30.9	
Total Split (s)	37.1	37.1		37.1	37.1		30.9	30.9		30.9	30.9	
Total Split (%)	54.6%	54.6%		54.6%	54.6%		45.4%	45.4%		45.4%	45.4%	
Maximum Green (s)	30.0	30.0		30.0	30.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.1	4.1		4.1	4.1	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	9.0	9.0		9.0	9.0		9.0	9.0		9.0	9.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	31.7	31.7		31.7	31.7		16.0	16.0			16.0	
Actuated g/C Ratio	0.51	0.51		0.51	0.51		0.26	0.26			0.26	
v/c Ratio	0.08	0.64		0.26	0.42		0.69	0.21			0.16	
Control Delay	10.2	15.7		13.2	12.3		31.0	7.6			9.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	10.2	15.7		13.2	12.3		31.0	7.6			9.5	
LOS	B	B		B	B		C	A			A	
Approach Delay		15.4			12.5			24.1			9.5	
Approach LOS		B			B			C			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 68			
Actuated Cycle Length: 61.7			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 16.2		Intersection LOS: B	
Intersection Capacity Utilization 70.5%		ICU Level of Service C	
Analysis Period (min) 15			

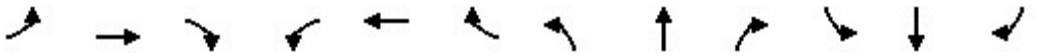
Splits and Phases: 1: Dorchester Road & Mountain Road





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	38	585	84	391	240	101	69
v/c Ratio	0.08	0.64	0.26	0.42	0.69	0.21	0.16
Control Delay	10.2	15.7	13.2	12.3	31.0	7.6	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.2	15.7	13.2	12.3	31.0	7.6	9.5
Queue Length 50th (m)	2.0	40.2	4.8	24.7	23.5	2.1	2.3
Queue Length 95th (m)	4.9	80.4	13.6	53.5	41.1	3.6	6.3
Internal Link Dist (m)		203.0		1009.3		316.9	475.3
Turn Bay Length (m)	35.0		45.0		20.0		
Base Capacity (vph)	503	912	326	934	522	702	611
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	0.08	0.64	0.26	0.42	0.46	0.14	0.11

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	345	134	66	337	5	209	14	51	7	11	33
Future Volume (vph)	23	345	134	66	337	5	209	14	51	7	11	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00			0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.96		1.00	1.00		1.00	0.89			0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1825	1740		1771	1819		1787	1682			1584	
Flt Permitted	0.51	1.00		0.34	1.00		0.71	1.00			0.94	
Satd. Flow (perm)	980	1740		636	1819		1340	1682			1502	
Peak-hour factor, PHF	0.61	0.84	0.77	0.79	0.88	0.63	0.87	0.54	0.68	0.58	0.69	0.80
Adj. Flow (vph)	38	411	174	84	383	8	240	26	75	12	16	41
RTOR Reduction (vph)	0	19	0	0	1	0	0	56	0	0	30	0
Lane Group Flow (vph)	38	566	0	84	390	0	240	45	0	0	39	0
Confl. Peds. (#/hr)			1	1			1					1
Heavy Vehicles (%)	0%	6%	2%	3%	5%	20%	2%	0%	2%	29%	18%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	31.7	31.7		31.7	31.7		16.0	16.0			16.0	
Effective Green, g (s)	31.7	31.7		31.7	31.7		16.0	16.0			16.0	
Actuated g/C Ratio	0.51	0.51		0.51	0.51		0.26	0.26			0.26	
Clearance Time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	503	893		326	934		347	436			389	
v/s Ratio Prot		c0.33			0.21			0.03				
v/s Ratio Perm	0.04			0.13			c0.18				0.03	
v/c Ratio	0.08	0.63		0.26	0.42		0.69	0.10			0.10	
Uniform Delay, d1	7.6	10.8		8.4	9.3		20.6	17.4			17.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.3	3.4		1.9	1.4		5.9	0.1			0.1	
Delay (s)	7.9	14.2		10.3	10.7		26.5	17.5			17.5	
Level of Service	A	B		B	B		C	B			B	
Approach Delay (s)		13.8			10.6			23.8			17.5	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	61.7	Sum of lost time (s)	14.0
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		

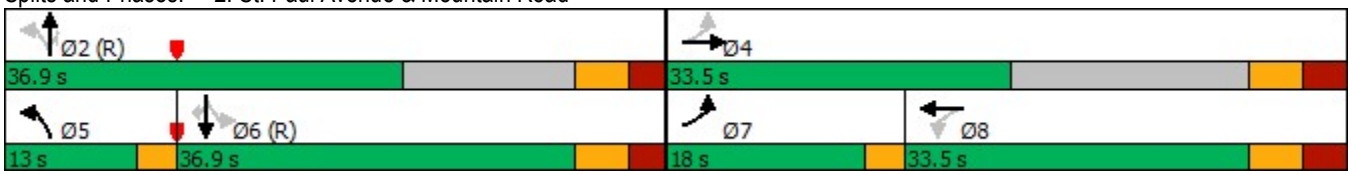
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	227	77	117	5	82	11	112	163	11	11	191	204
Future Volume (vph)	227	77	117	5	82	11	112	163	11	11	191	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	35.0		35.0	45.0		25.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.911			0.983				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1738	1675	0	1825	1650	0	1807	1883	1585	1437	1830	1585
Flt Permitted	0.531			0.618			0.575			0.621		
Satd. Flow (perm)	972	1675	0	1187	1650	0	1094	1883	1585	939	1830	1585
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		91			6				81			233
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1033.3			178.7			480.5			127.5	
Travel Time (s)		74.4			12.9			34.6			9.2	
Peak Hour Factor	0.81	0.84	0.88	0.63	0.90	0.92	0.82	0.74	0.69	0.69	0.87	0.86
Heavy Vehicles (%)	5%	11%	0%	0%	14%	18%	1%	2%	3%	27%	5%	3%
Adj. Flow (vph)	280	92	133	8	91	12	137	220	16	16	220	237
Shared Lane Traffic (%)												
Lane Group Flow (vph)	280	225	0	8	103	0	137	220	16	16	220	237
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	7	4		8	8		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.0	33.5		33.5	33.5		11.0	30.9	30.9	30.9	30.9	30.9
Total Split (s)	18.0	33.5		33.5	33.5		13.0	36.9	36.9	36.9	36.9	36.9
Total Split (%)	17.8%	33.0%		33.0%	33.0%		12.8%	36.4%	36.4%	36.4%	36.4%	36.4%
Maximum Green (s)	15.0	26.0		26.0	26.0		10.0	30.0	30.0	30.0	30.0	30.0
Yellow Time (s)	3.0	4.1		4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	0.0	3.4		3.4	3.4		0.0	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)		10.0		10.0	10.0			9.0	9.0	9.0	9.0	9.0
Flash Dont Walk (s)		16.0		16.0	16.0			15.0	15.0	15.0	15.0	15.0
Pedestrian Calls (#/hr)		0		0	0			0	0	0	0	0
Act Effct Green (s)	30.8	26.3		11.6	11.6		64.6	60.7	60.7	48.4	48.4	48.4
Actuated g/C Ratio	0.30	0.26		0.11	0.11		0.64	0.60	0.60	0.48	0.48	0.48
v/c Ratio	0.69	0.45		0.06	0.53		0.18	0.20	0.02	0.04	0.25	0.27
Control Delay	37.2	19.4		38.8	49.2		9.6	11.5	0.0	18.8	19.2	3.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.2	19.4		38.8	49.2		9.6	11.5	0.0	18.8	19.2	3.8
LOS	D	B		D	D		A	B	A	B	B	A
Approach Delay		29.3			48.4			10.3			11.5	
Approach LOS		C			D			B			B	

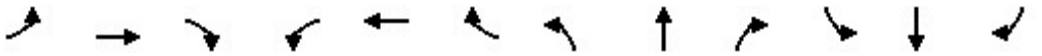
Intersection Summary			
Area Type:	Other		
Cycle Length: 101.4			
Actuated Cycle Length: 101.4			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 20.1		Intersection LOS: C	
Intersection Capacity Utilization 53.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: St. Paul Avenue & Mountain Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	280	225	8	103	137	220	16	16	220	237
v/c Ratio	0.69	0.45	0.06	0.53	0.18	0.20	0.02	0.04	0.25	0.27
Control Delay	37.2	19.4	38.8	49.2	9.6	11.5	0.0	18.8	19.2	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.2	19.4	38.8	49.2	9.6	11.5	0.0	18.8	19.2	3.8
Queue Length 50th (m)	43.4	20.3	1.4	18.3	10.6	19.8	0.0	1.7	26.1	0.4
Queue Length 95th (m)	54.5	33.7	3.9	33.1	19.0	28.3	0.0	4.8	46.6	13.1
Internal Link Dist (m)		1009.3		154.7		456.5			103.5	
Turn Bay Length (m)	50.0		40.0		35.0		35.0	45.0		25.0
Base Capacity (vph)	410	778	304	427	769	1126	981	448	873	878
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.29	0.03	0.24	0.18	0.20	0.02	0.04	0.25	0.27

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	227	77	117	5	82	11	112	163	11	11	191	204
Future Volume (vph)	227	77	117	5	82	11	112	163	11	11	191	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.91		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1738	1675		1825	1649		1807	1883	1585	1437	1830	1585
Flt Permitted	0.53	1.00		0.62	1.00		0.57	1.00	1.00	0.62	1.00	1.00
Satd. Flow (perm)	972	1675		1187	1649		1093	1883	1585	939	1830	1585
Peak-hour factor, PHF	0.81	0.84	0.88	0.63	0.90	0.92	0.82	0.74	0.69	0.69	0.87	0.86
Adj. Flow (vph)	280	92	133	8	91	12	137	220	16	16	220	237
RTOR Reduction (vph)	0	66	0	0	5	0	0	0	7	0	0	125
Lane Group Flow (vph)	280	159	0	8	98	0	137	220	9	16	220	112
Heavy Vehicles (%)	5%	11%	0%	0%	14%	18%	1%	2%	3%	27%	5%	3%
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	27.8	27.8		10.0	10.0		59.2	59.2	59.2	46.9	46.9	46.9
Effective Green, g (s)	27.8	27.8		10.0	10.0		59.2	59.2	59.2	46.9	46.9	46.9
Actuated g/C Ratio	0.27	0.27		0.10	0.10		0.58	0.58	0.58	0.46	0.46	0.46
Clearance Time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	378	459		117	162		703	1099	925	434	846	733
v/s Ratio Prot	c0.11	0.09			0.06		0.02	c0.12			c0.12	
v/s Ratio Perm	c0.09			0.01			0.10		0.01	0.02		0.07
v/c Ratio	0.74	0.35		0.07	0.60		0.19	0.20	0.01	0.04	0.26	0.15
Uniform Delay, d1	31.9	29.5		41.5	43.8		9.6	9.9	8.8	14.9	16.6	15.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.6	0.5		0.2	6.2		0.1	0.4	0.0	0.2	0.7	0.4
Delay (s)	39.5	30.0		41.7	50.0		9.7	10.4	8.9	15.1	17.4	16.2
Level of Service	D	C		D	D		A	B	A	B	B	B
Approach Delay (s)		35.3			49.4			10.1			16.7	
Approach LOS		D			D			B			B	

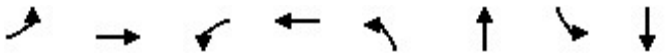
Intersection Summary			
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	101.4	Sum of lost time (s)	20.4
Intersection Capacity Utilization	53.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	12	62	12	21	14	26	153	3	4	302	42
Future Volume (vph)	68	12	62	12	21	14	26	153	3	4	302	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	15.0		0.0	30.0		0.0	25.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98		0.99			1.00				1.00	
Frt		0.876			0.930			0.994			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1690	1467	0	1560	1679	0	1573	1722	0	1217	1751	0
Flt Permitted	0.720			0.698			0.535			0.630		
Satd. Flow (perm)	1281	1467	0	1139	1679	0	885	1722	0	807	1751	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		75			26			4			15	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		526.2			356.5			632.8			505.7	
Travel Time (s)		37.9			25.7			45.6			36.4	
Confl. Peds. (#/hr)			4	4			1					1
Peak Hour Factor	0.71	0.75	0.83	0.50	0.71	0.54	0.69	0.78	0.38	0.50	0.91	0.83
Heavy Vehicles (%)	8%	8%	13%	17%	5%	8%	16%	10%	33%	50%	4%	28%
Adj. Flow (vph)	96	16	75	24	30	26	38	196	8	8	332	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	96	91	0	24	56	0	38	204	0	8	383	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	26.7	26.7		26.7	26.7		27.3	27.3		27.3	27.3	
Total Split (s)	31.7	31.7		31.7	31.7		41.3	41.3		41.3	41.3	
Total Split (%)	43.4%	43.4%		43.4%	43.4%		56.6%	56.6%		56.6%	56.6%	
Maximum Green (s)	25.0	25.0		25.0	25.0		35.0	35.0		35.0	35.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.1	4.1		4.1	4.1	
All-Red Time (s)	2.6	2.6		2.6	2.6		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)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	8.0	8.0		8.0	8.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	11.2	11.2		11.2	11.2		53.0	53.0		53.0	53.0	
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.73	0.73		0.73	0.73	
v/c Ratio	0.49	0.31		0.14	0.20		0.06	0.16		0.01	0.30	
Control Delay	35.9	12.1		26.8	17.6		5.5	5.2		5.2	5.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	35.9	12.1		26.8	17.6		5.5	5.2		5.2	5.9	
LOS	D	B		C	B		A	A		A	A	
Approach Delay		24.3			20.4			5.3			5.9	
Approach LOS		C			C			A			A	

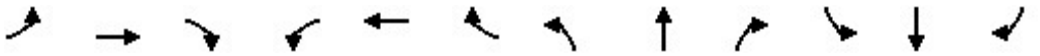
Intersection Summary			
Area Type:	Other		
Cycle Length: 73			
Actuated Cycle Length: 73			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.49			
Intersection Signal Delay: 10.8		Intersection LOS: B	
Intersection Capacity Utilization 43.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Stanley Avenue & Portage Rd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	96	91	24	56	38	204	8	383
v/c Ratio	0.49	0.31	0.14	0.20	0.06	0.16	0.01	0.30
Control Delay	35.9	12.1	26.8	17.6	5.5	5.2	5.2	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.9	12.1	26.8	17.6	5.5	5.2	5.2	5.9
Queue Length 50th (m)	12.3	1.9	2.9	3.6	1.5	8.5	0.3	17.5
Queue Length 95th (m)	18.1	8.7	4.6	8.5	4.0	16.4	1.1	37.1
Internal Link Dist (m)		502.2		332.5		608.8		481.7
Turn Bay Length (m)	60.0		15.0		30.0		25.0	
Base Capacity (vph)	438	551	390	592	642	1250	585	1274
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.17	0.06	0.09	0.06	0.16	0.01	0.30

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	12	62	12	21	14	26	153	3	4	302	42
Future Volume (vph)	68	12	62	12	21	14	26	153	3	4	302	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, 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	0.88		1.00	0.93		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1690	1468		1550	1680		1572	1722		1217	1751	
Flt Permitted	0.72	1.00		0.70	1.00		0.53	1.00		0.63	1.00	
Satd. Flow (perm)	1282	1468		1139	1680		885	1722		807	1751	
Peak-hour factor, PHF	0.71	0.75	0.83	0.50	0.71	0.54	0.69	0.78	0.38	0.50	0.91	0.83
Adj. Flow (vph)	96	16	75	24	30	26	38	196	8	8	332	51
RTOR Reduction (vph)	0	65	0	0	23	0	0	1	0	0	5	0
Lane Group Flow (vph)	96	26	0	24	33	0	38	203	0	8	378	0
Confl. Peds. (#/hr)			4	4			1					1
Heavy Vehicles (%)	8%	8%	13%	17%	5%	8%	16%	10%	33%	50%	4%	28%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	9.6	9.6		9.6	9.6		50.4	50.4		50.4	50.4	
Effective Green, g (s)	9.6	9.6		9.6	9.6		50.4	50.4		50.4	50.4	
Actuated g/C Ratio	0.13	0.13		0.13	0.13		0.69	0.69		0.69	0.69	
Clearance Time (s)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	168	193		149	220		611	1188		557	1208	
v/s Ratio Prot		0.02			0.02			0.12			c0.22	
v/s Ratio Perm	c0.07			0.02			0.04			0.01		
v/c Ratio	0.57	0.13		0.16	0.15		0.06	0.17		0.01	0.31	
Uniform Delay, d1	29.8	28.0		28.1	28.1		3.7	4.0		3.5	4.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.6	0.3		0.5	0.3		0.2	0.3		0.0	0.7	
Delay (s)	34.4	28.3		28.6	28.4		3.9	4.3		3.6	5.1	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		31.5			28.5			4.2			5.1	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	73.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

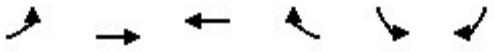
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	402	0	0	407
Future Volume (vph)	0	0	402	0	0	407
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1883	0	1883	0	0	1883
Flt Permitted						
Satd. Flow (perm)	1883	0	1883	0	0	1883
Link Speed (k/h)	48		50			50
Link Distance (m)	85.3		127.5			527.2
Travel Time (s)	6.4		9.2			38.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	437	0	0	442
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	437	0	0	442
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	402	0	0	407
Future Volume (Veh/h)	0	0	402	0	0	407
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	437	0	0	442
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			127			
pX, platoon unblocked	0.84	0.84			0.84	
vC, conflicting volume	879	437			437	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	764	241			241	
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)	314	674			1119	

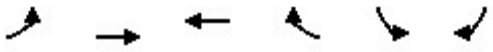
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	437	442
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1119
Volume to Capacity	0.00	0.26	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	24.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	99	100	0	0	0
Future Volume (vph)	0	99	100	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	1883	1883	0	1883	0
Flt Permitted						
Satd. Flow (perm)	0	1883	1883	0	1883	0
Link Speed (k/h)		50	50		48	
Link Distance (m)		178.7	488.3		63.0	
Travel Time (s)		12.9	35.2		4.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	108	109	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	108	109	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

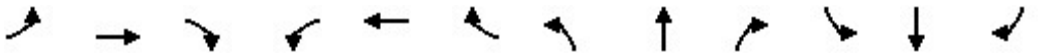
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 8.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	99	100	0	0	0
Future Volume (Veh/h)	0	99	100	0	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)	0	108	109	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)		179				
pX, platoon unblocked						
vC, conflicting volume	109				217	109
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	109				217	109
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)	1481				771	945

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	108	109	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1481	1700	1700
Volume to Capacity	0.00	0.06	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	8.6%	ICU Level of Service	A
Analysis Period (min)	15		

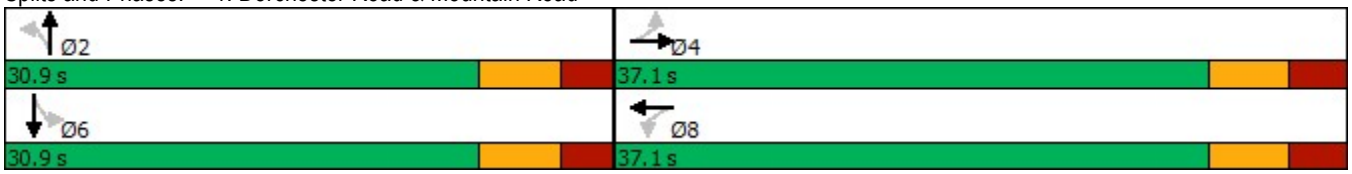


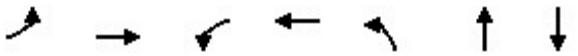
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	423	239	94	468	16	129	24	87	8	18	32
Future Volume (vph)	45	423	239	94	468	16	129	24	87	8	18	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	35.0		0.0	45.0		0.0	20.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00		1.00	0.98			0.99	
Frt		0.946			0.993			0.882			0.929	
Flt Protected	0.950			0.950			0.950				0.989	
Satd. Flow (prot)	1825	1772	0	1772	1870	0	1789	1633	0	0	1743	0
Flt Permitted	0.421			0.231			0.701				0.888	
Satd. Flow (perm)	808	1772	0	431	1870	0	1315	1633	0	0	1565	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		53			5			107			46	
Link Speed (k/h)		50			60			60			50	
Link Distance (m)		227.0			1033.3			340.9			499.3	
Travel Time (s)		16.3			62.0			20.5			35.9	
Confl. Peds. (#/hr)	2					2	3		5			3
Peak Hour Factor	0.72	0.85	0.86	0.94	0.94	0.63	0.91	0.82	0.81	0.40	0.85	0.70
Heavy Vehicles (%)	0%	4%	0%	3%	2%	0%	2%	0%	2%	0%	0%	0%
Adj. Flow (vph)	63	498	278	100	498	25	142	29	107	20	21	46
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	776	0	100	523	0	142	136	0	0	87	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	31.1	31.1		31.1	31.1		30.9	30.9		30.9	30.9	
Total Split (s)	37.1	37.1		37.1	37.1		30.9	30.9		30.9	30.9	
Total Split (%)	54.6%	54.6%		54.6%	54.6%		45.4%	45.4%		45.4%	45.4%	
Maximum Green (s)	30.0	30.0		30.0	30.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.1	4.1		4.1	4.1	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	9.0	9.0		9.0	9.0		9.0	9.0		9.0	9.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	32.8	32.8		32.8	32.8		11.7	11.7			11.7	
Actuated g/C Ratio	0.56	0.56		0.56	0.56		0.20	0.20			0.20	
v/c Ratio	0.14	0.76		0.41	0.50		0.54	0.33			0.25	
Control Delay	8.4	17.4		15.7	10.7		28.0	8.7			12.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	8.4	17.4		15.7	10.7		28.0	8.7			12.0	
LOS	A	B		B	B		C	A			B	
Approach Delay		16.7			11.5			18.5			12.0	
Approach LOS		B			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 68			
Actuated Cycle Length: 58.6			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 15.0		Intersection LOS: B	
Intersection Capacity Utilization 77.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Dorchester Road & Mountain Road

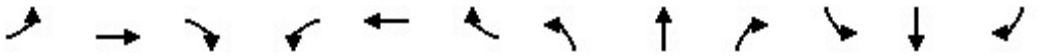




Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	63	776	100	523	142	136	87
v/c Ratio	0.14	0.76	0.41	0.50	0.54	0.33	0.25
Control Delay	8.4	17.4	15.7	10.7	28.0	8.7	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.4	17.4	15.7	10.7	28.0	8.7	12.0
Queue Length 50th (m)	2.8	50.9	5.3	28.9	12.8	2.4	3.4
Queue Length 95th (m)	7.2	#118.2	20.1	61.7	26.5	11.0	11.2
Internal Link Dist (m)		203.0		1009.3		316.9	475.3
Turn Bay Length (m)	35.0		45.0		20.0		
Base Capacity (vph)	452	1016	241	1049	542	736	672
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	0.14	0.76	0.41	0.50	0.26	0.18	0.13

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	423	239	94	468	16	129	24	87	8	18	32
Future Volume (vph)	45	423	239	94	468	16	129	24	87	8	18	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Lane Util. Factor	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	0.98			0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.95		1.00	0.99		1.00	0.88			0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1823	1772		1772	1870		1783	1634			1742	
Flt Permitted	0.42	1.00		0.23	1.00		0.70	1.00			0.89	
Satd. Flow (perm)	808	1772		432	1870		1315	1634			1565	
Peak-hour factor, PHF	0.72	0.85	0.86	0.94	0.94	0.63	0.91	0.82	0.81	0.40	0.85	0.70
Adj. Flow (vph)	62	498	278	100	498	25	142	29	107	20	21	46
RTOR Reduction (vph)	0	23	0	0	2	0	0	86	0	0	37	0
Lane Group Flow (vph)	63	753	0	100	521	0	142	50	0	0	50	0
Confl. Peds. (#/hr)	2					2	3		5			3
Heavy Vehicles (%)	0%	4%	0%	3%	2%	0%	2%	0%	2%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	32.8	32.8		32.8	32.8		11.7	11.7			11.7	
Effective Green, g (s)	32.8	32.8		32.8	32.8		11.7	11.7			11.7	
Actuated g/C Ratio	0.56	0.56		0.56	0.56		0.20	0.20			0.20	
Clearance Time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	453	993		242	1048		263	326			313	
v/s Ratio Prot		c0.42			0.28			0.03				
v/s Ratio Perm	0.08			0.23			c0.11				0.03	
v/c Ratio	0.14	0.76		0.41	0.50		0.54	0.15			0.16	
Uniform Delay, d1	6.1	9.8		7.3	7.8		21.0	19.3			19.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.6	5.4		5.1	1.7		2.1	0.2			0.2	
Delay (s)	6.8	15.2		12.5	9.5		23.1	19.5			19.6	
Level of Service	A	B		B	A		C	B			B	
Approach Delay (s)		14.6			10.0			21.4			19.6	
Approach LOS		B			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	58.5	Sum of lost time (s)	14.0
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		

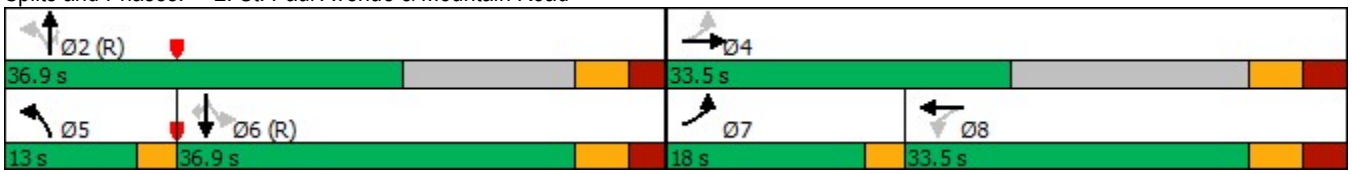
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	233	103	171	7	118	10	119	215	7	9	273	321
Future Volume (vph)	233	103	171	7	118	10	119	215	7	9	273	321
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	35.0		35.0	45.0		25.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					0.97
Frt		0.904			0.981				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	1622	0	1825	1799	0	1807	1921	1266	1825	1883	1570
Flt Permitted	0.512			0.548			0.439			0.613		
Satd. Flow (perm)	964	1622	0	1053	1799	0	832	1921	1266	1178	1883	1526
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		111			7				81			226
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1033.3			178.7			480.5			127.5	
Travel Time (s)		74.4			12.9			34.6			9.2	
Confl. Peds. (#/hr)							4					4
Peak Hour Factor	0.88	0.80	0.75	0.58	0.88	0.50	0.84	0.92	0.88	0.56	0.80	0.90
Heavy Vehicles (%)	2%	16%	2%	0%	1%	30%	1%	0%	29%	0%	2%	4%
Adj. Flow (vph)	265	129	228	12	134	20	142	234	8	16	341	357
Shared Lane Traffic (%)												
Lane Group Flow (vph)	265	357	0	12	154	0	142	234	8	16	341	357
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	7	4		8	8		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.0	33.5		33.5	33.5		11.0	30.9	30.9	30.9	30.9	30.9
Total Split (s)	18.0	33.5		33.5	33.5		13.0	36.9	36.9	36.9	36.9	36.9
Total Split (%)	17.8%	33.0%		33.0%	33.0%		12.8%	36.4%	36.4%	36.4%	36.4%	36.4%
Maximum Green (s)	15.0	26.0		26.0	26.0		10.0	30.0	30.0	30.0	30.0	30.0
Yellow Time (s)	3.0	4.1		4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	0.0	3.4		3.4	3.4		0.0	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)		10.0		10.0	10.0			9.0	9.0	9.0	9.0	9.0
Flash Dont Walk (s)		16.0		16.0	16.0			15.0	15.0	15.0	15.0	15.0
Pedestrian Calls (#/hr)		0		0	0			0	0	0	0	0
Act Effct Green (s)	35.7	31.2		13.6	13.6		59.7	55.8	55.8	43.3	43.3	43.3
Actuated g/C Ratio	0.35	0.31		0.13	0.13		0.59	0.55	0.55	0.43	0.43	0.43
v/c Ratio	0.58	0.62		0.09	0.62		0.24	0.22	0.01	0.03	0.42	0.46
Control Delay	29.7	24.7		37.3	50.1		11.4	13.3	0.0	20.6	24.1	10.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.7	24.7		37.3	50.1		11.4	13.3	0.0	20.6	24.1	10.5
LOS	C	C		D	D		B	B	A	C	C	B
Approach Delay		26.8			49.1			12.3			17.2	
Approach LOS		C			D			B			B	

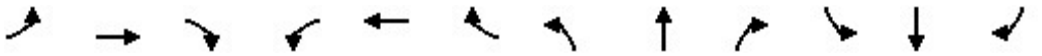
Intersection Summary			
Area Type:	Other		
Cycle Length: 101.4			
Actuated Cycle Length: 101.4			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay: 22.2		Intersection LOS: C	
Intersection Capacity Utilization 70.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: St. Paul Avenue & Mountain Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	265	357	12	154	142	234	8	16	341	357
v/c Ratio	0.58	0.62	0.09	0.62	0.24	0.22	0.01	0.03	0.42	0.46
Control Delay	29.7	24.7	37.3	50.1	11.4	13.3	0.0	20.6	24.1	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.7	24.7	37.3	50.1	11.4	13.3	0.0	20.6	24.1	10.5
Queue Length 50th (m)	39.0	40.7	2.1	27.7	11.7	22.5	0.0	1.8	45.8	15.7
Queue Length 95th (m)	54.0	52.6	4.5	44.0	21.7	40.4	0.0	4.1	69.0	45.3
Internal Link Dist (m)		1009.3		154.7		456.5			103.5	
Turn Bay Length (m)	50.0		40.0		35.0		35.0	45.0		25.0
Base Capacity (vph)	461	766	270	466	591	1057	733	502	803	780
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.47	0.04	0.33	0.24	0.22	0.01	0.03	0.42	0.46

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	233	103	171	7	118	10	119	215	7	9	273	321
Future Volume (vph)	233	103	171	7	118	10	119	215	7	9	273	321
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Lane Util. Factor	1.00	1.00		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	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.90		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	1623		1825	1798		1804	1921	1266	1825	1883	1526
Flt Permitted	0.51	1.00		0.55	1.00		0.44	1.00	1.00	0.61	1.00	1.00
Satd. Flow (perm)	964	1623		1052	1798		834	1921	1266	1177	1883	1526
Peak-hour factor, PHF	0.88	0.80	0.75	0.58	0.88	0.50	0.84	0.92	0.88	0.56	0.80	0.90
Adj. Flow (vph)	265	129	228	12	134	20	142	234	8	16	341	357
RTOR Reduction (vph)	0	77	0	0	6	0	0	0	4	0	0	130
Lane Group Flow (vph)	265	280	0	12	148	0	142	234	4	16	341	227
Confl. Peds. (#/hr)							4					4
Heavy Vehicles (%)	2%	16%	2%	0%	1%	30%	1%	0%	29%	0%	2%	4%
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	31.2	31.2		13.6	13.6		55.8	55.8	55.8	43.2	43.2	43.2
Effective Green, g (s)	31.2	31.2		13.6	13.6		55.8	55.8	55.8	43.2	43.2	43.2
Actuated g/C Ratio	0.31	0.31		0.13	0.13		0.55	0.55	0.55	0.43	0.43	0.43
Clearance Time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	415	499		141	241		550	1057	696	501	802	650
v/s Ratio Prot	c0.09	0.17			0.08		c0.02	0.12			c0.18	
v/s Ratio Perm	c0.10			0.01			0.12		0.00	0.01		0.15
v/c Ratio	0.64	0.56		0.09	0.61		0.26	0.22	0.01	0.03	0.43	0.35
Uniform Delay, d1	28.6	29.4		38.5	41.4		11.7	11.7	10.3	16.9	20.4	19.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.2	1.4		0.3	4.6		0.3	0.5	0.0	0.1	1.6	1.5
Delay (s)	31.8	30.8		38.7	46.0		11.9	12.2	10.3	17.1	22.0	21.1
Level of Service	C	C		D	D		B	B	B	B	C	C
Approach Delay (s)		31.3			45.5			12.0			21.5	
Approach LOS		C			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	24.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	101.4	Sum of lost time (s)	20.4
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		

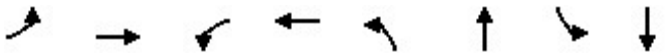
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	19	37	10	16	8	69	291	9	19	306	104
Future Volume (vph)	46	19	37	10	16	8	69	291	9	19	306	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	15.0		0.0	30.0		0.0	25.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00	0.99		1.00	1.00		1.00	0.99	
Frt		0.911			0.951			0.993			0.963	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1276	1726	0	1825	1814	0	1755	1836	0	1825	1804	0
Flt Permitted	0.733			0.703			0.448			0.562		
Satd. Flow (perm)	983	1726	0	1346	1814	0	827	1836	0	1079	1804	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		49			12			5			31	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		526.2			356.5			632.8			505.7	
Travel Time (s)		37.9			25.7			45.6			36.4	
Confl. Peds. (#/hr)	1		2	2		1	1		1	1		1
Peak Hour Factor	0.65	0.56	0.75	0.63	0.63	0.67	0.92	0.93	0.56	0.64	0.79	0.81
Heavy Vehicles (%)	43%	0%	0%	0%	0%	0%	4%	4%	0%	0%	2%	2%
Adj. Flow (vph)	71	34	49	16	25	12	75	313	16	30	387	128
Shared Lane Traffic (%)												
Lane Group Flow (vph)	71	83	0	16	37	0	75	329	0	30	515	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	26.7	26.7		26.7	26.7		27.3	27.3		27.3	27.3	
Total Split (s)	31.7	31.7		31.7	31.7		41.3	41.3		41.3	41.3	
Total Split (%)	43.4%	43.4%		43.4%	43.4%		56.6%	56.6%		56.6%	56.6%	
Maximum Green (s)	25.0	25.0		25.0	25.0		35.0	35.0		35.0	35.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.1	4.1		4.1	4.1	
All-Red Time (s)	2.6	2.6		2.6	2.6		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)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	8.0	8.0		8.0	8.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	11.2	11.2		11.2	11.2		53.0	53.0		53.0	53.0	
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.73	0.73		0.73	0.73	
v/c Ratio	0.47	0.27		0.08	0.13		0.12	0.25		0.04	0.39	
Control Delay	37.7	15.3		25.1	19.7		6.0	5.7		5.3	6.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	37.7	15.3		25.1	19.7		6.0	5.7		5.3	6.5	
LOS	D	B		C	B		A	A		A	A	
Approach Delay		25.6			21.3			5.7			6.5	
Approach LOS		C			C			A			A	

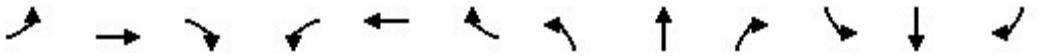
Intersection Summary			
Area Type:	Other		
Cycle Length: 73			
Actuated Cycle Length: 73			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.47			
Intersection Signal Delay: 9.4		Intersection LOS: A	
Intersection Capacity Utilization 56.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: Stanley Avenue & Portage Rd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	71	83	16	37	75	329	30	515
v/c Ratio	0.47	0.27	0.08	0.13	0.12	0.25	0.04	0.39
Control Delay	37.7	15.3	25.1	19.7	6.0	5.7	5.3	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.7	15.3	25.1	19.7	6.0	5.7	5.3	6.5
Queue Length 50th (m)	9.1	4.1	1.9	3.0	3.1	14.6	1.2	24.7
Queue Length 95th (m)	13.2	6.2	4.3	6.1	9.6	31.9	3.1	42.9
Internal Link Dist (m)		502.2		332.5		608.8		481.7
Turn Bay Length (m)	60.0		15.0		30.0		25.0	
Base Capacity (vph)	336	623	460	629	600	1334	783	1318
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	0.21	0.13	0.03	0.06	0.13	0.25	0.04	0.39

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	19	37	10	16	8	69	291	9	19	306	104
Future Volume (vph)	46	19	37	10	16	8	69	291	9	19	306	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.91		1.00	0.95		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1274	1727		1819	1815		1753	1835		1823	1803	
Flt Permitted	0.73	1.00		0.70	1.00		0.45	1.00		0.56	1.00	
Satd. Flow (perm)	983	1727		1346	1815		826	1835		1078	1803	
Peak-hour factor, PHF	0.65	0.56	0.75	0.63	0.63	0.67	0.92	0.93	0.56	0.64	0.79	0.81
Adj. Flow (vph)	71	34	49	16	25	12	75	313	16	30	387	128
RTOR Reduction (vph)	0	43	0	0	10	0	0	2	0	0	10	0
Lane Group Flow (vph)	71	40	0	16	27	0	75	327	0	30	505	0
Confl. Peds. (#/hr)	1		2	2		1	1		1	1		1
Heavy Vehicles (%)	43%	0%	0%	0%	0%	0%	4%	4%	0%	0%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	9.6	9.6		9.6	9.6		50.4	50.4		50.4	50.4	
Effective Green, g (s)	9.6	9.6		9.6	9.6		50.4	50.4		50.4	50.4	
Actuated g/C Ratio	0.13	0.13		0.13	0.13		0.69	0.69		0.69	0.69	
Clearance Time (s)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	129	227		177	238		570	1266		744	1244	
v/s Ratio Prot		0.02			0.01			0.18			c0.28	
v/s Ratio Perm	c0.07			0.01			0.09			0.03		
v/c Ratio	0.55	0.18		0.09	0.11		0.13	0.26		0.04	0.41	
Uniform Delay, d1	29.7	28.2		27.9	27.9		3.8	4.3		3.6	4.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.0	0.4		0.2	0.2		0.5	0.5		0.1	1.0	
Delay (s)	34.7	28.6		28.1	28.2		4.3	4.8		3.7	5.8	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		31.4			28.1			4.7			5.7	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	73.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

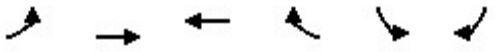
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	459	0	0	603
Future Volume (vph)	0	0	459	0	0	603
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1883	0	1883	0	0	1883
Flt Permitted						
Satd. Flow (perm)	1883	0	1883	0	0	1883
Link Speed (k/h)	48		50			50
Link Distance (m)	85.3		127.5			527.2
Travel Time (s)	6.4		9.2			38.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	499	0	0	655
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	499	0	0	655
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	459	0	0	603
Future Volume (Veh/h)	0	0	459	0	0	603
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	499	0	0	655
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			127			
pX, platoon unblocked	0.83	0.83			0.83	
vC, conflicting volume	1154	499			499	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1083	294			294	
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)	200	619			1052	

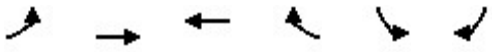
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	499	655
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1052
Volume to Capacity	0.00	0.29	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	35.1%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	135	120	0	0	0
Future Volume (vph)	0	135	120	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	1883	1883	0	1883	0
Flt Permitted						
Satd. Flow (perm)	0	1883	1883	0	1883	0
Link Speed (k/h)		50	50		48	
Link Distance (m)		178.7	488.3		63.0	
Travel Time (s)		12.9	35.2		4.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	147	130	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	147	130	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

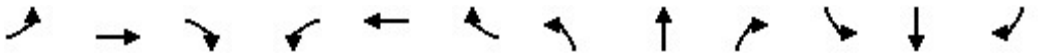
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 10.4%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	135	120	0	0	0
Future Volume (Veh/h)	0	135	120	0	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)	0	147	130	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)		179				
pX, platoon unblocked						
vC, conflicting volume	130				277	130
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	130				277	130
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)	1455				713	920

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	147	130	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1455	1700	1700
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		10.4%	ICU Level of Service A
Analysis Period (min)		15	

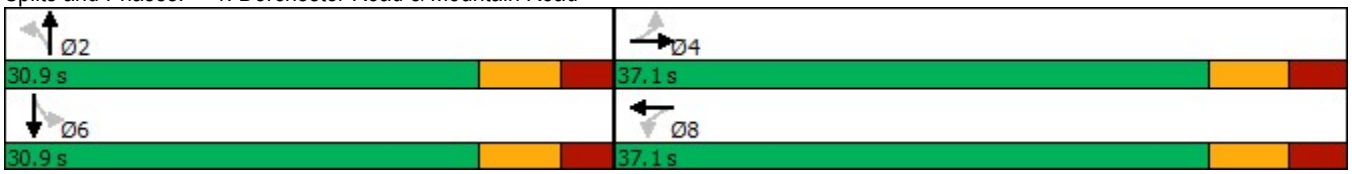


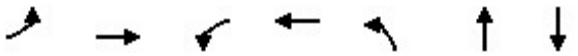
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	381	148	72	372	6	231	15	56	8	13	37
Future Volume (vph)	25	381	148	72	372	6	231	15	56	8	13	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	35.0		0.0	45.0		0.0	20.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		1.00			1.00				0.99	
Frt		0.955			0.997			0.888			0.921	
Flt Protected	0.950			0.950			0.950				0.991	
Satd. Flow (prot)	1825	1739	0	1772	1818	0	1789	1681	0	0	1582	0
Flt Permitted	0.466			0.281			0.706				0.938	
Satd. Flow (perm)	895	1739	0	524	1818	0	1328	1681	0	0	1497	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			2			82			46	
Link Speed (k/h)		50			60			60			50	
Link Distance (m)		227.0			1033.3			340.9			499.3	
Travel Time (s)		16.3			62.0			20.5			35.9	
Confl. Peds. (#/hr)			1	1			1					1
Peak Hour Factor	0.61	0.84	0.77	0.79	0.88	0.63	0.87	0.54	0.68	0.58	0.69	0.80
Heavy Vehicles (%)	0%	6%	2%	3%	5%	20%	2%	0%	2%	29%	18%	0%
Adj. Flow (vph)	41	454	192	91	423	10	266	28	82	14	19	46
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	646	0	91	433	0	266	110	0	0	79	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	31.1	31.1		31.1	31.1		30.9	30.9		30.9	30.9	
Total Split (s)	37.1	37.1		37.1	37.1		30.9	30.9		30.9	30.9	
Total Split (%)	54.6%	54.6%		54.6%	54.6%		45.4%	45.4%		45.4%	45.4%	
Maximum Green (s)	30.0	30.0		30.0	30.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.1	4.1		4.1	4.1	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	9.0	9.0		9.0	9.0		9.0	9.0		9.0	9.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	30.8	30.8		30.8	30.8		16.9	16.9			16.9	
Actuated g/C Ratio	0.50	0.50		0.50	0.50		0.27	0.27			0.27	
v/c Ratio	0.09	0.73		0.35	0.48		0.73	0.21			0.18	
Control Delay	10.8	19.4		16.4	13.6		32.5	7.4			9.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	10.8	19.4		16.4	13.6		32.5	7.4			9.4	
LOS	B	B		B	B		C	A			A	
Approach Delay		18.9			14.1			25.2			9.4	
Approach LOS		B			B			C			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 68			
Actuated Cycle Length: 61.8			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 18.4		Intersection LOS: B	
Intersection Capacity Utilization 74.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Dorchester Road & Mountain Road

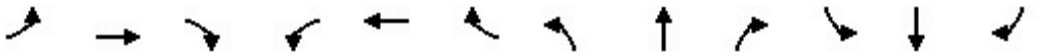




Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	41	646	91	433	266	110	79
v/c Ratio	0.09	0.73	0.35	0.48	0.73	0.21	0.18
Control Delay	10.8	19.4	16.4	13.6	32.5	7.4	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.8	19.4	16.4	13.6	32.5	7.4	9.4
Queue Length 50th (m)	2.3	50.4	5.8	30.0	26.7	2.3	2.7
Queue Length 95th (m)	5.3	#96.1	15.9	60.3	46.1	3.7	7.0
Internal Link Dist (m)		203.0		1009.3		316.9	475.3
Turn Bay Length (m)	35.0		45.0		20.0		
Base Capacity (vph)	446	887	261	907	517	705	611
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.73	0.35	0.48	0.51	0.16	0.13

Intersection Summary

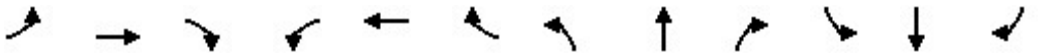
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	381	148	72	372	6	231	15	56	8	13	37
Future Volume (vph)	25	381	148	72	372	6	231	15	56	8	13	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00			0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.96		1.00	1.00		1.00	0.89			0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1825	1740		1771	1817		1787	1681			1583	
Flt Permitted	0.47	1.00		0.28	1.00		0.71	1.00			0.94	
Satd. Flow (perm)	896	1740		523	1817		1327	1681			1498	
Peak-hour factor, PHF	0.61	0.84	0.77	0.79	0.88	0.63	0.87	0.54	0.68	0.58	0.69	0.80
Adj. Flow (vph)	41	454	192	91	423	10	266	28	82	14	19	46
RTOR Reduction (vph)	0	20	0	0	1	0	0	60	0	0	33	0
Lane Group Flow (vph)	41	626	0	91	432	0	266	50	0	0	46	0
Confl. Peds. (#/hr)			1	1			1					1
Heavy Vehicles (%)	0%	6%	2%	3%	5%	20%	2%	0%	2%	29%	18%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	30.8	30.8		30.8	30.8		16.9	16.9			16.9	
Effective Green, g (s)	30.8	30.8		30.8	30.8		16.9	16.9			16.9	
Actuated g/C Ratio	0.50	0.50		0.50	0.50		0.27	0.27			0.27	
Clearance Time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	447	868		261	907		363	460			410	
v/s Ratio Prot		c0.36			0.24			0.03				
v/s Ratio Perm	0.05			0.17			c0.20				0.03	
v/c Ratio	0.09	0.72		0.35	0.48		0.73	0.11			0.11	
Uniform Delay, d1	8.1	12.1		9.4	10.2		20.3	16.8			16.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.4	5.2		3.6	1.8		7.5	0.1			0.1	
Delay (s)	8.5	17.2		13.0	11.9		27.8	16.9			16.9	
Level of Service	A	B		B	B		C	B			B	
Approach Delay (s)		16.7			12.1			24.6			16.9	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	61.7	Sum of lost time (s)	14.0
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

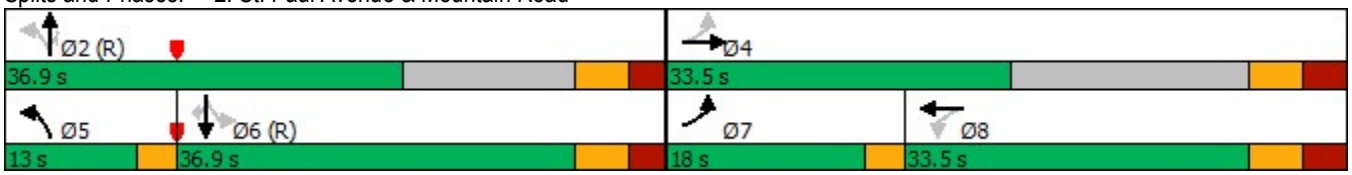


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	250	85	129	6	91	13	124	180	13	13	211	225
Future Volume (vph)	250	85	129	6	91	13	124	180	13	13	211	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	35.0		35.0	45.0		25.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.911			0.982				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1738	1675	0	1825	1648	0	1807	1883	1585	1437	1830	1585
Flt Permitted	0.548			0.605			0.543			0.608		
Satd. Flow (perm)	1003	1675	0	1162	1648	0	1033	1883	1585	920	1830	1585
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		91			7				81			233
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1033.3			178.7			480.5			127.5	
Travel Time (s)		74.4			12.9			34.6			9.2	
Peak Hour Factor	0.81	0.84	0.88	0.63	0.90	0.92	0.82	0.74	0.69	0.69	0.87	0.86
Heavy Vehicles (%)	5%	11%	0%	0%	14%	18%	1%	2%	3%	27%	5%	3%
Adj. Flow (vph)	309	101	147	10	101	14	151	243	19	19	243	262
Shared Lane Traffic (%)												
Lane Group Flow (vph)	309	248	0	10	115	0	151	243	19	19	243	262
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	7	4		8	8		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.0	33.5		33.5	33.5		11.0	30.9	30.9	30.9	30.9	30.9
Total Split (s)	18.0	33.5		33.5	33.5		13.0	36.9	36.9	36.9	36.9	36.9
Total Split (%)	17.8%	33.0%		33.0%	33.0%		12.8%	36.4%	36.4%	36.4%	36.4%	36.4%
Maximum Green (s)	15.0	26.0		26.0	26.0		10.0	30.0	30.0	30.0	30.0	30.0
Yellow Time (s)	3.0	4.1		4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	0.0	3.4		3.4	3.4		0.0	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)		10.0		10.0	10.0			9.0	9.0	9.0	9.0	9.0
Flash Dont Walk (s)		16.0		16.0	16.0			15.0	15.0	15.0	15.0	15.0
Pedestrian Calls (#/hr)		0		0	0			0	0	0	0	0
Act Effct Green (s)	34.7	30.2		12.2	12.2		60.7	56.8	56.8	44.2	44.2	44.2
Actuated g/C Ratio	0.34	0.30		0.12	0.12		0.60	0.56	0.56	0.44	0.44	0.44
v/c Ratio	0.69	0.44		0.07	0.56		0.22	0.23	0.02	0.05	0.30	0.32
Control Delay	34.9	19.8		38.3	49.5		10.5	12.7	0.1	19.8	21.3	5.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.9	19.8		38.3	49.5		10.5	12.7	0.1	19.8	21.3	5.3
LOS	C	B		D	D		B	B	A	B	C	A
Approach Delay		28.1			48.6			11.3			13.2	
Approach LOS		C			D			B			B	

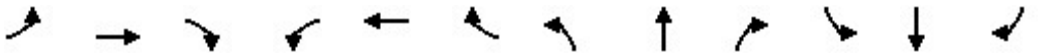
Intersection Summary			
Area Type:	Other		
Cycle Length: 101.4			
Actuated Cycle Length: 101.4			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 20.6		Intersection LOS: C	
Intersection Capacity Utilization 56.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: St. Paul Avenue & Mountain Road



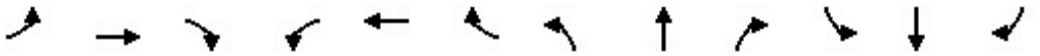
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	309	248	10	115	151	243	19	19	243	262
v/c Ratio	0.69	0.44	0.07	0.56	0.22	0.23	0.02	0.05	0.30	0.32
Control Delay	34.9	19.8	38.3	49.5	10.5	12.7	0.1	19.8	21.3	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.9	19.8	38.3	49.5	10.5	12.7	0.1	19.8	21.3	5.3
Queue Length 50th (m)	48.3	24.1	1.8	20.4	12.0	22.6	0.0	2.1	29.9	3.1
Queue Length 95th (m)	59.4	38.0	4.4	35.9	21.1	31.8	0.0	5.6	53.0	17.5
Internal Link Dist (m)		1009.3		154.7		456.5			103.5	
Turn Bay Length (m)	50.0		40.0		35.0		35.0	45.0		25.0
Base Capacity (vph)	451	778	297	427	699	1054	923	400	797	822
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.32	0.03	0.27	0.22	0.23	0.02	0.05	0.30	0.32

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	250	85	129	6	91	13	124	180	13	13	211	225
Future Volume (vph)	250	85	129	6	91	13	124	180	13	13	211	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.91		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1738	1675		1825	1647		1807	1883	1585	1437	1830	1585
Flt Permitted	0.55	1.00		0.61	1.00		0.54	1.00	1.00	0.61	1.00	1.00
Satd. Flow (perm)	1003	1675		1162	1647		1033	1883	1585	920	1830	1585
Peak-hour factor, PHF	0.81	0.84	0.88	0.63	0.90	0.92	0.82	0.74	0.69	0.69	0.87	0.86
Adj. Flow (vph)	309	101	147	10	101	14	151	243	19	19	243	262
RTOR Reduction (vph)	0	64	0	0	6	0	0	0	8	0	0	131
Lane Group Flow (vph)	309	184	0	10	109	0	151	243	11	19	243	131
Heavy Vehicles (%)	5%	11%	0%	0%	14%	18%	1%	2%	3%	27%	5%	3%
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	30.2	30.2		12.2	12.2		56.8	56.8	56.8	44.2	44.2	44.2
Effective Green, g (s)	30.2	30.2		12.2	12.2		56.8	56.8	56.8	44.2	44.2	44.2
Actuated g/C Ratio	0.30	0.30		0.12	0.12		0.56	0.56	0.56	0.44	0.44	0.44
Clearance Time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	407	498		139	198		651	1054	887	401	797	690
v/s Ratio Prot	c0.11	0.11			0.07		0.02	c0.13			c0.13	
v/s Ratio Perm	c0.11			0.01			0.11		0.01	0.02		0.08
v/c Ratio	0.76	0.37		0.07	0.55		0.23	0.23	0.01	0.05	0.30	0.19
Uniform Delay, d1	30.5	28.1		39.6	42.0		10.8	11.3	9.9	16.5	18.6	17.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.9	0.5		0.2	3.1		0.2	0.5	0.0	0.2	1.0	0.6
Delay (s)	38.5	28.6		39.8	45.1		11.0	11.8	9.9	16.7	19.6	18.2
Level of Service	D	C		D	D		B	B	A	B	B	B
Approach Delay (s)		34.1			44.7			11.4			18.8	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	24.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	101.4	Sum of lost time (s)	20.4
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



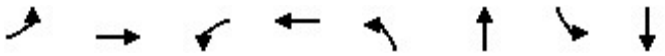
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	14	69	14	23	15	29	169	3	5	333	46
Future Volume (vph)	75	14	69	14	23	15	29	169	3	5	333	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	15.0		0.0	30.0		0.0	25.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98		0.99			1.00				1.00	
Frt		0.878			0.930			0.995			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1690	1472	0	1560	1679	0	1573	1725	0	1217	1752	0
Flt Permitted	0.718			0.691			0.508			0.618		
Satd. Flow (perm)	1277	1472	0	1127	1679	0	841	1725	0	791	1752	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		83			28			3			14	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		526.2			356.5			632.8			505.7	
Travel Time (s)		37.9			25.7			45.6			36.4	
Confl. Peds. (#/hr)			4	4			1					1
Peak Hour Factor	0.71	0.75	0.83	0.50	0.71	0.54	0.69	0.78	0.38	0.50	0.91	0.83
Heavy Vehicles (%)	8%	8%	13%	17%	5%	8%	16%	10%	33%	50%	4%	28%
Adj. Flow (vph)	106	19	83	28	32	28	42	217	8	10	366	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	106	102	0	28	60	0	42	225	0	10	421	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	26.7	26.7		26.7	26.7		27.3	27.3		27.3	27.3	
Total Split (s)	31.7	31.7		31.7	31.7		41.3	41.3		41.3	41.3	
Total Split (%)	43.4%	43.4%		43.4%	43.4%		56.6%	56.6%		56.6%	56.6%	
Maximum Green (s)	25.0	25.0		25.0	25.0		35.0	35.0		35.0	35.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.1	4.1		4.1	4.1	
All-Red Time (s)	2.6	2.6		2.6	2.6		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)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	8.0	8.0		8.0	8.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	11.8	11.8		11.8	11.8		52.4	52.4		52.4	52.4	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.72	0.72		0.72	0.72	
v/c Ratio	0.52	0.33		0.15	0.20		0.07	0.18		0.02	0.33	
Control Delay	36.2	11.7		26.5	17.1		5.9	5.6		5.6	6.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	36.2	11.7		26.5	17.1		5.9	5.6		5.6	6.5	
LOS	D	B		C	B		A	A		A	A	
Approach Delay		24.2			20.1			5.7			6.5	
Approach LOS		C			C			A			A	

Intersection Summary

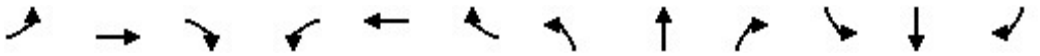
Area Type: Other
Cycle Length: 73
Actuated Cycle Length: 73
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 11.2 Intersection LOS: B
Intersection Capacity Utilization 46.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Stanley Avenue & Portage Rd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	106	102	28	60	42	225	10	421
v/c Ratio	0.52	0.33	0.15	0.20	0.07	0.18	0.02	0.33
Control Delay	36.2	11.7	26.5	17.1	5.9	5.6	5.6	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.2	11.7	26.5	17.1	5.9	5.6	5.6	6.5
Queue Length 50th (m)	13.6	2.3	3.4	3.8	1.7	9.9	0.4	20.7
Queue Length 95th (m)	19.4	9.1	5.0	8.7	4.5	18.7	1.3	43.4
Internal Link Dist (m)		502.2		332.5		608.8		481.7
Turn Bay Length (m)	60.0		15.0		30.0		25.0	
Base Capacity (vph)	437	558	385	593	604	1240	568	1262
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	0.24	0.18	0.07	0.10	0.07	0.18	0.02	0.33

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	14	69	14	23	15	29	169	3	5	333	46
Future Volume (vph)	75	14	69	14	23	15	29	169	3	5	333	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, 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	0.88		1.00	0.93		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1690	1472		1550	1679		1572	1724		1217	1753	
Flt Permitted	0.72	1.00		0.69	1.00		0.51	1.00		0.62	1.00	
Satd. Flow (perm)	1277	1472		1128	1679		841	1724		791	1753	
Peak-hour factor, PHF	0.71	0.75	0.83	0.50	0.71	0.54	0.69	0.78	0.38	0.50	0.91	0.83
Adj. Flow (vph)	106	19	83	28	32	28	42	217	8	10	366	55
RTOR Reduction (vph)	0	71	0	0	24	0	0	1	0	0	4	0
Lane Group Flow (vph)	106	31	0	28	36	0	42	224	0	10	417	0
Confl. Peds. (#/hr)			4	4			1					1
Heavy Vehicles (%)	8%	8%	13%	17%	5%	8%	16%	10%	33%	50%	4%	28%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	10.2	10.2		10.2	10.2		49.8	49.8		49.8	49.8	
Effective Green, g (s)	10.2	10.2		10.2	10.2		49.8	49.8		49.8	49.8	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.68	0.68		0.68	0.68	
Clearance Time (s)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	178	205		157	234		573	1176		539	1195	
v/s Ratio Prot		0.02			0.02			0.13			c0.24	
v/s Ratio Perm	c0.08			0.02			0.05			0.01		
v/c Ratio	0.60	0.15		0.18	0.15		0.07	0.19		0.02	0.35	
Uniform Delay, d1	29.5	27.6		27.7	27.6		3.9	4.2		3.7	4.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.3	0.3		0.5	0.3		0.2	0.4		0.1	0.8	
Delay (s)	34.7	27.9		28.2	27.9		4.1	4.6		3.8	5.6	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		31.4			28.0			4.5			5.6	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	73.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

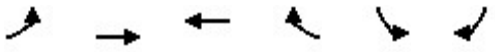
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	443	0	0	449
Future Volume (vph)	0	0	443	0	0	449
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1883	0	1883	0	0	1883
Flt Permitted						
Satd. Flow (perm)	1883	0	1883	0	0	1883
Link Speed (k/h)	48		50			50
Link Distance (m)	85.3		127.5			527.2
Travel Time (s)	6.4		9.2			38.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	482	0	0	488
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	482	0	0	488
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 27.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	443	0	0	449
Future Volume (Veh/h)	0	0	443	0	0	449
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	482	0	0	488
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			127			
pX, platoon unblocked	0.82	0.82			0.82	
vC, conflicting volume	970	482			482	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	853	258			258	
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)	270	640			1071	

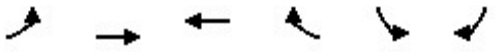
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	482	488
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1071
Volume to Capacity	0.00	0.28	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	27.0%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	109	110	0	0	0
Future Volume (vph)	0	109	110	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	1883	1883	0	1883	0
Flt Permitted						
Satd. Flow (perm)	0	1883	1883	0	1883	0
Link Speed (k/h)		50	50		48	
Link Distance (m)		178.7	488.3		63.0	
Travel Time (s)		12.9	35.2		4.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	118	120	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	118	120	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

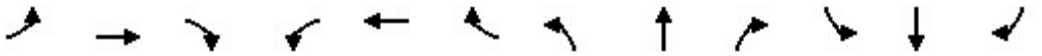
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 9.1%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	109	110	0	0	0
Future Volume (Veh/h)	0	109	110	0	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)	0	118	120	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)		179				
pX, platoon unblocked						
vC, conflicting volume	120				238	120
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	120				238	120
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)	1468				750	931

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	118	120	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1468	1700	1700
Volume to Capacity	0.00	0.07	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		9.1%	ICU Level of Service A
Analysis Period (min)		15	

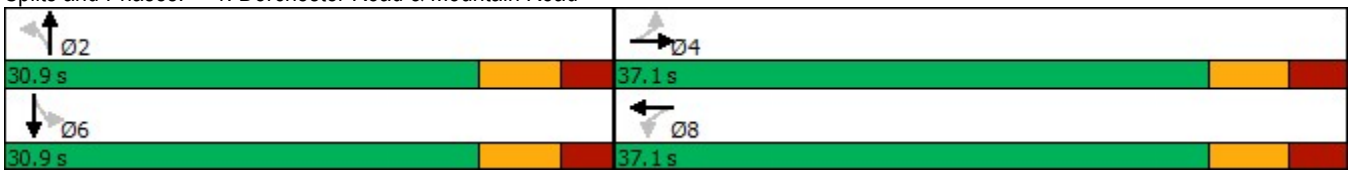


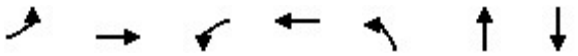
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	468	264	103	517	17	142	26	96	9	20	36
Future Volume (vph)	49	468	264	103	517	17	142	26	96	9	20	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	35.0		0.0	45.0		0.0	20.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00		1.00	0.98			0.99	
Frt		0.946			0.993			0.882			0.930	
Flt Protected	0.950			0.950			0.950				0.988	
Satd. Flow (prot)	1825	1772	0	1772	1870	0	1789	1633	0	0	1743	0
Flt Permitted	0.373			0.164			0.694				0.884	
Satd. Flow (perm)	716	1772	0	306	1870	0	1302	1633	0	0	1560	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		53			5			119			51	
Link Speed (k/h)		50			60			60			50	
Link Distance (m)		227.0			1033.3			340.9			499.3	
Travel Time (s)		16.3			62.0			20.5			35.9	
Confl. Peds. (#/hr)	2					2	3		5			3
Peak Hour Factor	0.72	0.85	0.86	0.94	0.94	0.63	0.91	0.82	0.81	0.40	0.85	0.70
Heavy Vehicles (%)	0%	4%	0%	3%	2%	0%	2%	0%	2%	0%	0%	0%
Adj. Flow (vph)	68	551	307	110	550	27	156	32	119	23	24	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	858	0	110	577	0	156	151	0	0	98	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	31.1	31.1		31.1	31.1		30.9	30.9		30.9	30.9	
Total Split (s)	37.1	37.1		37.1	37.1		30.9	30.9		30.9	30.9	
Total Split (%)	54.6%	54.6%		54.6%	54.6%		45.4%	45.4%		45.4%	45.4%	
Maximum Green (s)	30.0	30.0		30.0	30.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.1	4.1		4.1	4.1	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	9.0	9.0		9.0	9.0		9.0	9.0		9.0	9.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	32.6	32.6		32.6	32.6		12.5	12.5			12.5	
Actuated g/C Ratio	0.55	0.55		0.55	0.55		0.21	0.21			0.21	
v/c Ratio	0.17	0.86		0.65	0.56		0.57	0.34			0.27	
Control Delay	9.6	23.9		36.2	12.2		28.2	8.2			11.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	9.6	23.9		36.2	12.2		28.2	8.2			11.8	
LOS	A	C		D	B		C	A			B	
Approach Delay		22.9			16.1			18.4			11.8	
Approach LOS		C			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 68			
Actuated Cycle Length: 59.2			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 19.3		Intersection LOS: B	
Intersection Capacity Utilization 82.0%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Dorchester Road & Mountain Road

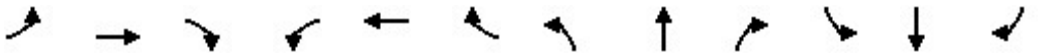




Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	68	858	110	577	156	151	98
v/c Ratio	0.17	0.86	0.65	0.56	0.57	0.34	0.27
Control Delay	9.6	23.9	36.2	12.2	28.2	8.2	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.6	23.9	36.2	12.2	28.2	8.2	11.8
Queue Length 50th (m)	3.2	64.1	7.2	34.6	14.2	2.6	3.9
Queue Length 95th (m)	8.4	#147.5	#35.8	76.6	28.8	11.4	12.1
Internal Link Dist (m)		203.0		1009.3		316.9	475.3
Turn Bay Length (m)	35.0		45.0		20.0		
Base Capacity (vph)	394	1000	168	1032	530	736	666
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	0.17	0.86	0.65	0.56	0.29	0.21	0.15

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	468	264	103	517	17	142	26	96	9	20	36
Future Volume (vph)	49	468	264	103	517	17	142	26	96	9	20	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Lane Util. Factor	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	0.98			0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.95		1.00	0.99		1.00	0.88			0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1823	1772		1772	1870		1784	1634			1744	
Flt Permitted	0.37	1.00		0.16	1.00		0.69	1.00			0.88	
Satd. Flow (perm)	716	1772		306	1870		1302	1634			1559	
Peak-hour factor, PHF	0.72	0.85	0.86	0.94	0.94	0.63	0.91	0.82	0.81	0.40	0.85	0.70
Adj. Flow (vph)	68	551	307	110	550	27	156	32	119	22	24	51
RTOR Reduction (vph)	0	24	0	0	2	0	0	94	0	0	40	0
Lane Group Flow (vph)	68	834	0	110	575	0	156	57	0	0	58	0
Confl. Peds. (#/hr)	2					2	3		5			3
Heavy Vehicles (%)	0%	4%	0%	3%	2%	0%	2%	0%	2%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	32.6	32.6		32.6	32.6		12.5	12.5			12.5	
Effective Green, g (s)	32.6	32.6		32.6	32.6		12.5	12.5			12.5	
Actuated g/C Ratio	0.55	0.55		0.55	0.55		0.21	0.21			0.21	
Clearance Time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	394	977		168	1031		275	345			329	
v/s Ratio Prot		c0.47			0.31			0.03				
v/s Ratio Perm	0.09			0.36			c0.12				0.04	
v/c Ratio	0.17	0.85		0.65	0.56		0.57	0.17			0.18	
Uniform Delay, d1	6.6	11.2		9.3	8.6		20.9	19.0			19.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	1.0	9.4		18.2	2.2		2.7	0.2			0.3	
Delay (s)	7.5	20.6		27.5	10.8		23.6	19.3			19.3	
Level of Service	A	C		C	B		C	B			B	
Approach Delay (s)		19.7			13.4			21.4			19.3	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	59.1	Sum of lost time (s)	14.0
Intersection Capacity Utilization	82.0%	ICU Level of Service	E
Analysis Period (min)	15		

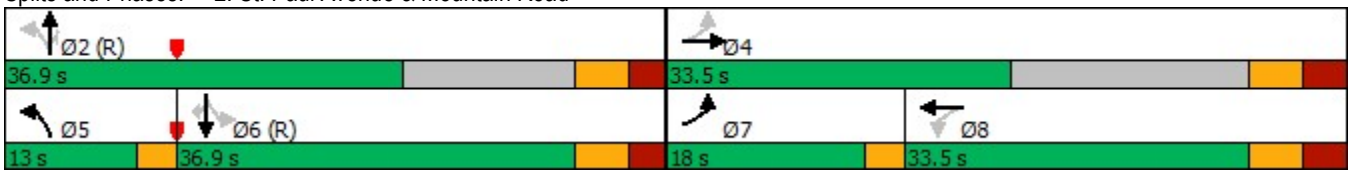
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	257	114	188	8	130	11	131	238	8	10	301	355
Future Volume (vph)	257	114	188	8	130	11	131	238	8	10	301	355
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	35.0		35.0	45.0		25.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					0.97
Frt		0.904			0.981				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	1622	0	1825	1799	0	1807	1921	1266	1825	1883	1570
Flt Permitted	0.480			0.529			0.396			0.599		
Satd. Flow (perm)	904	1622	0	1016	1799	0	751	1921	1266	1151	1883	1526
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		110			7				81			227
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1033.3			178.7			480.5			127.5	
Travel Time (s)		74.4			12.9			34.6			9.2	
Confl. Peds. (#/hr)							4					4
Peak Hour Factor	0.88	0.80	0.75	0.58	0.88	0.50	0.84	0.92	0.88	0.56	0.80	0.90
Heavy Vehicles (%)	2%	16%	2%	0%	1%	30%	1%	0%	29%	0%	2%	4%
Adj. Flow (vph)	292	143	251	14	148	22	156	259	9	18	376	394
Shared Lane Traffic (%)												
Lane Group Flow (vph)	292	394	0	14	170	0	156	259	9	18	376	394
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	7	4		8	8		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.0	33.5		33.5	33.5		11.0	30.9	30.9	30.9	30.9	30.9
Total Split (s)	18.0	33.5		33.5	33.5		13.0	36.9	36.9	36.9	36.9	36.9
Total Split (%)	17.8%	33.0%		33.0%	33.0%		12.8%	36.4%	36.4%	36.4%	36.4%	36.4%
Maximum Green (s)	15.0	26.0		26.0	26.0		10.0	30.0	30.0	30.0	30.0	30.0
Yellow Time (s)	3.0	4.1		4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	0.0	3.4		3.4	3.4		0.0	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)		10.0		10.0	10.0			9.0	9.0	9.0	9.0	9.0
Flash Dont Walk (s)		16.0		16.0	16.0			15.0	15.0	15.0	15.0	15.0
Pedestrian Calls (#/hr)		0		0	0			0	0	0	0	0
Act Effct Green (s)	36.7	32.2		14.5	14.5		58.7	54.8	54.8	41.8	41.8	41.8
Actuated g/C Ratio	0.36	0.32		0.14	0.14		0.58	0.54	0.54	0.41	0.41	0.41
v/c Ratio	0.64	0.67		0.10	0.65		0.29	0.25	0.01	0.04	0.48	0.52
Control Delay	31.0	26.6		36.9	50.4		12.3	14.1	0.0	21.6	26.3	12.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	26.6		36.9	50.4		12.3	14.1	0.0	21.6	26.3	12.9
LOS	C	C		D	D		B	B	A	C	C	B
Approach Delay		28.5			49.3			13.1			19.5	
Approach LOS		C			D			B			B	

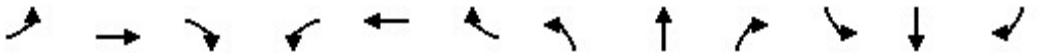
Intersection Summary			
Area Type:	Other		
Cycle Length: 101.4			
Actuated Cycle Length: 101.4			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 23.8		Intersection LOS: C	
Intersection Capacity Utilization 73.0%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: St. Paul Avenue & Mountain Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	292	394	14	170	156	259	9	18	376	394
v/c Ratio	0.64	0.67	0.10	0.65	0.29	0.25	0.01	0.04	0.48	0.52
Control Delay	31.0	26.6	36.9	50.4	12.3	14.1	0.0	21.6	26.3	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	26.6	36.9	50.4	12.3	14.1	0.0	21.6	26.3	12.9
Queue Length 50th (m)	43.1	48.0	2.4	30.6	13.3	25.9	0.0	2.1	53.0	21.5
Queue Length 95th (m)	58.5	59.9	4.9	47.5	24.0	45.6	0.0	4.6	78.9	57.0
Internal Link Dist (m)		1009.3		154.7		456.5			103.5	
Turn Bay Length (m)	50.0		40.0		35.0		35.0	45.0		25.0
Base Capacity (vph)	458	766	260	466	547	1038	721	474	776	762
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.51	0.05	0.36	0.29	0.25	0.01	0.04	0.48	0.52

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	257	114	188	8	130	11	131	238	8	10	301	355
Future Volume (vph)	257	114	188	8	130	11	131	238	8	10	301	355
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Lane Util. Factor	1.00	1.00		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	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.90		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	1623		1825	1798		1805	1921	1266	1825	1883	1526
Flt Permitted	0.48	1.00		0.53	1.00		0.40	1.00	1.00	0.60	1.00	1.00
Satd. Flow (perm)	905	1623		1017	1798		752	1921	1266	1151	1883	1526
Peak-hour factor, PHF	0.88	0.80	0.75	0.58	0.88	0.50	0.84	0.92	0.88	0.56	0.80	0.90
Adj. Flow (vph)	292	142	251	14	148	22	156	259	9	18	376	394
RTOR Reduction (vph)	0	75	0	0	6	0	0	0	4	0	0	133
Lane Group Flow (vph)	292	319	0	14	164	0	156	259	5	18	376	261
Confl. Peds. (#/hr)							4					4
Heavy Vehicles (%)	2%	16%	2%	0%	1%	30%	1%	0%	29%	0%	2%	4%
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	32.2	32.2		14.5	14.5		54.8	54.8	54.8	41.8	41.8	41.8
Effective Green, g (s)	32.2	32.2		14.5	14.5		54.8	54.8	54.8	41.8	41.8	41.8
Actuated g/C Ratio	0.32	0.32		0.14	0.14		0.54	0.54	0.54	0.41	0.41	0.41
Clearance Time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	415	515		145	257		510	1038	684	474	776	629
v/s Ratio Prot	c0.10	0.20			0.09		c0.03	0.13			c0.20	
v/s Ratio Perm	c0.12			0.01			0.14		0.00	0.02		0.17
v/c Ratio	0.70	0.62		0.10	0.64		0.31	0.25	0.01	0.04	0.48	0.41
Uniform Delay, d1	28.4	29.4		37.8	41.0		12.5	12.4	10.7	17.8	21.9	21.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.3	2.2		0.3	5.1		0.3	0.6	0.0	0.1	2.2	2.0
Delay (s)	33.7	31.6		38.0	46.1		12.9	13.0	10.8	17.9	24.0	23.1
Level of Service	C	C		D	D		B	B	B	B	C	C
Approach Delay (s)		32.5			45.5			12.9			23.5	
Approach LOS		C			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	26.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	101.4	Sum of lost time (s)	20.4
Intersection Capacity Utilization	73.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

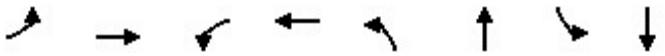
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	21	41	11	17	9	76	322	10	21	338	115
Future Volume (vph)	51	21	41	11	17	9	76	322	10	21	338	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	15.0		0.0	30.0		0.0	25.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00	0.99		1.00	1.00		1.00	0.99	
Frt		0.911			0.951			0.993			0.963	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1276	1726	0	1825	1814	0	1755	1836	0	1825	1804	0
Flt Permitted	0.731			0.697			0.410			0.544		
Satd. Flow (perm)	980	1726	0	1335	1814	0	757	1836	0	1044	1804	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		55			13			5			31	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		526.2			356.5			632.8			505.7	
Travel Time (s)		37.9			25.7			45.6			36.4	
Confl. Peds. (#/hr)	1		2	2		1	1		1	1		1
Peak Hour Factor	0.65	0.56	0.75	0.63	0.63	0.67	0.92	0.93	0.56	0.64	0.79	0.81
Heavy Vehicles (%)	43%	0%	0%	0%	0%	0%	4%	4%	0%	0%	2%	2%
Adj. Flow (vph)	78	38	55	17	27	13	83	346	18	33	428	142
Shared Lane Traffic (%)												
Lane Group Flow (vph)	78	93	0	17	40	0	83	364	0	33	570	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	26.7	26.7		26.7	26.7		27.3	27.3		27.3	27.3	
Total Split (s)	31.7	31.7		31.7	31.7		41.3	41.3		41.3	41.3	
Total Split (%)	43.4%	43.4%		43.4%	43.4%		56.6%	56.6%		56.6%	56.6%	
Maximum Green (s)	25.0	25.0		25.0	25.0		35.0	35.0		35.0	35.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.1	4.1		4.1	4.1	
All-Red Time (s)	2.6	2.6		2.6	2.6		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)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	8.0	8.0		8.0	8.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	11.7	11.7		11.7	11.7		52.5	52.5		52.5	52.5	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.72	0.72		0.72	0.72	
v/c Ratio	0.50	0.29		0.08	0.13		0.15	0.28		0.04	0.44	
Control Delay	38.0	14.8		24.6	19.2		6.6	6.1		5.7	7.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	38.0	14.8		24.6	19.2		6.6	6.1		5.7	7.3	
LOS	D	B		C	B		A	A		A	A	
Approach Delay		25.4			20.8			6.2			7.2	
Approach LOS		C			C			A			A	

Intersection Summary

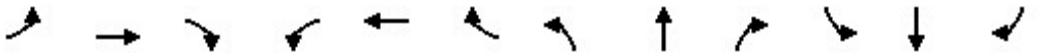
Area Type: Other
Cycle Length: 73
Actuated Cycle Length: 73
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.50
Intersection Signal Delay: 9.9 Intersection LOS: A
Intersection Capacity Utilization 59.2% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 3: Stanley Avenue & Portage Rd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	78	93	17	40	83	364	33	570
v/c Ratio	0.50	0.29	0.08	0.13	0.15	0.28	0.04	0.44
Control Delay	38.0	14.8	24.6	19.2	6.6	6.1	5.7	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	14.8	24.6	19.2	6.6	6.1	5.7	7.3
Queue Length 50th (m)	10.0	4.6	2.0	3.2	3.6	17.0	1.3	29.6
Queue Length 95th (m)	14.0	6.5	4.5	6.3	11.0	36.9	3.4	50.7
Internal Link Dist (m)		502.2		332.5		608.8		481.7
Turn Bay Length (m)	60.0		15.0		30.0		25.0	
Base Capacity (vph)	335	627	457	629	544	1322	751	1306
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	0.23	0.15	0.04	0.06	0.15	0.28	0.04	0.44

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	21	41	11	17	9	76	322	10	21	338	115
Future Volume (vph)	51	21	41	11	17	9	76	322	10	21	338	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.91		1.00	0.95		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1274	1726		1819	1815		1754	1835		1823	1803	
Flt Permitted	0.73	1.00		0.70	1.00		0.41	1.00		0.54	1.00	
Satd. Flow (perm)	980	1726		1334	1815		757	1835		1044	1803	
Peak-hour factor, PHF	0.65	0.56	0.75	0.63	0.63	0.67	0.92	0.93	0.56	0.64	0.79	0.81
Adj. Flow (vph)	78	38	55	17	27	13	83	346	18	33	428	142
RTOR Reduction (vph)	0	47	0	0	11	0	0	2	0	0	10	0
Lane Group Flow (vph)	78	46	0	17	29	0	83	362	0	33	560	0
Confl. Peds. (#/hr)	1		2	2		1	1		1	1		1
Heavy Vehicles (%)	43%	0%	0%	0%	0%	0%	4%	4%	0%	0%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	10.1	10.1		10.1	10.1		49.9	49.9		49.9	49.9	
Effective Green, g (s)	10.1	10.1		10.1	10.1		49.9	49.9		49.9	49.9	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.68	0.68		0.68	0.68	
Clearance Time (s)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	135	238		184	251		517	1254		713	1232	
v/s Ratio Prot		0.03			0.02			0.20			c0.31	
v/s Ratio Perm	c0.08			0.01			0.11			0.03		
v/c Ratio	0.58	0.19		0.09	0.11		0.16	0.29		0.05	0.45	
Uniform Delay, d1	29.5	27.8		27.4	27.5		4.1	4.6		3.8	5.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.9	0.4		0.2	0.2		0.7	0.6		0.1	1.2	
Delay (s)	35.3	28.2		27.7	27.7		4.8	5.1		3.9	6.5	
Level of Service	D	C		C	C		A	A		A	A	
Approach Delay (s)		31.5			27.7			5.1			6.4	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	73.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

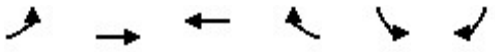
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	507	0	0	666
Future Volume (vph)	0	0	507	0	0	666
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1883	0	1883	0	0	1883
Flt Permitted						
Satd. Flow (perm)	1883	0	1883	0	0	1883
Link Speed (k/h)	48		50			50
Link Distance (m)	85.3		127.5			527.2
Travel Time (s)	6.4		9.2			38.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	551	0	0	724
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	551	0	0	724
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.4%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	507	0	0	666
Future Volume (Veh/h)	0	0	507	0	0	666
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	551	0	0	724
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			127			
pX, platoon unblocked	0.81	0.81			0.81	
vC, conflicting volume	1275	551			551	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1221	322			322	
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)	160	579			997	

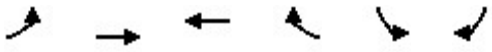
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	551	724
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	997
Volume to Capacity	0.00	0.32	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	38.4%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	149	132	0	0	0
Future Volume (vph)	0	149	132	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	1883	1883	0	1883	0
Flt Permitted						
Satd. Flow (perm)	0	1883	1883	0	1883	0
Link Speed (k/h)		50	50		48	
Link Distance (m)		178.7	488.3		63.0	
Travel Time (s)		12.9	35.2		4.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	162	143	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	162	143	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

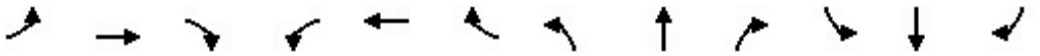
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 11.2%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	149	132	0	0	0
Future Volume (Veh/h)	0	149	132	0	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)	0	162	143	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)		179				
pX, platoon unblocked						
vC, conflicting volume	143				305	143
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	143				305	143
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)	1440				687	905

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	162	143	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1440	1700	1700
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		11.2%	ICU Level of Service A
Analysis Period (min)		15	

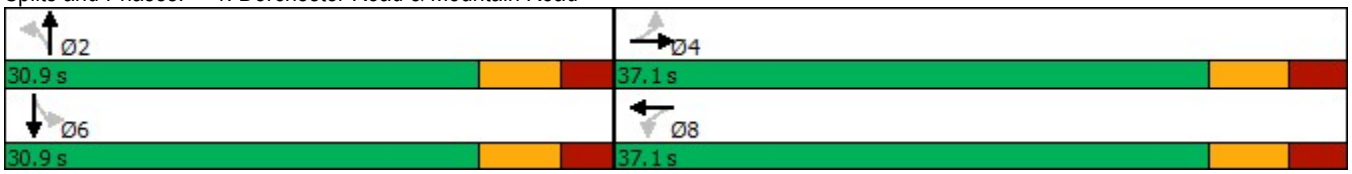


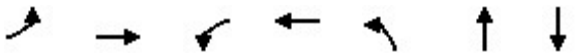
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	354	134	72	362	5	209	14	53	7	11	33
Future Volume (vph)	23	354	134	72	362	5	209	14	53	7	11	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	35.0		0.0	45.0		0.0	20.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		1.00			1.00				0.99	
Frt		0.956			0.997			0.887			0.920	
Flt Protected	0.950			0.950			0.950				0.991	
Satd. Flow (prot)	1825	1741	0	1772	1819	0	1789	1679	0	0	1583	0
Flt Permitted	0.485			0.332			0.712				0.940	
Satd. Flow (perm)	932	1741	0	619	1819	0	1339	1679	0	0	1502	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		39			2			78			41	
Link Speed (k/h)		50			60			60			50	
Link Distance (m)		227.0			1033.3			340.9			499.3	
Travel Time (s)		16.3			62.0			20.5			35.9	
Confl. Peds. (#/hr)			1	1			1					1
Peak Hour Factor	0.61	0.84	0.77	0.79	0.88	0.63	0.87	0.54	0.68	0.58	0.69	0.80
Heavy Vehicles (%)	0%	6%	2%	3%	5%	20%	2%	0%	2%	29%	18%	0%
Adj. Flow (vph)	38	421	174	91	411	8	240	26	78	12	16	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	595	0	91	419	0	240	104	0	0	69	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	31.1	31.1		31.1	31.1		30.9	30.9		30.9	30.9	
Total Split (s)	37.1	37.1		37.1	37.1		30.9	30.9		30.9	30.9	
Total Split (%)	54.6%	54.6%		54.6%	54.6%		45.4%	45.4%		45.4%	45.4%	
Maximum Green (s)	30.0	30.0		30.0	30.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.1	4.1		4.1	4.1	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	9.0	9.0		9.0	9.0		9.0	9.0		9.0	9.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	31.6	31.6		31.6	31.6		16.0	16.0			16.0	
Actuated g/C Ratio	0.51	0.51		0.51	0.51		0.26	0.26			0.26	
v/c Ratio	0.08	0.65		0.29	0.45		0.69	0.21			0.16	
Control Delay	10.3	16.2		13.8	12.7		31.0	7.5			9.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	10.3	16.2		13.8	12.7		31.0	7.5			9.5	
LOS	B	B		B	B		C	A			A	
Approach Delay		15.8			12.9			23.9			9.5	
Approach LOS		B			B			C			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 68			
Actuated Cycle Length: 61.6			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 16.4		Intersection LOS: B	
Intersection Capacity Utilization 71.0%		ICU Level of Service C	
Analysis Period (min) 15			

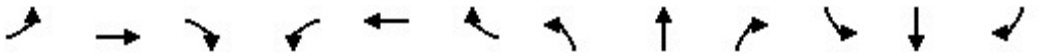
Splits and Phases: 1: Dorchester Road & Mountain Road





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	38	595	91	419	240	104	69
v/c Ratio	0.08	0.65	0.29	0.45	0.69	0.21	0.16
Control Delay	10.3	16.2	13.8	12.7	31.0	7.5	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.3	16.2	13.8	12.7	31.0	7.5	9.5
Queue Length 50th (m)	2.0	41.3	5.3	27.0	23.5	2.1	2.3
Queue Length 95th (m)	5.0	82.7	14.8	58.0	41.1	3.6	6.3
Internal Link Dist (m)		203.0		1009.3		316.9	475.3
Turn Bay Length (m)	35.0		45.0		20.0		
Base Capacity (vph)	478	911	317	933	523	703	612
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	0.08	0.65	0.29	0.45	0.46	0.15	0.11

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	354	134	72	362	5	209	14	53	7	11	33
Future Volume (vph)	23	354	134	72	362	5	209	14	53	7	11	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00			0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.96		1.00	1.00		1.00	0.89			0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1825	1741		1771	1819		1787	1680			1584	
Flt Permitted	0.48	1.00		0.33	1.00		0.71	1.00			0.94	
Satd. Flow (perm)	931	1741		620	1819		1340	1680			1502	
Peak-hour factor, PHF	0.61	0.84	0.77	0.79	0.88	0.63	0.87	0.54	0.68	0.58	0.69	0.80
Adj. Flow (vph)	38	421	174	91	411	8	240	26	78	12	16	41
RTOR Reduction (vph)	0	19	0	0	1	0	0	58	0	0	30	0
Lane Group Flow (vph)	38	576	0	91	418	0	240	46	0	0	39	0
Confl. Peds. (#/hr)			1	1			1					1
Heavy Vehicles (%)	0%	6%	2%	3%	5%	20%	2%	0%	2%	29%	18%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	31.6	31.6		31.6	31.6		16.0	16.0			16.0	
Effective Green, g (s)	31.6	31.6		31.6	31.6		16.0	16.0			16.0	
Actuated g/C Ratio	0.51	0.51		0.51	0.51		0.26	0.26			0.26	
Clearance Time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	477	893		318	933		348	436			390	
v/s Ratio Prot		c0.33			0.23			0.03				
v/s Ratio Perm	0.04			0.15			c0.18				0.03	
v/c Ratio	0.08	0.65		0.29	0.45		0.69	0.11			0.10	
Uniform Delay, d1	7.6	10.9		8.6	9.5		20.6	17.4			17.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.3	3.6		2.3	1.6		5.6	0.1			0.1	
Delay (s)	7.9	14.5		10.8	11.0		26.2	17.5			17.4	
Level of Service	A	B		B	B		C	B			B	
Approach Delay (s)		14.1			11.0			23.5			17.4	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	61.6	Sum of lost time (s)	14.0
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		

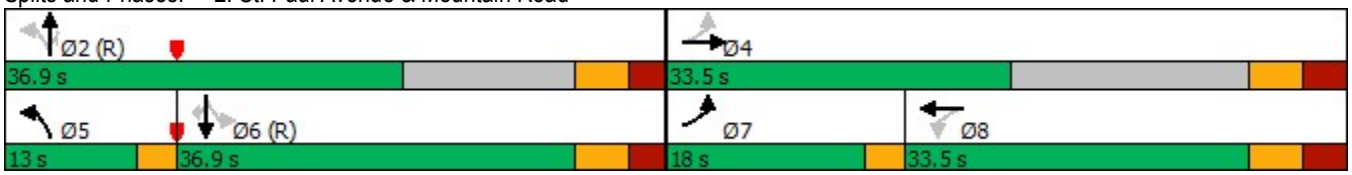
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	233	83	117	5	98	11	112	166	11	11	200	220
Future Volume (vph)	233	83	117	5	98	11	112	166	11	11	200	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	35.0		35.0	45.0		25.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.914			0.985				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1738	1677	0	1825	1654	0	1807	1883	1585	1437	1830	1585
Flt Permitted	0.549			0.614			0.556			0.619		
Satd. Flow (perm)	1004	1677	0	1180	1654	0	1058	1883	1585	936	1830	1585
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		84			5				81			241
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1033.3			178.7			480.5			127.5	
Travel Time (s)		74.4			12.9			34.6			9.2	
Peak Hour Factor	0.81	0.84	0.88	0.63	0.90	0.92	0.82	0.74	0.69	0.69	0.87	0.86
Heavy Vehicles (%)	5%	11%	0%	0%	14%	18%	1%	2%	3%	27%	5%	3%
Adj. Flow (vph)	288	99	133	8	109	12	137	224	16	16	230	256
Shared Lane Traffic (%)												
Lane Group Flow (vph)	288	232	0	8	121	0	137	224	16	16	230	256
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	7	4		8	8		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.0	33.5		33.5	33.5		11.0	30.9	30.9	30.9	30.9	30.9
Total Split (s)	18.0	33.5		33.5	33.5		13.0	36.9	36.9	36.9	36.9	36.9
Total Split (%)	17.8%	33.0%		33.0%	33.0%		12.8%	36.4%	36.4%	36.4%	36.4%	36.4%
Maximum Green (s)	15.0	26.0		26.0	26.0		10.0	30.0	30.0	30.0	30.0	30.0
Yellow Time (s)	3.0	4.1		4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	0.0	3.4		3.4	3.4		0.0	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)		10.0		10.0	10.0			9.0	9.0	9.0	9.0	9.0
Flash Dont Walk (s)		16.0		16.0	16.0			15.0	15.0	15.0	15.0	15.0
Pedestrian Calls (#/hr)		0		0	0			0	0	0	0	0
Act Effct Green (s)	35.0	30.5		12.6	12.6		60.4	56.5	56.5	44.2	44.2	44.2
Actuated g/C Ratio	0.35	0.30		0.12	0.12		0.60	0.56	0.56	0.44	0.44	0.44
v/c Ratio	0.64	0.41		0.05	0.58		0.20	0.21	0.02	0.04	0.29	0.31
Control Delay	32.5	19.3		37.4	50.4		10.5	12.7	0.0	19.7	21.1	4.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.5	19.3		37.4	50.4		10.5	12.7	0.0	19.7	21.1	4.6
LOS	C	B		D	D		B	B	A	B	C	A
Approach Delay		26.6			49.6			11.4			12.7	
Approach LOS		C			D			B			B	

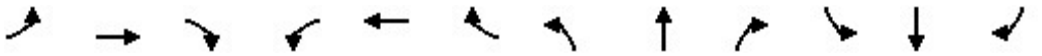
Intersection Summary			
Area Type:	Other		
Cycle Length: 101.4			
Actuated Cycle Length: 101.4			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 20.2		Intersection LOS: C	
Intersection Capacity Utilization 54.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: St. Paul Avenue & Mountain Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	288	232	8	121	137	224	16	16	230	256
v/c Ratio	0.64	0.41	0.05	0.58	0.20	0.21	0.02	0.04	0.29	0.31
Control Delay	32.5	19.3	37.4	50.4	10.5	12.7	0.0	19.7	21.1	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.5	19.3	37.4	50.4	10.5	12.7	0.0	19.7	21.1	4.6
Queue Length 50th (m)	44.0	22.3	1.4	21.9	11.0	20.9	0.0	1.8	28.2	1.6
Queue Length 95th (m)	54.6	35.5	3.9	37.7	19.8	29.9	0.0	4.9	50.2	15.3
Internal Link Dist (m)		1009.3		154.7		456.5			103.5	
Turn Bay Length (m)	50.0		40.0		35.0		35.0	45.0		25.0
Base Capacity (vph)	454	775	302	427	707	1050	919	408	797	826
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.30	0.03	0.28	0.19	0.21	0.02	0.04	0.29	0.31

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	233	83	117	5	98	11	112	166	11	11	200	220
Future Volume (vph)	233	83	117	5	98	11	112	166	11	11	200	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Lane Util. Factor	1.00	1.00		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	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1738	1677		1825	1654		1807	1883	1585	1437	1830	1585
Flt Permitted	0.55	1.00		0.61	1.00		0.56	1.00	1.00	0.62	1.00	1.00
Satd. Flow (perm)	1004	1677		1180	1654		1058	1883	1585	936	1830	1585
Peak-hour factor, PHF	0.81	0.84	0.88	0.63	0.90	0.92	0.82	0.74	0.69	0.69	0.87	0.86
Adj. Flow (vph)	288	99	133	8	109	12	137	224	16	16	230	256
RTOR Reduction (vph)	0	59	0	0	4	0	0	0	7	0	0	136
Lane Group Flow (vph)	288	173	0	8	117	0	137	224	9	16	230	120
Heavy Vehicles (%)	5%	11%	0%	0%	14%	18%	1%	2%	3%	27%	5%	3%
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	30.5	30.5		12.6	12.6		56.5	56.5	56.5	44.1	44.1	44.1
Effective Green, g (s)	30.5	30.5		12.6	12.6		56.5	56.5	56.5	44.1	44.1	44.1
Actuated g/C Ratio	0.30	0.30		0.12	0.12		0.56	0.56	0.56	0.43	0.43	0.43
Clearance Time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	409	504		146	205		658	1049	883	407	795	689
v/s Ratio Prot	c0.10	0.10			0.07		0.02	c0.12			c0.13	
v/s Ratio Perm	c0.11			0.01			0.10		0.01	0.02		0.08
v/c Ratio	0.70	0.34		0.05	0.57		0.21	0.21	0.01	0.04	0.29	0.17
Uniform Delay, d1	29.8	27.6		39.1	41.8		10.9	11.3	10.0	16.5	18.5	17.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.4	0.4		0.2	3.6		0.2	0.5	0.0	0.2	0.9	0.5
Delay (s)	35.2	28.1		39.3	45.4		11.0	11.7	10.0	16.7	19.4	18.1
Level of Service	D	C		D	D		B	B	B	B	B	B
Approach Delay (s)		32.0			45.1			11.4			18.6	
Approach LOS		C			D			B			B	

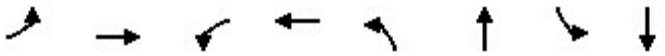
Intersection Summary			
HCM 2000 Control Delay	23.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	101.4	Sum of lost time (s)	20.4
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	12	68	12	21	14	27	153	3	4	302	44
Future Volume (vph)	74	12	68	12	21	14	27	153	3	4	302	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	15.0		0.0	30.0		0.0	25.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98		0.99			1.00				1.00	
Frt		0.874			0.930			0.994			0.979	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1690	1463	0	1560	1679	0	1573	1722	0	1217	1748	0
Flt Permitted	0.720			0.694			0.534			0.630		
Satd. Flow (perm)	1281	1463	0	1132	1679	0	884	1722	0	807	1748	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		82			26			4			15	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		526.2			356.5			632.8			505.7	
Travel Time (s)		37.9			25.7			45.6			36.4	
Confl. Peds. (#/hr)			4	4			1					1
Peak Hour Factor	0.71	0.75	0.83	0.50	0.71	0.54	0.69	0.78	0.38	0.50	0.91	0.83
Heavy Vehicles (%)	8%	8%	13%	17%	5%	8%	16%	10%	33%	50%	4%	28%
Adj. Flow (vph)	104	16	82	24	30	26	39	196	8	8	332	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	104	98	0	24	56	0	39	204	0	8	385	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	26.7	26.7		26.7	26.7		27.3	27.3		27.3	27.3	
Total Split (s)	31.7	31.7		31.7	31.7		41.3	41.3		41.3	41.3	
Total Split (%)	43.4%	43.4%		43.4%	43.4%		56.6%	56.6%		56.6%	56.6%	
Maximum Green (s)	25.0	25.0		25.0	25.0		35.0	35.0		35.0	35.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.1	4.1		4.1	4.1	
All-Red Time (s)	2.6	2.6		2.6	2.6		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)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	8.0	8.0		8.0	8.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	11.6	11.6		11.6	11.6		52.6	52.6		52.6	52.6	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.72	0.72		0.72	0.72	
v/c Ratio	0.51	0.32		0.13	0.19		0.06	0.16		0.01	0.31	
Control Delay	36.1	11.4		26.2	17.2		5.7	5.5		5.5	6.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	36.1	11.4		26.2	17.2		5.7	5.5		5.5	6.2	
LOS	D	B		C	B		A	A		A	A	
Approach Delay		24.2			19.9			5.5			6.2	
Approach LOS		C			B			A			A	

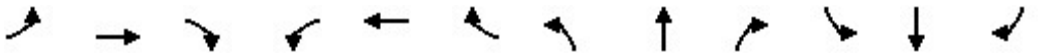
Intersection Summary			
Area Type:	Other		
Cycle Length: 73			
Actuated Cycle Length: 73			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.51			
Intersection Signal Delay: 11.1		Intersection LOS: B	
Intersection Capacity Utilization 44.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Stanley Avenue & Portage Rd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	104	98	24	56	39	204	8	385
v/c Ratio	0.51	0.32	0.13	0.19	0.06	0.16	0.01	0.31
Control Delay	36.1	11.4	26.2	17.2	5.7	5.5	5.5	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	11.4	26.2	17.2	5.7	5.5	5.5	6.2
Queue Length 50th (m)	13.3	1.9	2.9	3.6	1.6	8.7	0.3	18.1
Queue Length 95th (m)	19.2	8.7	4.5	8.4	4.2	16.9	1.1	38.7
Internal Link Dist (m)		502.2		332.5		608.8		481.7
Turn Bay Length (m)	60.0		15.0		30.0		25.0	
Base Capacity (vph)	438	554	387	592	636	1240	581	1262
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	0.24	0.18	0.06	0.09	0.06	0.16	0.01	0.31

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	12	68	12	21	14	27	153	3	4	302	44
Future Volume (vph)	74	12	68	12	21	14	27	153	3	4	302	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, 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	0.93		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1690	1464		1550	1680		1572	1722		1217	1748	
Flt Permitted	0.72	1.00		0.69	1.00		0.53	1.00		0.63	1.00	
Satd. Flow (perm)	1282	1464		1132	1680		883	1722		807	1748	
Peak-hour factor, PHF	0.71	0.75	0.83	0.50	0.71	0.54	0.69	0.78	0.38	0.50	0.91	0.83
Adj. Flow (vph)	104	16	82	24	30	26	39	196	8	8	332	53
RTOR Reduction (vph)	0	71	0	0	22	0	0	1	0	0	5	0
Lane Group Flow (vph)	104	27	0	24	34	0	39	203	0	8	380	0
Confl. Peds. (#/hr)			4	4			1					1
Heavy Vehicles (%)	8%	8%	13%	17%	5%	8%	16%	10%	33%	50%	4%	28%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	10.0	10.0		10.0	10.0		50.0	50.0		50.0	50.0	
Effective Green, g (s)	10.0	10.0		10.0	10.0		50.0	50.0		50.0	50.0	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.68	0.68		0.68	0.68	
Clearance Time (s)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	175	200		155	230		604	1179		552	1197	
v/s Ratio Prot		0.02			0.02			0.12			c0.22	
v/s Ratio Perm	c0.08			0.02			0.04			0.01		
v/c Ratio	0.59	0.14		0.15	0.15		0.06	0.17		0.01	0.32	
Uniform Delay, d1	29.6	27.7		27.8	27.7		3.8	4.1		3.7	4.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.3	0.3		0.5	0.3		0.2	0.3		0.0	0.7	
Delay (s)	34.9	28.0		28.2	28.0		4.0	4.4		3.7	5.3	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		31.6			28.1			4.4			5.3	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	73.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	44.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

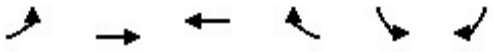
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	25	9	402	9	4	407
Future Volume (vph)	25	9	402	9	4	407
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.964		0.997			
Flt Protected	0.965					
Satd. Flow (prot)	1752	0	1878	0	0	1883
Flt Permitted	0.965					
Satd. Flow (perm)	1752	0	1878	0	0	1883
Link Speed (k/h)	48		50			50
Link Distance (m)	85.3		127.5			527.2
Travel Time (s)	6.4		9.2			38.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	10	437	10	4	442
Shared Lane Traffic (%)						
Lane Group Flow (vph)	37	0	447	0	0	446
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.6%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	25	9	402	9	4	407
Future Volume (Veh/h)	25	9	402	9	4	407
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)	27	10	437	10	4	442
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			127			
pX, platoon unblocked	0.84	0.84			0.84	
vC, conflicting volume	892	442			447	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	775	239			245	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	99			100	
cM capacity (veh/h)	306	671			1108	

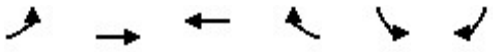
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	37	447	446
Volume Left	27	0	4
Volume Right	10	10	0
cSH	359	1700	1108
Volume to Capacity	0.10	0.26	0.00
Queue Length 95th (m)	2.6	0.0	0.1
Control Delay (s)	16.2	0.0	0.1
Lane LOS	C		A
Approach Delay (s)	16.2	0.0	0.1
Approach LOS	C		

Intersection Summary			
Average Delay		0.7	
Intersection Capacity Utilization		34.6%	ICU Level of Service A
Analysis Period (min)		15	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	6	99	100	3	12	16
Future Volume (vph)	6	99	100	3	12	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.996		0.923	
Flt Protected		0.997			0.979	
Satd. Flow (prot)	0	1878	1876	0	1702	0
Flt Permitted		0.997			0.979	
Satd. Flow (perm)	0	1878	1876	0	1702	0
Link Speed (k/h)		50	50		48	
Link Distance (m)		178.7	488.3		63.0	
Travel Time (s)		12.9	35.2		4.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	108	109	3	13	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	115	112	0	30	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

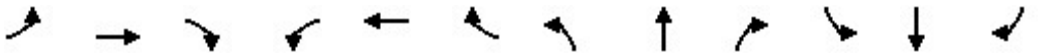
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.1%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	99	100	3	12	16
Future Volume (Veh/h)	6	99	100	3	12	16
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)	7	108	109	3	13	17
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		179				
pX, platoon unblocked						
vC, conflicting volume	112				232	110
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	112				232	110
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	98
cM capacity (veh/h)	1478				752	943

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	115	112	30
Volume Left	7	0	13
Volume Right	0	3	17
cSH	1478	1700	849
Volume to Capacity	0.00	0.07	0.04
Queue Length 95th (m)	0.1	0.0	0.8
Control Delay (s)	0.5	0.0	9.4
Lane LOS	A		A
Approach Delay (s)	0.5	0.0	9.4
Approach LOS			A

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	20.1%	ICU Level of Service	A
Analysis Period (min)	15		

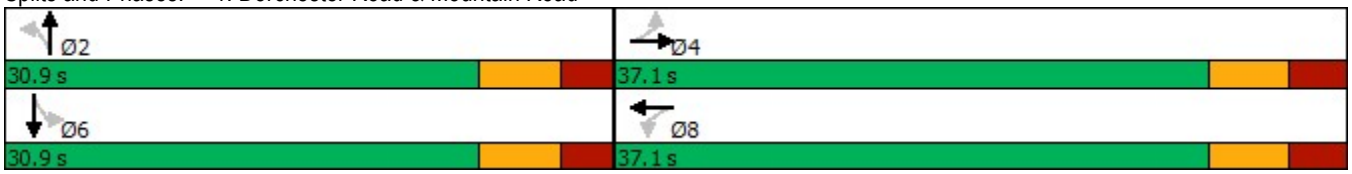


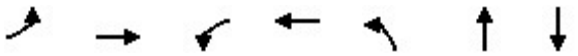
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	445	239	98	483	16	129	24	93	8	18	32
Future Volume (vph)	45	445	239	98	483	16	129	24	93	8	18	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	35.0		0.0	45.0		0.0	20.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99					1.00				0.99	
Frt		0.945			0.993			0.886			0.932	
Flt Protected	0.950			0.950			0.950				0.991	
Satd. Flow (prot)	1825	1723	0	1772	1806	0	1789	1677	0	0	1582	0
Flt Permitted	0.378			0.180			0.705				0.910	
Satd. Flow (perm)	726	1723	0	336	1806	0	1326	1677	0	0	1453	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		55			4			137			40	
Link Speed (k/h)		50			60			60			50	
Link Distance (m)		227.0			1033.3			340.9			499.3	
Travel Time (s)		16.3			62.0			20.5			35.9	
Confl. Peds. (#/hr)			1	1			1					1
Peak Hour Factor	0.61	0.84	0.77	0.79	0.88	0.63	0.87	0.54	0.68	0.58	0.69	0.80
Heavy Vehicles (%)	0%	6%	2%	3%	5%	20%	2%	0%	2%	29%	18%	0%
Adj. Flow (vph)	74	530	310	124	549	25	148	44	137	14	26	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	840	0	124	574	0	148	181	0	0	80	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	31.1	31.1		31.1	31.1		30.9	30.9		30.9	30.9	
Total Split (s)	37.1	37.1		37.1	37.1		30.9	30.9		30.9	30.9	
Total Split (%)	54.6%	54.6%		54.6%	54.6%		45.4%	45.4%		45.4%	45.4%	
Maximum Green (s)	30.0	30.0		30.0	30.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.1	4.1		4.1	4.1	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	9.0	9.0		9.0	9.0		9.0	9.0		9.0	9.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	32.0	32.0		32.0	32.0		11.9	11.9			11.9	
Actuated g/C Ratio	0.55	0.55		0.55	0.55		0.21	0.21			0.21	
v/c Ratio	0.18	0.86		0.67	0.58		0.54	0.40			0.24	
Control Delay	9.4	24.1		35.0	12.3		27.4	8.9			12.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	9.4	24.1		35.0	12.3		27.4	8.9			12.3	
LOS	A	C		D	B		C	A			B	
Approach Delay		22.9			16.4			17.2			12.3	
Approach LOS		C			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 68			
Actuated Cycle Length: 58			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 19.3		Intersection LOS: B	
Intersection Capacity Utilization 77.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Dorchester Road & Mountain Road

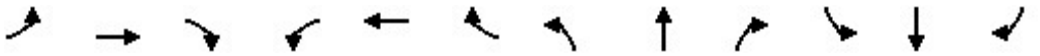




Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	74	840	124	574	148	181	80
v/c Ratio	0.18	0.86	0.67	0.58	0.54	0.40	0.24
Control Delay	9.4	24.1	35.0	12.3	27.4	8.9	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.4	24.1	35.0	12.3	27.4	8.9	12.3
Queue Length 50th (m)	3.4	61.2	8.0	34.0	13.4	3.6	3.3
Queue Length 95th (m)	7.1	#138.9	#31.1	72.8	26.2	4.3	7.9
Internal Link Dist (m)		203.0		1009.3		316.9	475.3
Turn Bay Length (m)	35.0		45.0		20.0		
Base Capacity (vph)	400	975	185	998	550	776	627
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.86	0.67	0.58	0.27	0.23	0.13

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	445	239	98	483	16	129	24	93	8	18	32
Future Volume (vph)	45	445	239	98	483	16	129	24	93	8	18	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00			0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.94		1.00	0.99		1.00	0.89			0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1825	1723		1771	1806		1787	1678			1584	
Flt Permitted	0.38	1.00		0.18	1.00		0.70	1.00			0.91	
Satd. Flow (perm)	726	1723		335	1806		1326	1678			1454	
Peak-hour factor, PHF	0.61	0.84	0.77	0.79	0.88	0.63	0.87	0.54	0.68	0.58	0.69	0.80
Adj. Flow (vph)	74	530	310	124	549	25	148	44	137	14	26	40
RTOR Reduction (vph)	0	25	0	0	2	0	0	109	0	0	32	0
Lane Group Flow (vph)	74	815	0	124	572	0	148	72	0	0	48	0
Confl. Peds. (#/hr)			1	1			1					1
Heavy Vehicles (%)	0%	6%	2%	3%	5%	20%	2%	0%	2%	29%	18%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	32.0	32.0		32.0	32.0		11.9	11.9			11.9	
Effective Green, g (s)	32.0	32.0		32.0	32.0		11.9	11.9			11.9	
Actuated g/C Ratio	0.55	0.55		0.55	0.55		0.21	0.21			0.21	
Clearance Time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	401	952		185	998		272	344			298	
v/s Ratio Prot		c0.47			0.32			0.04				
v/s Ratio Perm	0.10			0.37			c0.11				0.03	
v/c Ratio	0.18	0.86		0.67	0.57		0.54	0.21			0.16	
Uniform Delay, d1	6.5	11.0		9.2	8.5		20.6	19.1			18.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	1.0	9.8		17.7	2.4		2.2	0.3			0.3	
Delay (s)	7.5	20.8		26.9	10.9		22.8	19.4			19.2	
Level of Service	A	C		C	B		C	B			B	
Approach Delay (s)		19.7			13.7			20.9			19.2	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	57.9	Sum of lost time (s)	14.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		

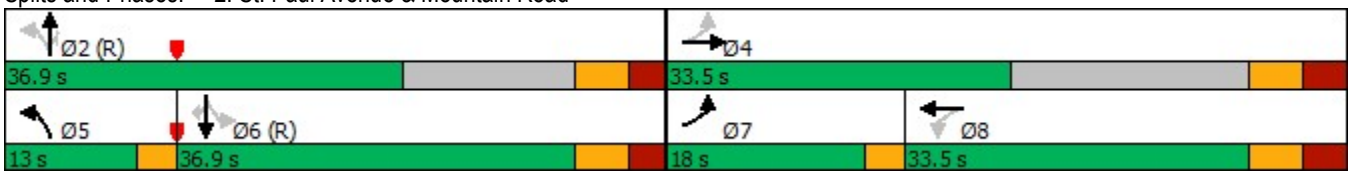
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	247	117	171	7	128	10	119	224	7	9	279	331
Future Volume (vph)	247	117	171	7	128	10	119	224	7	9	279	331
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	35.0		35.0	45.0		25.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.913			0.989				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1738	1677	0	1825	1662	0	1807	1883	1585	1437	1830	1585
Flt Permitted	0.524			0.560			0.452			0.575		
Satd. Flow (perm)	959	1677	0	1076	1662	0	860	1883	1585	870	1830	1585
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		88			4				81			259
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1033.3			178.7			480.5			127.5	
Travel Time (s)		74.4			12.9			34.6			9.2	
Peak Hour Factor	0.81	0.84	0.88	0.63	0.90	0.92	0.82	0.74	0.69	0.69	0.87	0.86
Heavy Vehicles (%)	5%	11%	0%	0%	14%	18%	1%	2%	3%	27%	5%	3%
Adj. Flow (vph)	305	139	194	11	142	11	145	303	10	13	321	385
Shared Lane Traffic (%)												
Lane Group Flow (vph)	305	333	0	11	153	0	145	303	10	13	321	385
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	7	4		8	8		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.0	33.5		33.5	33.5		11.0	30.9	30.9	30.9	30.9	30.9
Total Split (s)	18.0	33.5		33.5	33.5		13.0	36.9	36.9	36.9	36.9	36.9
Total Split (%)	17.8%	33.0%		33.0%	33.0%		12.8%	36.4%	36.4%	36.4%	36.4%	36.4%
Maximum Green (s)	15.0	26.0		26.0	26.0		10.0	30.0	30.0	30.0	30.0	30.0
Yellow Time (s)	3.0	4.1		4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	0.0	3.4		3.4	3.4		0.0	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)		10.0		10.0	10.0			9.0	9.0	9.0	9.0	9.0
Flash Dont Walk (s)		16.0		16.0	16.0			15.0	15.0	15.0	15.0	15.0
Pedestrian Calls (#/hr)		0		0	0			0	0	0	0	0
Act Effct Green (s)	36.9	32.4		14.4	14.4		58.5	54.6	54.6	41.9	41.9	41.9
Actuated g/C Ratio	0.36	0.32		0.14	0.14		0.58	0.54	0.54	0.41	0.41	0.41
v/c Ratio	0.66	0.56		0.07	0.64		0.25	0.30	0.01	0.04	0.43	0.48
Control Delay	31.7	23.8		36.0	51.5		12.0	14.8	0.0	21.8	25.0	10.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.7	23.8		36.0	51.5		12.0	14.8	0.0	21.8	25.0	10.2
LOS	C	C		D	D		B	B	A	C	C	B
Approach Delay		27.6			50.5			13.6			17.0	
Approach LOS		C			D			B			B	

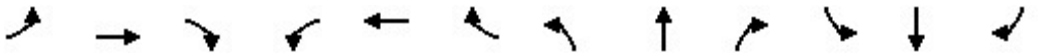
Intersection Summary			
Area Type:	Other		
Cycle Length: 101.4			
Actuated Cycle Length: 101.4			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 22.4		Intersection LOS: C	
Intersection Capacity Utilization 67.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: St. Paul Avenue & Mountain Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	305	333	11	153	145	303	10	13	321	385
v/c Ratio	0.66	0.56	0.07	0.64	0.25	0.30	0.01	0.04	0.43	0.48
Control Delay	31.7	23.8	36.0	51.5	12.0	14.8	0.0	21.8	25.0	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.7	23.8	36.0	51.5	12.0	14.8	0.0	21.8	25.0	10.2
Queue Length 50th (m)	45.7	39.2	1.9	28.0	12.3	31.1	0.0	1.5	43.6	15.3
Queue Length 95th (m)	55.4	54.1	4.6	45.3	22.1	42.4	0.0	4.5	74.5	40.6
Internal Link Dist (m)		1009.3		154.7		456.5			103.5	
Turn Bay Length (m)	50.0		40.0		35.0		35.0	45.0		25.0
Base Capacity (vph)	464	777	275	429	595	1013	890	359	755	806
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.43	0.04	0.36	0.24	0.30	0.01	0.04	0.43	0.48

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	247	117	171	7	128	10	119	224	7	9	279	331
Future Volume (vph)	247	117	171	7	128	10	119	224	7	9	279	331
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Lane Util. Factor	1.00	1.00		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	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1738	1676		1825	1663		1807	1883	1585	1437	1830	1585
Flt Permitted	0.52	1.00		0.56	1.00		0.45	1.00	1.00	0.58	1.00	1.00
Satd. Flow (perm)	959	1676		1076	1663		861	1883	1585	870	1830	1585
Peak-hour factor, PHF	0.81	0.84	0.88	0.63	0.90	0.92	0.82	0.74	0.69	0.69	0.87	0.86
Adj. Flow (vph)	305	139	194	11	142	11	145	303	10	13	321	385
RTOR Reduction (vph)	0	60	0	0	3	0	0	0	5	0	0	152
Lane Group Flow (vph)	305	273	0	11	150	0	145	303	5	13	321	233
Heavy Vehicles (%)	5%	11%	0%	0%	14%	18%	1%	2%	3%	27%	5%	3%
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	32.4	32.4		14.4	14.4		54.6	54.6	54.6	41.9	41.9	41.9
Effective Green, g (s)	32.4	32.4		14.4	14.4		54.6	54.6	54.6	41.9	41.9	41.9
Actuated g/C Ratio	0.32	0.32		0.14	0.14		0.54	0.54	0.54	0.41	0.41	0.41
Clearance Time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	421	535		152	236		554	1013	853	359	756	654
v/s Ratio Prot	c0.11	0.16			0.09		0.03	c0.16			c0.18	
v/s Ratio Perm	c0.12			0.01			0.12		0.00	0.01		0.15
v/c Ratio	0.72	0.51		0.07	0.63		0.26	0.30	0.01	0.04	0.42	0.36
Uniform Delay, d1	28.6	28.1		37.7	41.0		12.2	12.9	10.8	17.7	21.2	20.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.1	0.8		0.2	5.5		0.3	0.8	0.0	0.2	1.7	1.5
Delay (s)	34.6	28.9		37.9	46.5		12.5	13.6	10.9	17.9	22.9	22.0
Level of Service	C	C		D	D		B	B	B	B	C	C
Approach Delay (s)		31.6			45.9			13.2			22.3	
Approach LOS		C			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	25.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	101.4	Sum of lost time (s)	20.4
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

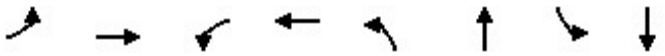
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	19	41	10	16	8	75	291	9	19	306	110
Future Volume (vph)	50	19	41	10	16	8	75	291	9	19	306	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	15.0		0.0	30.0		0.0	25.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98		0.99			1.00				0.99	
Frt		0.901			0.941			0.991			0.957	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1690	1527	0	1560	1702	0	1573	1709	0	1217	1649	0
Flt Permitted	0.732			0.709			0.483			0.528		
Satd. Flow (perm)	1302	1527	0	1156	1702	0	799	1709	0	676	1649	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		49			15			6			38	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		526.2			356.5			632.8			505.7	
Travel Time (s)		37.9			25.7			45.6			36.4	
Confl. Peds. (#/hr)			4	4			1					1
Peak Hour Factor	0.71	0.75	0.83	0.50	0.71	0.54	0.69	0.78	0.38	0.50	0.91	0.83
Heavy Vehicles (%)	8%	8%	13%	17%	5%	8%	16%	10%	33%	50%	4%	28%
Adj. Flow (vph)	70	25	49	20	23	15	109	373	24	38	336	133
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	74	0	20	38	0	109	397	0	38	469	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	26.7	26.7		26.7	26.7		27.3	27.3		27.3	27.3	
Total Split (s)	31.7	31.7		31.7	31.7		41.3	41.3		41.3	41.3	
Total Split (%)	43.4%	43.4%		43.4%	43.4%		56.6%	56.6%		56.6%	56.6%	
Maximum Green (s)	25.0	25.0		25.0	25.0		35.0	35.0		35.0	35.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.1	4.1		4.1	4.1	
All-Red Time (s)	2.6	2.6		2.6	2.6		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)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	8.0	8.0		8.0	8.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	9.9	9.9		9.9	9.9		54.3	54.3		54.3	54.3	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.74	0.74		0.74	0.74	
v/c Ratio	0.40	0.30		0.13	0.16		0.18	0.31		0.08	0.38	
Control Delay	34.9	16.2		28.3	20.1		5.6	5.4		4.9	5.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	34.9	16.2		28.3	20.1		5.6	5.4		4.9	5.7	
LOS	C	B		C	C		A	A		A	A	
Approach Delay		25.3			22.9			5.5			5.6	
Approach LOS		C			C			A			A	

Intersection Summary

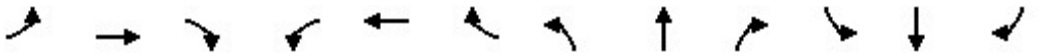
Area Type: Other
Cycle Length: 73
Actuated Cycle Length: 73
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.40
Intersection Signal Delay: 8.7 Intersection LOS: A
Intersection Capacity Utilization 57.6% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 3: Stanley Avenue & Portage Rd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	70	74	20	38	109	397	38	469
v/c Ratio	0.40	0.30	0.13	0.16	0.18	0.31	0.08	0.38
Control Delay	34.9	16.2	28.3	20.1	5.6	5.4	4.9	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.9	16.2	28.3	20.1	5.6	5.4	4.9	5.7
Queue Length 50th (m)	9.0	3.1	2.5	2.8	4.4	17.5	1.4	20.1
Queue Length 95th (m)	14.8	9.7	4.2	7.3	8.6	29.0	2.6	42.5
Internal Link Dist (m)		502.2		332.5		608.8		481.7
Turn Bay Length (m)	60.0		15.0		30.0		25.0	
Base Capacity (vph)	445	555	395	592	594	1272	502	1235
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	0.13	0.05	0.06	0.18	0.31	0.08	0.38

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	19	41	10	16	8	75	291	9	19	306	110
Future Volume (vph)	50	19	41	10	16	8	75	291	9	19	306	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	0.94		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1690	1527		1550	1702		1572	1709		1217	1650	
Flt Permitted	0.73	1.00		0.71	1.00		0.48	1.00		0.53	1.00	
Satd. Flow (perm)	1303	1527		1156	1702		799	1709		676	1650	
Peak-hour factor, PHF	0.71	0.75	0.83	0.50	0.71	0.54	0.69	0.78	0.38	0.50	0.91	0.83
Adj. Flow (vph)	70	25	49	20	23	15	109	373	24	38	336	133
RTOR Reduction (vph)	0	43	0	0	13	0	0	2	0	0	11	0
Lane Group Flow (vph)	70	31	0	20	25	0	109	395	0	38	458	0
Confl. Peds. (#/hr)			4	4			1					1
Heavy Vehicles (%)	8%	8%	13%	17%	5%	8%	16%	10%	33%	50%	4%	28%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	8.3	8.3		8.3	8.3		51.7	51.7		51.7	51.7	
Effective Green, g (s)	8.3	8.3		8.3	8.3		51.7	51.7		51.7	51.7	
Actuated g/C Ratio	0.11	0.11		0.11	0.11		0.71	0.71		0.71	0.71	
Clearance Time (s)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	148	173		131	193		565	1210		478	1168	
v/s Ratio Prot		0.02			0.01			0.23			c0.28	
v/s Ratio Perm	c0.05			0.02			0.14			0.06		
v/c Ratio	0.47	0.18		0.15	0.13		0.19	0.33		0.08	0.39	
Uniform Delay, d1	30.3	29.3		29.2	29.1		3.6	4.0		3.3	4.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.4	0.5		0.5	0.3		0.8	0.7		0.3	1.0	
Delay (s)	32.7	29.8		29.7	29.4		4.4	4.8		3.6	5.3	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		31.2			29.5			4.7			5.2	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	73.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

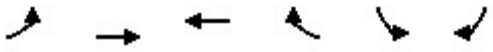
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	15	6	459	23	12	603
Future Volume (vph)	15	6	459	23	12	603
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.959		0.994			
Flt Protected	0.966					0.999
Satd. Flow (prot)	1745	0	1872	0	0	1882
Flt Permitted	0.966					0.999
Satd. Flow (perm)	1745	0	1872	0	0	1882
Link Speed (k/h)	48		50			50
Link Distance (m)	85.3		127.5			527.2
Travel Time (s)	6.4		9.2			38.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	7	499	25	13	655
Shared Lane Traffic (%)						
Lane Group Flow (vph)	23	0	524	0	0	668
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.4%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	15	6	459	23	12	603
Future Volume (Veh/h)	15	6	459	23	12	603
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	7	499	25	13	655
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			127			
pX, platoon unblocked	0.80	0.80			0.80	
vC, conflicting volume	1192	512			524	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1116	266			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 %	91	99			99	
cM capacity (veh/h)	182	619			1026	

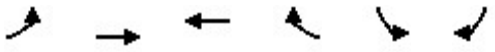
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	23	524	668
Volume Left	16	0	13
Volume Right	7	25	0
cSH	231	1700	1026
Volume to Capacity	0.10	0.31	0.01
Queue Length 95th (m)	2.5	0.0	0.3
Control Delay (s)	22.3	0.0	0.3
Lane LOS	C		A
Approach Delay (s)	22.3	0.0	0.3
Approach LOS	C		

Intersection Summary			
Average Delay		0.6	
Intersection Capacity Utilization		51.4%	ICU Level of Service A
Analysis Period (min)		15	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	14	135	120	12	8	10
Future Volume (vph)	14	135	120	12	8	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.988		0.926	
Flt Protected		0.995			0.978	
Satd. Flow (prot)	0	1874	1861	0	1706	0
Flt Permitted		0.995			0.978	
Satd. Flow (perm)	0	1874	1861	0	1706	0
Link Speed (k/h)		50	50		48	
Link Distance (m)		178.7	488.3		63.0	
Travel Time (s)		12.9	35.2		4.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	147	130	13	9	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	162	143	0	20	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	135	120	12	8	10
Future Volume (Veh/h)	14	135	120	12	8	10
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)	15	147	130	13	9	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		179				
pX, platoon unblocked						
vC, conflicting volume	143				314	136
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	143				314	136
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				99	99
cM capacity (veh/h)	1440				672	912

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	162	143	20
Volume Left	15	0	9
Volume Right	0	13	11
cSH	1440	1700	786
Volume to Capacity	0.01	0.08	0.03
Queue Length 95th (m)	0.2	0.0	0.6
Control Delay (s)	0.8	0.0	9.7
Lane LOS	A		A
Approach Delay (s)	0.8	0.0	9.7
Approach LOS			A

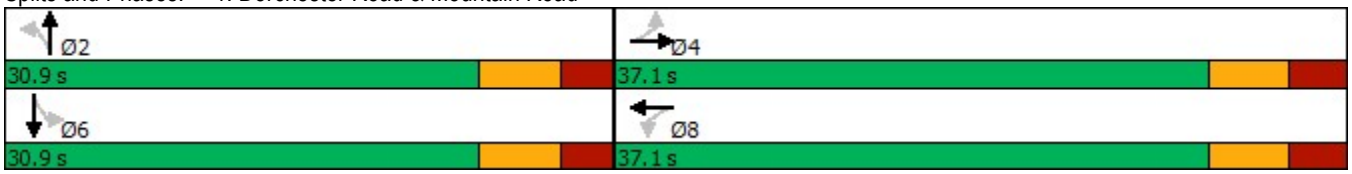
Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	28.3%	ICU Level of Service	A
Analysis Period (min)	15		

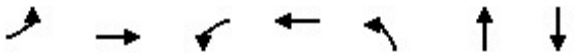
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	390	148	78	397	6	231	15	58	8	13	37
Future Volume (vph)	25	390	148	78	397	6	231	15	58	8	13	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	35.0		0.0	45.0		0.0	20.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		1.00			1.00				0.99	
Frt		0.956			0.997			0.887			0.921	
Flt Protected	0.950			0.950			0.950				0.991	
Satd. Flow (prot)	1825	1741	0	1772	1819	0	1789	1679	0	0	1582	0
Flt Permitted	0.441			0.272			0.706				0.937	
Satd. Flow (perm)	847	1741	0	507	1819	0	1328	1679	0	0	1496	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		39			2			85			46	
Link Speed (k/h)		50			60			60			50	
Link Distance (m)		227.0			1033.3			340.9			499.3	
Travel Time (s)		16.3			62.0			20.5			35.9	
Confl. Peds. (#/hr)			1	1			1					1
Peak Hour Factor	0.61	0.84	0.77	0.79	0.88	0.63	0.87	0.54	0.68	0.58	0.69	0.80
Heavy Vehicles (%)	0%	6%	2%	3%	5%	20%	2%	0%	2%	29%	18%	0%
Adj. Flow (vph)	41	464	192	99	451	10	266	28	85	14	19	46
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	656	0	99	461	0	266	113	0	0	79	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	31.1	31.1		31.1	31.1		30.9	30.9		30.9	30.9	
Total Split (s)	37.1	37.1		37.1	37.1		30.9	30.9		30.9	30.9	
Total Split (%)	54.6%	54.6%		54.6%	54.6%		45.4%	45.4%		45.4%	45.4%	
Maximum Green (s)	30.0	30.0		30.0	30.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.1	4.1		4.1	4.1	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	9.0	9.0		9.0	9.0		9.0	9.0		9.0	9.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	30.7	30.7		30.7	30.7		16.9	16.9			16.9	
Actuated g/C Ratio	0.50	0.50		0.50	0.50		0.27	0.27			0.27	
v/c Ratio	0.10	0.74		0.39	0.51		0.73	0.22			0.18	
Control Delay	10.9	20.0		17.8	14.1		32.5	7.3			9.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	10.9	20.0		17.8	14.1		32.5	7.3			9.4	
LOS	B	B		B	B		C	A			A	
Approach Delay		19.4			14.8			25.0			9.4	
Approach LOS		B			B			C			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 68			
Actuated Cycle Length: 61.7			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 18.7		Intersection LOS: B	
Intersection Capacity Utilization 74.9%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Dorchester Road & Mountain Road





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	41	656	99	461	266	113	79
v/c Ratio	0.10	0.74	0.39	0.51	0.73	0.22	0.18
Control Delay	10.9	20.0	17.8	14.1	32.5	7.3	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.9	20.0	17.8	14.1	32.5	7.3	9.4
Queue Length 50th (m)	2.3	51.7	6.5	32.6	26.7	2.3	2.7
Queue Length 95th (m)	5.3	#101.5	17.6	65.2	46.1	3.7	7.0
Internal Link Dist (m)		203.0		1009.3		316.9	475.3
Turn Bay Length (m)	35.0		45.0		20.0		
Base Capacity (vph)	421	886	252	907	518	707	612
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	0.10	0.74	0.39	0.51	0.51	0.16	0.13

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	390	148	78	397	6	231	15	58	8	13	37
Future Volume (vph)	25	390	148	78	397	6	231	15	58	8	13	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00			0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.96		1.00	1.00		1.00	0.89			0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1825	1741		1771	1818		1787	1679			1583	
Flt Permitted	0.44	1.00		0.27	1.00		0.71	1.00			0.94	
Satd. Flow (perm)	846	1741		508	1818		1327	1679			1497	
Peak-hour factor, PHF	0.61	0.84	0.77	0.79	0.88	0.63	0.87	0.54	0.68	0.58	0.69	0.80
Adj. Flow (vph)	41	464	192	99	451	10	266	28	85	14	19	46
RTOR Reduction (vph)	0	20	0	0	1	0	0	62	0	0	33	0
Lane Group Flow (vph)	41	636	0	99	460	0	266	51	0	0	46	0
Confl. Peds. (#/hr)			1	1			1					1
Heavy Vehicles (%)	0%	6%	2%	3%	5%	20%	2%	0%	2%	29%	18%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	30.8	30.8		30.8	30.8		16.9	16.9			16.9	
Effective Green, g (s)	30.8	30.8		30.8	30.8		16.9	16.9			16.9	
Actuated g/C Ratio	0.50	0.50		0.50	0.50		0.27	0.27			0.27	
Clearance Time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	422	869		253	907		363	459			410	
v/s Ratio Prot		c0.37			0.25			0.03				
v/s Ratio Perm	0.05			0.20			c0.20				0.03	
v/c Ratio	0.10	0.73		0.39	0.51		0.73	0.11			0.11	
Uniform Delay, d1	8.1	12.2		9.6	10.4		20.3	16.8			16.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.5	5.4		4.5	2.0		7.5	0.1			0.1	
Delay (s)	8.6	17.6		14.1	12.4		27.8	16.9			16.9	
Level of Service	A	B		B	B		C	B			B	
Approach Delay (s)		17.1			12.7			24.5			16.9	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	61.7	Sum of lost time (s)	14.0
Intersection Capacity Utilization	74.9%	ICU Level of Service	D
Analysis Period (min)	15		

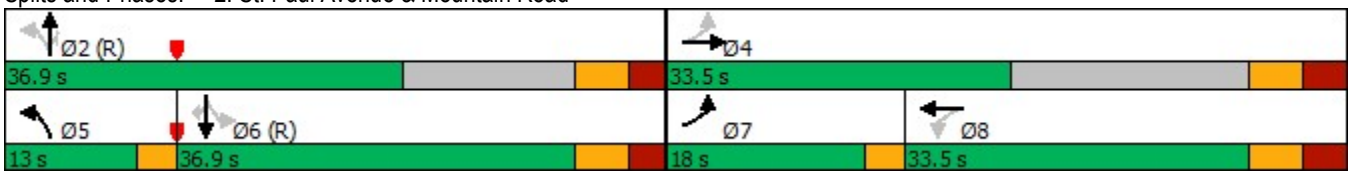
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	256	91	129	6	107	13	124	82	13	13	220	241
Future Volume (vph)	256	91	129	6	107	13	124	82	13	13	220	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	35.0		35.0	45.0		25.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.914			0.984				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1738	1678	0	1825	1652	0	1807	1883	1585	1437	1830	1585
Flt Permitted	0.547			0.601			0.529			0.685		
Satd. Flow (perm)	1001	1678	0	1155	1652	0	1006	1883	1585	1036	1830	1585
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		85			6				81			239
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1033.3			178.7			480.5			127.5	
Travel Time (s)		74.4			12.9			34.6			9.2	
Peak Hour Factor	0.81	0.84	0.88	0.63	0.90	0.92	0.82	0.74	0.69	0.69	0.87	0.86
Heavy Vehicles (%)	5%	11%	0%	0%	14%	18%	1%	2%	3%	27%	5%	3%
Adj. Flow (vph)	316	108	147	10	119	14	151	111	19	19	253	280
Shared Lane Traffic (%)												
Lane Group Flow (vph)	316	255	0	10	133	0	151	111	19	19	253	280
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	7	4		8	8		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.0	33.5		33.5	33.5		11.0	30.9	30.9	30.9	30.9	30.9
Total Split (s)	18.0	33.5		33.5	33.5		13.0	36.9	36.9	36.9	36.9	36.9
Total Split (%)	17.8%	33.0%		33.0%	33.0%		12.8%	36.4%	36.4%	36.4%	36.4%	36.4%
Maximum Green (s)	15.0	26.0		26.0	26.0		10.0	30.0	30.0	30.0	30.0	30.0
Yellow Time (s)	3.0	4.1		4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	0.0	3.4		3.4	3.4		0.0	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)		10.0		10.0	10.0			9.0	9.0	9.0	9.0	9.0
Flash Dont Walk (s)		16.0		16.0	16.0			15.0	15.0	15.0	15.0	15.0
Pedestrian Calls (#/hr)		0		0	0			0	0	0	0	0
Act Effct Green (s)	35.7	31.2		13.2	13.2		59.7	55.8	55.8	43.1	43.1	43.1
Actuated g/C Ratio	0.35	0.31		0.13	0.13		0.59	0.55	0.55	0.43	0.43	0.43
v/c Ratio	0.69	0.44		0.07	0.61		0.23	0.11	0.02	0.04	0.33	0.35
Control Delay	34.0	20.2		37.2	50.8		11.1	12.2	0.1	20.5	22.5	6.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.0	20.2		37.2	50.8		11.1	12.2	0.1	20.5	22.5	6.0
LOS	C	C		D	D		B	B	A	C	C	A
Approach Delay		27.9			49.9			10.8			14.1	
Approach LOS		C			D			B			B	

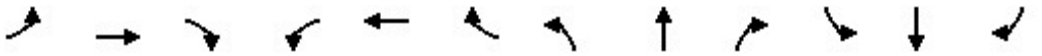
Intersection Summary			
Area Type:	Other		
Cycle Length: 101.4			
Actuated Cycle Length: 101.4			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 21.9		Intersection LOS: C	
Intersection Capacity Utilization 55.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: St. Paul Avenue & Mountain Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	316	255	10	133	151	111	19	19	253	280
v/c Ratio	0.69	0.44	0.07	0.61	0.23	0.11	0.02	0.04	0.33	0.35
Control Delay	34.0	20.2	37.2	50.8	11.1	12.2	0.1	20.5	22.5	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.0	20.2	37.2	50.8	11.1	12.2	0.1	20.5	22.5	6.0
Queue Length 50th (m)	48.8	25.9	1.8	23.9	12.4	9.8	0.0	2.1	32.0	4.6
Queue Length 95th (m)	59.1	39.6	4.3	40.2	21.9	16.4	0.0	5.8	56.7	20.2
Internal Link Dist (m)		1009.3		154.7		456.5			103.5	
Turn Bay Length (m)	50.0		40.0		35.0		35.0	45.0		25.0
Base Capacity (vph)	461	776	296	428	677	1036	909	440	777	811
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.33	0.03	0.31	0.22	0.11	0.02	0.04	0.33	0.35

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	256	91	129	6	107	13	124	82	13	13	220	241
Future Volume (vph)	256	91	129	6	107	13	124	82	13	13	220	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.91		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1738	1677		1825	1652		1807	1883	1585	1437	1830	1585
Flt Permitted	0.55	1.00		0.60	1.00		0.53	1.00	1.00	0.69	1.00	1.00
Satd. Flow (perm)	1002	1677		1155	1652		1006	1883	1585	1037	1830	1585
Peak-hour factor, PHF	0.81	0.84	0.88	0.63	0.90	0.92	0.82	0.74	0.69	0.69	0.87	0.86
Adj. Flow (vph)	316	108	147	10	119	14	151	111	19	19	253	280
RTOR Reduction (vph)	0	59	0	0	5	0	0	0	9	0	0	137
Lane Group Flow (vph)	316	196	0	10	128	0	151	111	10	19	253	143
Heavy Vehicles (%)	5%	11%	0%	0%	14%	18%	1%	2%	3%	27%	5%	3%
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	31.2	31.2		13.2	13.2		55.8	55.8	55.8	43.1	43.1	43.1
Effective Green, g (s)	31.2	31.2		13.2	13.2		55.8	55.8	55.8	43.1	43.1	43.1
Actuated g/C Ratio	0.31	0.31		0.13	0.13		0.55	0.55	0.55	0.43	0.43	0.43
Clearance Time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	417	516		150	215		630	1036	872	440	777	673
v/s Ratio Prot	c0.11	0.12			0.08		c0.02	0.06			c0.14	
v/s Ratio Perm	c0.12			0.01			0.11		0.01	0.02		0.09
v/c Ratio	0.76	0.38		0.07	0.59		0.24	0.11	0.01	0.04	0.33	0.21
Uniform Delay, d1	29.9	27.5		38.7	41.6		11.4	10.9	10.3	17.1	19.5	18.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.7	0.5		0.2	4.4		0.2	0.2	0.0	0.2	1.1	0.7
Delay (s)	37.6	28.0		38.9	45.9		11.6	11.1	10.3	17.3	20.6	19.1
Level of Service	D	C		D	D		B	B	B	B	C	B
Approach Delay (s)		33.3			45.4			11.3			19.7	
Approach LOS		C			D			B			B	

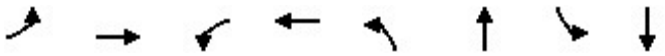
Intersection Summary			
HCM 2000 Control Delay	25.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	101.4	Sum of lost time (s)	20.4
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	14	75	14	23	15	30	169	3	5	333	48
Future Volume (vph)	81	14	75	14	23	15	30	169	3	5	333	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	15.0		0.0	30.0		0.0	25.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98		0.99			1.00				1.00	
Frt		0.876			0.930			0.995			0.979	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1690	1467	0	1560	1679	0	1573	1725	0	1217	1748	0
Flt Permitted	0.718			0.687			0.505			0.618		
Satd. Flow (perm)	1277	1467	0	1121	1679	0	836	1725	0	791	1748	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		90			28			3			15	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		526.2			356.5			632.8			505.7	
Travel Time (s)		37.9			25.7			45.6			36.4	
Confl. Peds. (#/hr)			4	4			1					1
Peak Hour Factor	0.71	0.75	0.83	0.50	0.71	0.54	0.69	0.78	0.38	0.50	0.91	0.83
Heavy Vehicles (%)	8%	8%	13%	17%	5%	8%	16%	10%	33%	50%	4%	28%
Adj. Flow (vph)	114	19	90	28	32	28	43	217	8	10	366	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	114	109	0	28	60	0	43	225	0	10	424	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	26.7	26.7		26.7	26.7		27.3	27.3		27.3	27.3	
Total Split (s)	31.7	31.7		31.7	31.7		41.3	41.3		41.3	41.3	
Total Split (%)	43.4%	43.4%		43.4%	43.4%		56.6%	56.6%		56.6%	56.6%	
Maximum Green (s)	25.0	25.0		25.0	25.0		35.0	35.0		35.0	35.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.1	4.1		4.1	4.1	
All-Red Time (s)	2.6	2.6		2.6	2.6		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)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	8.0	8.0		8.0	8.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	12.2	12.2		12.2	12.2		52.0	52.0		52.0	52.0	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.71	0.71		0.71	0.71	
v/c Ratio	0.54	0.34		0.15	0.20		0.07	0.18		0.02	0.34	
Control Delay	36.4	11.2		25.9	16.7		6.1	5.8		5.8	6.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	36.4	11.2		25.9	16.7		6.1	5.8		5.8	6.8	
LOS	D	B		C	B		A	A		A	A	
Approach Delay		24.1			19.7			5.9			6.7	
Approach LOS		C			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 73			
Actuated Cycle Length: 73			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.54			
Intersection Signal Delay: 11.5		Intersection LOS: B	
Intersection Capacity Utilization 47.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Stanley Avenue & Portage Rd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	114	109	28	60	43	225	10	424
v/c Ratio	0.54	0.34	0.15	0.20	0.07	0.18	0.02	0.34
Control Delay	36.4	11.2	25.9	16.7	6.1	5.8	5.8	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.4	11.2	25.9	16.7	6.1	5.8	5.8	6.8
Queue Length 50th (m)	14.6	2.3	3.4	3.8	1.8	10.1	0.4	21.2
Queue Length 95th (m)	20.3	9.2	4.9	8.6	4.7	19.2	1.3	45.0
Internal Link Dist (m)		502.2		332.5		608.8		481.7
Turn Bay Length (m)	60.0		15.0		30.0		25.0	
Base Capacity (vph)	437	561	383	593	596	1230	564	1250
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	0.26	0.19	0.07	0.10	0.07	0.18	0.02	0.34

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	14	75	14	23	15	30	169	3	5	333	48
Future Volume (vph)	81	14	75	14	23	15	30	169	3	5	333	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, 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	0.88		1.00	0.93		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1690	1467		1550	1679		1572	1724		1217	1749	
Flt Permitted	0.72	1.00		0.69	1.00		0.50	1.00		0.62	1.00	
Satd. Flow (perm)	1277	1467		1120	1679		835	1724		791	1749	
Peak-hour factor, PHF	0.71	0.75	0.83	0.50	0.71	0.54	0.69	0.78	0.38	0.50	0.91	0.83
Adj. Flow (vph)	114	19	90	28	32	28	43	217	8	10	366	58
RTOR Reduction (vph)	0	77	0	0	24	0	0	1	0	0	5	0
Lane Group Flow (vph)	114	32	0	28	36	0	43	224	0	10	419	0
Confl. Peds. (#/hr)			4	4			1					1
Heavy Vehicles (%)	8%	8%	13%	17%	5%	8%	16%	10%	33%	50%	4%	28%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	10.6	10.6		10.6	10.6		49.4	49.4		49.4	49.4	
Effective Green, g (s)	10.6	10.6		10.6	10.6		49.4	49.4		49.4	49.4	
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.68	0.68		0.68	0.68	
Clearance Time (s)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	185	213		162	243		565	1166		535	1183	
v/s Ratio Prot		0.02			0.02			0.13			c0.24	
v/s Ratio Perm	c0.09			0.02			0.05			0.01		
v/c Ratio	0.62	0.15		0.17	0.15		0.08	0.19		0.02	0.35	
Uniform Delay, d1	29.3	27.3		27.4	27.3		4.0	4.4		3.9	5.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.0	0.3		0.5	0.3		0.3	0.4		0.1	0.8	
Delay (s)	35.3	27.6		27.9	27.5		4.3	4.8		3.9	5.9	
Level of Service	D	C		C	C		A	A		A	A	
Approach Delay (s)		31.5			27.6			4.7			5.8	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	73.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	47.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

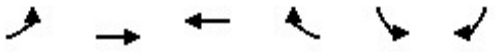
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	25	9	443	9	4	449
Future Volume (vph)	25	9	443	9	4	449
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.964		0.997			
Flt Protected	0.965					
Satd. Flow (prot)	1752	0	1878	0	0	1883
Flt Permitted	0.965					
Satd. Flow (perm)	1752	0	1878	0	0	1883
Link Speed (k/h)	48		50			50
Link Distance (m)	85.3		127.5			527.2
Travel Time (s)	6.4		9.2			38.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	10	482	10	4	488
Shared Lane Traffic (%)						
Lane Group Flow (vph)	37	0	492	0	0	492
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	25	9	443	9	4	449
Future Volume (Veh/h)	25	9	443	9	4	449
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)	27	10	482	10	4	488
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			127			
pX, platoon unblocked	0.84	0.84			0.84	
vC, conflicting volume	983	487			492	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	885	295			301	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	98			100	
cM capacity (veh/h)	264	626			1059	

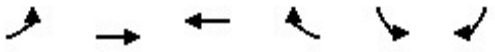
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	37	492	492
Volume Left	27	0	4
Volume Right	10	10	0
cSH	313	1700	1059
Volume to Capacity	0.12	0.29	0.00
Queue Length 95th (m)	3.0	0.0	0.1
Control Delay (s)	18.0	0.0	0.1
Lane LOS	C		A
Approach Delay (s)	18.0	0.0	0.1
Approach LOS	C		

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	36.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	6	109	110	3	12	16
Future Volume (vph)	6	109	110	3	12	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.997		0.923	
Flt Protected		0.997			0.979	
Satd. Flow (prot)	0	1878	1878	0	1702	0
Flt Permitted		0.997			0.979	
Satd. Flow (perm)	0	1878	1878	0	1702	0
Link Speed (k/h)		50	50		48	
Link Distance (m)		178.7	488.3		63.0	
Travel Time (s)		12.9	35.2		4.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	118	120	3	13	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	125	123	0	30	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	109	110	3	12	16
Future Volume (Veh/h)	6	109	110	3	12	16
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)	7	118	120	3	13	17
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		179				
pX, platoon unblocked						
vC, conflicting volume	123				254	122
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	123				254	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				98	98
cM capacity (veh/h)	1464				732	930

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	125	123	30
Volume Left	7	0	13
Volume Right	0	3	17
cSH	1464	1700	832
Volume to Capacity	0.00	0.07	0.04
Queue Length 95th (m)	0.1	0.0	0.9
Control Delay (s)	0.5	0.0	9.5
Lane LOS	A		A
Approach Delay (s)	0.5	0.0	9.5
Approach LOS			A

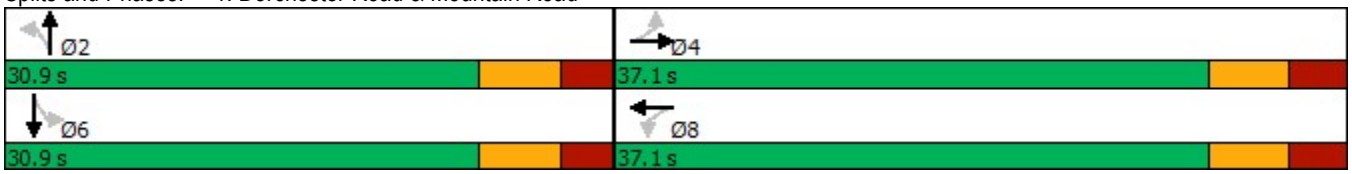
Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	20.6%	ICU Level of Service	A
Analysis Period (min)	15		

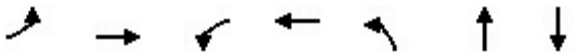
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	490	264	107	532	17	142	26	102	9	20	36
Future Volume (vph)	49	490	264	107	532	17	142	26	102	9	20	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	35.0		0.0	45.0		0.0	20.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00		1.00	0.98			0.99	
Frt		0.948			0.993			0.880			0.930	
Flt Protected	0.950			0.950			0.950				0.988	
Satd. Flow (prot)	1825	1775	0	1772	1870	0	1789	1628	0	0	1743	0
Flt Permitted	0.360			0.145			0.694				0.882	
Satd. Flow (perm)	691	1775	0	270	1870	0	1302	1628	0	0	1556	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		50			5			126			51	
Link Speed (k/h)		50			60			60			50	
Link Distance (m)		227.0			1033.3			340.9			499.3	
Travel Time (s)		16.3			62.0			20.5			35.9	
Confl. Peds. (#/hr)	2					2	3		5			3
Peak Hour Factor	0.72	0.85	0.86	0.94	0.94	0.63	0.91	0.82	0.81	0.40	0.85	0.70
Heavy Vehicles (%)	0%	4%	0%	3%	2%	0%	2%	0%	2%	0%	0%	0%
Adj. Flow (vph)	68	576	307	114	566	27	156	32	126	23	24	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	883	0	114	593	0	156	158	0	0	98	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	31.1	31.1		31.1	31.1		30.9	30.9		30.9	30.9	
Total Split (s)	37.1	37.1		37.1	37.1		30.9	30.9		30.9	30.9	
Total Split (%)	54.6%	54.6%		54.6%	54.6%		45.4%	45.4%		45.4%	45.4%	
Maximum Green (s)	30.0	30.0		30.0	30.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.1	4.1		4.1	4.1	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	9.0	9.0		9.0	9.0		9.0	9.0		9.0	9.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	32.3	32.3		32.3	32.3		12.5	12.5			12.5	
Actuated g/C Ratio	0.55	0.55		0.55	0.55		0.21	0.21			0.21	
v/c Ratio	0.18	0.89		0.77	0.58		0.57	0.36			0.26	
Control Delay	9.7	26.6		53.2	12.6		28.1	8.2			11.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	9.7	26.6		53.2	12.6		28.1	8.2			11.8	
LOS	A	C		D	B		C	A			B	
Approach Delay		25.4			19.1			18.1			11.8	
Approach LOS		C			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 68			
Actuated Cycle Length: 58.8			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 21.5		Intersection LOS: C	
Intersection Capacity Utilization 83.2%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Dorchester Road & Mountain Road

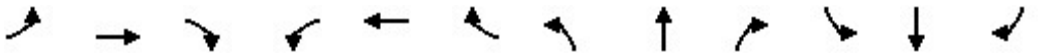




Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	68	883	114	593	156	158	98
v/c Ratio	0.18	0.89	0.77	0.58	0.57	0.36	0.26
Control Delay	9.7	26.6	53.2	12.6	28.1	8.2	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.7	26.6	53.2	12.6	28.1	8.2	11.8
Queue Length 50th (m)	3.2	68.2	8.3	36.0	14.2	2.6	3.9
Queue Length 95th (m)	8.5	#154.2	#39.1	79.5	28.8	11.5	12.1
Internal Link Dist (m)		203.0		1009.3		316.9	475.3
Turn Bay Length (m)	35.0		45.0		20.0		
Base Capacity (vph)	379	997	148	1028	533	741	667
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.89	0.77	0.58	0.29	0.21	0.15

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	490	264	107	532	17	142	26	102	9	20	36
Future Volume (vph)	49	490	264	107	532	17	142	26	102	9	20	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Lane Util. Factor	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	0.98			0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.95		1.00	0.99		1.00	0.88			0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1823	1775		1772	1870		1784	1630			1744	
Flt Permitted	0.36	1.00		0.14	1.00		0.69	1.00			0.88	
Satd. Flow (perm)	691	1775		270	1870		1302	1630			1556	
Peak-hour factor, PHF	0.72	0.85	0.86	0.94	0.94	0.63	0.91	0.82	0.81	0.40	0.85	0.70
Adj. Flow (vph)	68	576	307	114	566	27	156	32	126	22	24	51
RTOR Reduction (vph)	0	23	0	0	2	0	0	99	0	0	40	0
Lane Group Flow (vph)	68	860	0	114	591	0	156	59	0	0	58	0
Confl. Peds. (#/hr)	2					2	3		5			3
Heavy Vehicles (%)	0%	4%	0%	3%	2%	0%	2%	0%	2%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	32.3	32.3		32.3	32.3		12.5	12.5			12.5	
Effective Green, g (s)	32.3	32.3		32.3	32.3		12.5	12.5			12.5	
Actuated g/C Ratio	0.55	0.55		0.55	0.55		0.21	0.21			0.21	
Clearance Time (s)	7.1	7.1		7.1	7.1		6.9	6.9			6.9	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	379	975		148	1027		276	346			330	
v/s Ratio Prot		c0.48			0.32			0.04				
v/s Ratio Perm	0.10			0.42			c0.12				0.04	
v/c Ratio	0.18	0.88		0.77	0.58		0.57	0.17			0.18	
Uniform Delay, d1	6.6	11.6		10.4	8.7		20.7	18.9			18.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	1.0	11.4		31.3	2.3		2.6	0.2			0.3	
Delay (s)	7.7	23.0		41.7	11.1		23.4	19.1			19.2	
Level of Service	A	C		D	B		C	B			B	
Approach Delay (s)		21.9			16.0			21.2			19.2	
Approach LOS		C			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	19.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	58.8	Sum of lost time (s)	14.0
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		

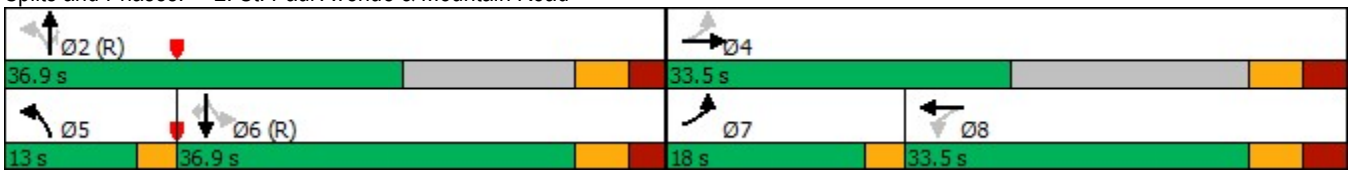
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	271	128	188	8	140	11	131	247	8	10	307	365
Future Volume (vph)	271	128	188	8	140	11	131	247	8	10	307	365
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	35.0		35.0	45.0		25.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					0.97
Frt		0.908			0.982				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	1623	0	1825	1805	0	1807	1921	1266	1825	1883	1570
Flt Permitted	0.459			0.521			0.383			0.594		
Satd. Flow (perm)	864	1623	0	1001	1805	0	726	1921	1266	1141	1883	1526
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		98			7				81			229
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1033.3			178.7			480.5			127.5	
Travel Time (s)		74.4			12.9			34.6			9.2	
Confl. Peds. (#/hr)							4					4
Peak Hour Factor	0.88	0.80	0.75	0.58	0.88	0.50	0.84	0.92	0.88	0.56	0.80	0.90
Heavy Vehicles (%)	2%	16%	2%	0%	1%	30%	1%	0%	29%	0%	2%	4%
Adj. Flow (vph)	308	160	251	14	159	22	156	268	9	18	384	406
Shared Lane Traffic (%)												
Lane Group Flow (vph)	308	411	0	14	181	0	156	268	9	18	384	406
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	7	4		8	8		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.0	33.5		33.5	33.5		11.0	30.9	30.9	30.9	30.9	30.9
Total Split (s)	18.0	33.5		33.5	33.5		13.0	36.9	36.9	36.9	36.9	36.9
Total Split (%)	17.8%	33.0%		33.0%	33.0%		12.8%	36.4%	36.4%	36.4%	36.4%	36.4%
Maximum Green (s)	15.0	26.0		26.0	26.0		10.0	30.0	30.0	30.0	30.0	30.0
Yellow Time (s)	3.0	4.1		4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	0.0	3.4		3.4	3.4		0.0	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)		10.0		10.0	10.0			9.0	9.0	9.0	9.0	9.0
Flash Dont Walk (s)		16.0		16.0	16.0			15.0	15.0	15.0	15.0	15.0
Pedestrian Calls (#/hr)		0		0	0			0	0	0	0	0
Act Effct Green (s)	37.3	32.8		15.0	15.0		58.1	54.2	54.2	41.1	41.1	41.1
Actuated g/C Ratio	0.37	0.32		0.15	0.15		0.57	0.53	0.53	0.41	0.41	0.41
v/c Ratio	0.68	0.70		0.10	0.67		0.30	0.26	0.01	0.04	0.50	0.54
Control Delay	32.2	28.6		36.4	50.7		12.7	14.5	0.0	21.9	27.1	13.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.2	28.6		36.4	50.7		12.7	14.5	0.0	21.9	27.1	13.7
LOS	C	C		D	D		B	B	A	C	C	B
Approach Delay		30.1			49.6			13.6			20.2	
Approach LOS		C			D			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 101.4			
Actuated Cycle Length: 101.4			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 24.9		Intersection LOS: C	
Intersection Capacity Utilization 73.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: St. Paul Avenue & Mountain Road



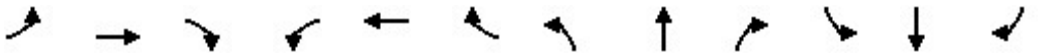
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	308	411	14	181	156	268	9	18	384	406
v/c Ratio	0.68	0.70	0.10	0.67	0.30	0.26	0.01	0.04	0.50	0.54
Control Delay	32.2	28.6	36.4	50.7	12.7	14.5	0.0	21.9	27.1	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.2	28.6	36.4	50.7	12.7	14.5	0.0	21.9	27.1	13.7
Queue Length 50th (m)	45.4	53.5	2.4	32.7	13.6	27.3	0.0	2.1	55.1	23.6
Queue Length 95th (m)	61.5	65.6	4.9	50.1	24.2	47.4	0.0	4.7	81.1	60.3
Internal Link Dist (m)		1009.3		154.7		456.5			103.5	
Turn Bay Length (m)	50.0		40.0		35.0		35.0	45.0		25.0
Base Capacity (vph)	454	759	256	468	531	1026	713	462	763	754
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.54	0.05	0.39	0.29	0.26	0.01	0.04	0.50	0.54

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	271	128	188	8	140	11	131	247	8	10	307	365
Future Volume (vph)	271	128	188	8	140	11	131	247	8	10	307	365
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Lane Util. Factor	1.00	1.00		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	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.91		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	1624		1825	1804		1805	1921	1266	1825	1883	1526
Flt Permitted	0.46	1.00		0.52	1.00		0.38	1.00	1.00	0.59	1.00	1.00
Satd. Flow (perm)	864	1624		1001	1804		728	1921	1266	1141	1883	1526
Peak-hour factor, PHF	0.88	0.80	0.75	0.58	0.88	0.50	0.84	0.92	0.88	0.56	0.80	0.90
Adj. Flow (vph)	308	160	251	14	159	22	156	268	9	18	384	406
RTOR Reduction (vph)	0	66	0	0	6	0	0	0	4	0	0	136
Lane Group Flow (vph)	308	345	0	14	175	0	156	268	5	18	384	270
Confl. Peds. (#/hr)							4					4
Heavy Vehicles (%)	2%	16%	2%	0%	1%	30%	1%	0%	29%	0%	2%	4%
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	32.9	32.9		15.0	15.0		54.1	54.1	54.1	41.1	41.1	41.1
Effective Green, g (s)	32.9	32.9		15.0	15.0		54.1	54.1	54.1	41.1	41.1	41.1
Actuated g/C Ratio	0.32	0.32		0.15	0.15		0.53	0.53	0.53	0.41	0.41	0.41
Clearance Time (s)	3.0	7.5		7.5	7.5		3.0	6.9	6.9	6.9	6.9	6.9
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	416	526		148	266		494	1024	675	462	763	618
v/s Ratio Prot	c0.11	0.21			0.10		c0.03	0.14			c0.20	
v/s Ratio Perm	c0.13			0.01			0.14		0.00	0.02		0.18
v/c Ratio	0.74	0.66		0.09	0.66		0.32	0.26	0.01	0.04	0.50	0.44
Uniform Delay, d1	28.1	29.4		37.3	40.8		13.0	12.8	11.1	18.2	22.5	21.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.9	2.9		0.3	5.8		0.4	0.6	0.0	0.2	2.4	2.2
Delay (s)	35.1	32.3		37.6	46.6		13.3	13.4	11.1	18.4	24.9	24.0
Level of Service	D	C		D	D		B	B	B	B	C	C
Approach Delay (s)		33.5			45.9			13.4			24.3	
Approach LOS		C			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	101.4	Sum of lost time (s)	20.4
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



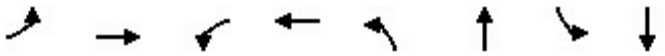
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	21	45	11	17	9	82	322	10	21	338	121
Future Volume (vph)	55	21	45	11	17	9	82	322	10	21	338	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	15.0		0.0	30.0		0.0	25.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00	0.99		1.00	1.00		1.00	0.99	
Frt		0.908			0.951			0.993			0.961	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1276	1719	0	1825	1814	0	1755	1836	0	1825	1800	0
Flt Permitted	0.731			0.694			0.403			0.544		
Satd. Flow (perm)	980	1719	0	1329	1814	0	744	1836	0	1044	1800	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		60			13			5			33	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		526.2			356.5			632.8			505.7	
Travel Time (s)		37.9			25.7			45.6			36.4	
Confl. Peds. (#/hr)	1		2	2		1	1		1	1		1
Peak Hour Factor	0.65	0.56	0.75	0.63	0.63	0.67	0.92	0.93	0.56	0.64	0.79	0.81
Heavy Vehicles (%)	43%	0%	0%	0%	0%	0%	4%	4%	0%	0%	2%	2%
Adj. Flow (vph)	85	38	60	17	27	13	89	346	18	33	428	149
Shared Lane Traffic (%)												
Lane Group Flow (vph)	85	98	0	17	40	0	89	364	0	33	577	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	26.7	26.7		26.7	26.7		27.3	27.3		27.3	27.3	
Total Split (s)	31.7	31.7		31.7	31.7		41.3	41.3		41.3	41.3	
Total Split (%)	43.4%	43.4%		43.4%	43.4%		56.6%	56.6%		56.6%	56.6%	
Maximum Green (s)	25.0	25.0		25.0	25.0		35.0	35.0		35.0	35.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.1	4.1		4.1	4.1	
All-Red Time (s)	2.6	2.6		2.6	2.6		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)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	8.0	8.0		8.0	8.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	12.2	12.2		12.2	12.2		52.0	52.0		52.0	52.0	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.71	0.71		0.71	0.71	
v/c Ratio	0.52	0.29		0.08	0.13		0.17	0.28		0.04	0.45	
Control Delay	38.3	13.9		24.0	18.7		7.1	6.4		6.0	7.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	38.3	13.9		24.0	18.7		7.1	6.4		6.0	7.7	
LOS	D	B		C	B		A	A		A	A	
Approach Delay		25.2			20.3			6.5			7.6	
Approach LOS		C			C			A			A	

Intersection Summary

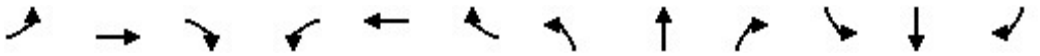
Area Type: Other
Cycle Length: 73
Actuated Cycle Length: 73
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 10.3 Intersection LOS: B
Intersection Capacity Utilization 59.8% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 3: Stanley Avenue & Portage Rd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	85	98	17	40	89	364	33	577
v/c Ratio	0.52	0.29	0.08	0.13	0.17	0.28	0.04	0.45
Control Delay	38.3	13.9	24.0	18.7	7.1	6.4	6.0	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.3	13.9	24.0	18.7	7.1	6.4	6.0	7.7
Queue Length 50th (m)	10.9	4.6	2.0	3.2	4.0	17.6	1.4	31.0
Queue Length 95th (m)	14.9	6.4	4.4	6.2	12.3	38.2	3.5	53.2
Internal Link Dist (m)		502.2		332.5		608.8		481.7
Turn Bay Length (m)	60.0		15.0		30.0		25.0	
Base Capacity (vph)	335	628	455	629	530	1310	744	1292
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	0.16	0.04	0.06	0.17	0.28	0.04	0.45

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	21	45	11	17	9	82	322	10	21	338	121
Future Volume (vph)	55	21	45	11	17	9	82	322	10	21	338	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.91		1.00	0.95		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1274	1719		1819	1815		1754	1835		1823	1800	
Flt Permitted	0.73	1.00		0.69	1.00		0.40	1.00		0.54	1.00	
Satd. Flow (perm)	980	1719		1328	1815		745	1835		1044	1800	
Peak-hour factor, PHF	0.65	0.56	0.75	0.63	0.63	0.67	0.92	0.93	0.56	0.64	0.79	0.81
Adj. Flow (vph)	85	38	60	17	27	13	89	346	18	33	428	149
RTOR Reduction (vph)	0	51	0	0	11	0	0	2	0	0	11	0
Lane Group Flow (vph)	85	47	0	17	29	0	89	362	0	33	566	0
Confl. Peds. (#/hr)	1		2	2		1	1		1	1		1
Heavy Vehicles (%)	43%	0%	0%	0%	0%	0%	4%	4%	0%	0%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	10.6	10.6		10.6	10.6		49.4	49.4		49.4	49.4	
Effective Green, g (s)	10.6	10.6		10.6	10.6		49.4	49.4		49.4	49.4	
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.68	0.68		0.68	0.68	
Clearance Time (s)	6.7	6.7		6.7	6.7		6.3	6.3		6.3	6.3	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	142	249		192	263		504	1241		706	1218	
v/s Ratio Prot		0.03			0.02			0.20			c0.31	
v/s Ratio Perm	c0.09			0.01			0.12			0.03		
v/c Ratio	0.60	0.19		0.09	0.11		0.18	0.29		0.05	0.46	
Uniform Delay, d1	29.2	27.4		27.0	27.1		4.3	4.8		3.9	5.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.6	0.4		0.2	0.2		0.8	0.6		0.1	1.3	
Delay (s)	35.8	27.8		27.2	27.3		5.1	5.4		4.1	6.8	
Level of Service	D	C		C	C		A	A		A	A	
Approach Delay (s)		31.5			27.3			5.3			6.7	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	73.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

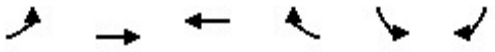
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	15	6	507	23	12	666
Future Volume (vph)	15	6	507	23	12	666
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.959		0.994			
Flt Protected	0.966					0.999
Satd. Flow (prot)	1745	0	1872	0	0	1882
Flt Permitted	0.966					0.999
Satd. Flow (perm)	1745	0	1872	0	0	1882
Link Speed (k/h)	48		50			50
Link Distance (m)	85.3		127.5			527.2
Travel Time (s)	6.4		9.2			38.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	7	551	25	13	724
Shared Lane Traffic (%)						
Lane Group Flow (vph)	23	0	576	0	0	737
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 54.7%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	15	6	507	23	12	666
Future Volume (Veh/h)	15	6	507	23	12	666
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	7	551	25	13	724
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			127			
pX, platoon unblocked	0.79	0.79			0.79	
vC, conflicting volume	1314	564			576	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1265	319			334	
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	99			99	
cM capacity (veh/h)	146	572			971	

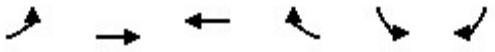
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	23	576	737
Volume Left	16	0	13
Volume Right	7	25	0
cSH	189	1700	971
Volume to Capacity	0.12	0.34	0.01
Queue Length 95th (m)	3.1	0.0	0.3
Control Delay (s)	26.7	0.0	0.4
Lane LOS	D		A
Approach Delay (s)	26.7	0.0	0.4
Approach LOS	D		

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	54.7%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	14	149	132	12	8	10
Future Volume (vph)	14	149	132	12	8	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.989		0.926	
Flt Protected		0.996			0.978	
Satd. Flow (prot)	0	1876	1863	0	1706	0
Flt Permitted		0.996			0.978	
Satd. Flow (perm)	0	1876	1863	0	1706	0
Link Speed (k/h)		50	50		48	
Link Distance (m)		178.7	488.3		63.0	
Travel Time (s)		12.9	35.2		4.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	162	143	13	9	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	177	156	0	20	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 29.5%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	149	132	12	8	10
Future Volume (Veh/h)	14	149	132	12	8	10
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)	15	162	143	13	9	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		179				
pX, platoon unblocked						
vC, conflicting volume	156				342	150
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	156				342	150
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				99	99
cM capacity (veh/h)	1424				648	897

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	177	156	20
Volume Left	15	0	9
Volume Right	0	13	11
cSH	1424	1700	765
Volume to Capacity	0.01	0.09	0.03
Queue Length 95th (m)	0.2	0.0	0.6
Control Delay (s)	0.7	0.0	9.8
Lane LOS	A		A
Approach Delay (s)	0.7	0.0	9.8
Approach LOS			A

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	29.5%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix F

Transportation Tomorrow Survey 2016

AM Inbound

Thu Jan 11 2024 09:54:10 GMT-0500 (Eastern Standard Time) - Run Time: 2691ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of origin - pd_orig

Column: 2006 GTA zone of destination - gta06_dest

RowG:

ColG:(6192,6193,6194,6195,6196)

TblG:

Filters:

Start time of trip - start_time In 600-900

and

Trip purpose of destination - purp_dest In h

Trip 2016

Table:

,1		N St Paul	S St Paul	S Stanley	W Mountain	N St Paul Trips	S St Paul Trips	S Stanley Trips	W Mountain Trips	
Niagara-on-the-Lake	30	1				30	0	0	0	
St. Catharines	59	0.5			0.5	30	0	0	30	
Niagara Falls	310		0.333333	0.333333	0.333333333	0	103	103	103	
West Lincoln	19				1	0	0	0	19	
Rest of Wellington	19				1	0	0	0	19	
	437					**60**	**103**	**103**	**171**	**437**
						14%	24%	24%	39%	100%

		N St Paul	S Dorchester	S St Paul	S Stanley	W Mountain
AM	Inbound	14%		24%	24%	39%
	Outbound	13%	3%	19%	19%	46%
AM	Inbound	30%	0%	16%	16%	39%
	Outbound	7%	1%	22%	22%	48%

AM Outbound

Thu Jan 11 2024 09:55:30 GMT-0500 (Eastern Standard Time) - Run Time: 2470ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of destination - pd_dest
Column: 2006 GTA zone of origin - gta06_orig

RowG:
ColG:(6192,6193,6194,6195,6196)
TblG:

Filters:
Start time of trip - start_time In 600-900
and
Trip purpose of origin - purp_orig In h

Trip 2016
Table:

,1		N St Paul	S Dorchester	S St Paul	S Stanley	W Mountain	N St Paul Trips	S Dorchester Trips	S St Paul Trips	S Mountain Trips	W Mountain Trips	
PD 1 of Toronto	4					1	0	0	0	0	4	
PD 9 of Toronto	10					1	0	0	0	0	10	
PD 16 of Toronto	30					1	0	0	0	0	30	
Richmond Hill	4					1	0	0	0	0	4	
Vaughan	16					1	0	0	0	0	16	
Mississauga	15					1	0	0	0	0	15	
Burlington	25					1	0	0	0	0	25	
Flamborough	77					1	0	0	0	0	77	
Stoney Creek	17					1	0	0	0	0	17	
Hamilton	10					1	0	0	0	0	10	
Grimsby	18					1	0	0	0	0	18	
Lincoln	9					1	0	0	0	0	9	
Pelham	54		0.5			0.5	0	27	0	0	27	
Niagara-on-the-Lake	514	1					514	0	0	0	0	
St. Catharines	394					1	0	0	0	0	394	
Thorold	222		0.5			0.5	0	111	0	0	111	
Niagara Falls	2288			0.333333	0.3333333	0.333333333	0	0	763	763	763	
Welland	133					1	0	0	0	0	133	
Port Colborne	22					1	0	0	0	0	22	
Fort Erie	119					1	0	0	0	0	119	
West Lincoln	19					1	0	0	0	0	19	
Cambridge	30					1	0	0	0	0	30	
	4030						**514**	**138**	**763**	**763**	**1853**	**4030**
							13%	3%	19%	19%	46%	100%

PM Inbound

Thu Jan 11 2024 09:54:45 GMT-0500 (Eastern Standard Time) - Run Time: 2727ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of origin - pd_orig

Column: 2006 GTA zone of destination - gta06_dest

RowG:

ColG:(6192,6193,6194,6195,6196)

TblG:

Filters:

Start time of trip - start_time In 1600-1900

and

Trip purpose of destination - purp_dest In h

Trip 2016

Table:

,1		N St Paul	S Dorchester	S St Paul	S Stanley	W Mountain	N St Paul Trips	S Dorchester Trips	S St Paul Trips	S Stanley Trips	W Mountain Trips	
PD 9 of Toronto	10					1	0	0	0	0	10	
Richmond Hill	4					1	0	0	0	0	4	
Vaughan	16					1	0	0	0	0	16	
Mississauga	15					1	0	0	0	0	15	
Burlington	25					1	0	0	0	0	25	
Flamborough	28					1	0	0	0	0	28	
Stoney Creek	17					1	0	0	0	0	17	
Hamilton	19					1	0	0	0	0	19	
Niagara-on-the-Lake	656	1					656	0	0	0	0	
St. Catharines	499	0.5				0.5	250	0	0	0	250	
Thorold	164	0.5				0.5	82	0	0	0	82	
Niagara Falls	1559			0.3333333	0.3333333	0.333333333	0	0	520	520	520	
Welland	212					1	0	0	0	0	212	
Fort Erie	78					1	0	0	0	0	78	
	3302						**988**	**0**	**520**	**520**	**1275**	3302
							30%	0%	16%	16%	39%	100%

PM Outbound

Thu Jan 11 2024 09:55:15 GMT-0500 (Eastern Standard Time) - Run Time: 3028ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of destination - pd_dest
Column: 2006 GTA zone of origin - gta06_orig

RowG:
ColG:(6192,6193,6194,6195,6196)
TblG:

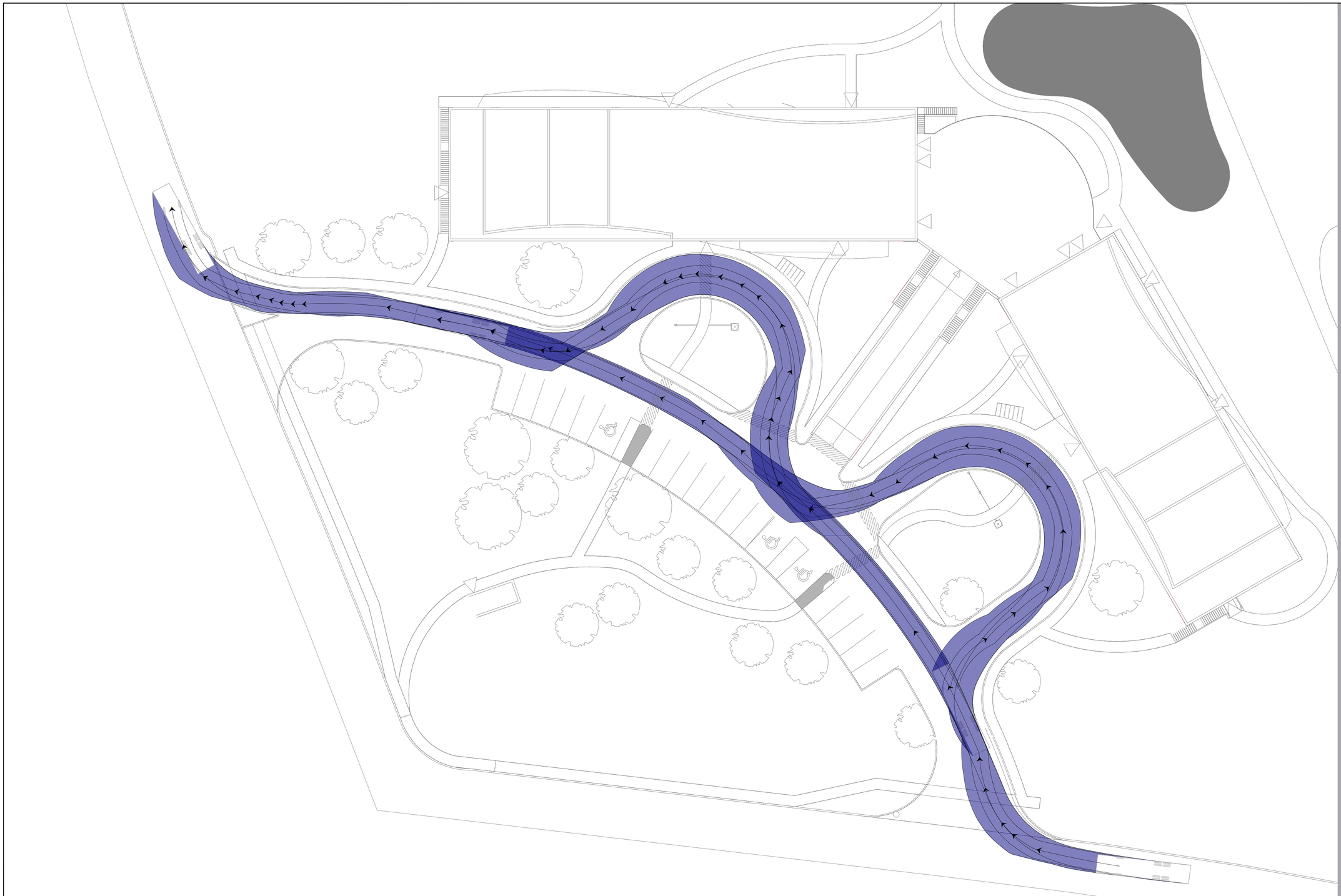
Filters:
Start time of trip - start_time In 1600-1900
and
Trip purpose of origin - purp_orig In h

Trip 2016
Table:

,1		N St Paul	S St Paul	S Stanley	S Dorchester	W Mountain	N St Paul Trips	S St Paul Trips	S Stanley Trips	S Dorchester Trips	W Mountain Trips	
PD 1 of Toronto	18					1	0	0	0	0	18	
Niagara-on-the-Lake	94	1					94	0	0	0	0	
St. Catharines	313					1	0	0	0	0	313	
Niagara Falls	870		0.333333	0.333333		0.333333333	0	290	290	0	290	
Welland	16				0.5	0.5	0	0	0	8	8	
	1311						**94**	**290**	**290**	**8**	**629**	**1311**
							7%	22%	22%	1%	48%	100%

Appendix G

AutoTURN Swept Path Analysis



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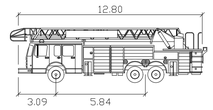
Bar is 25mm on original size sheet
0 25mm



Aerial Fire

	meters
Width	: 2.54
Track	: 2.54
Lock to Lock Time	: 6.0
Steering Angle	: 37.0

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	3/4/24

Author	R.A	Designer	R.A
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

Client
9431870 CANADA CORP

Project
2430 ST. PAUL AVENUE

Date March 4, 2024

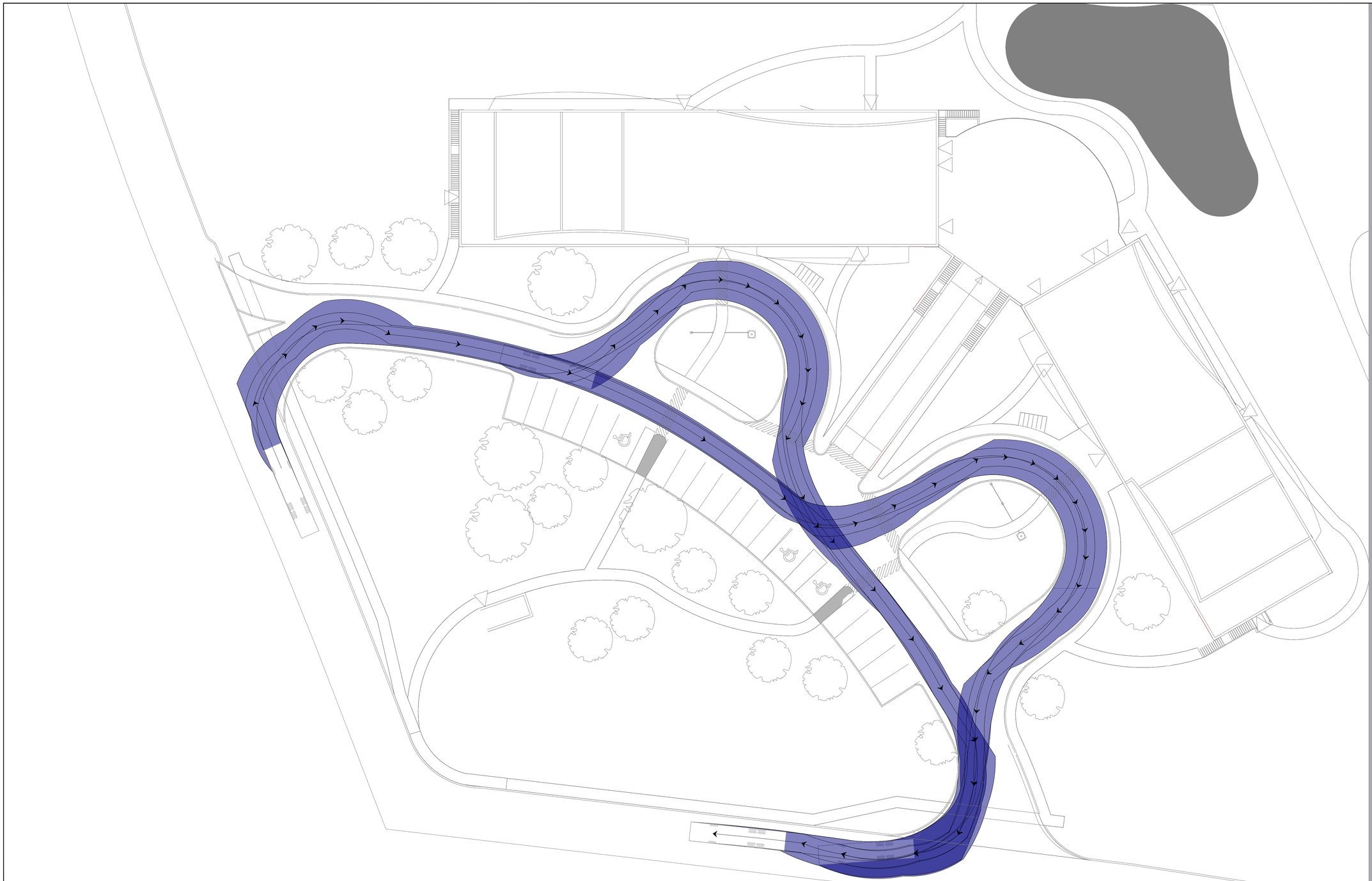
Scale NTS

Project No. 12630810

Title
VEHICLE MANEUVERING DIAGRAM - FIRE TRUCK (WESTBOUND)

Size ANSI D

Sheet No. AT-101



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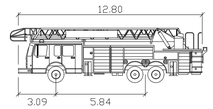
Bar is 25mm on original size sheet
0 25mm



Aerial Fire

	meters
Width	: 2.54
Track	: 2.54
Lock to Lock Time	: 6.0
Steering Angle	: 37.0

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	3/4/24

Author	R.A	Designer	R.A
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

Client
9431870 CANADA CORP

Project
2430 ST. PAUL AVENUE

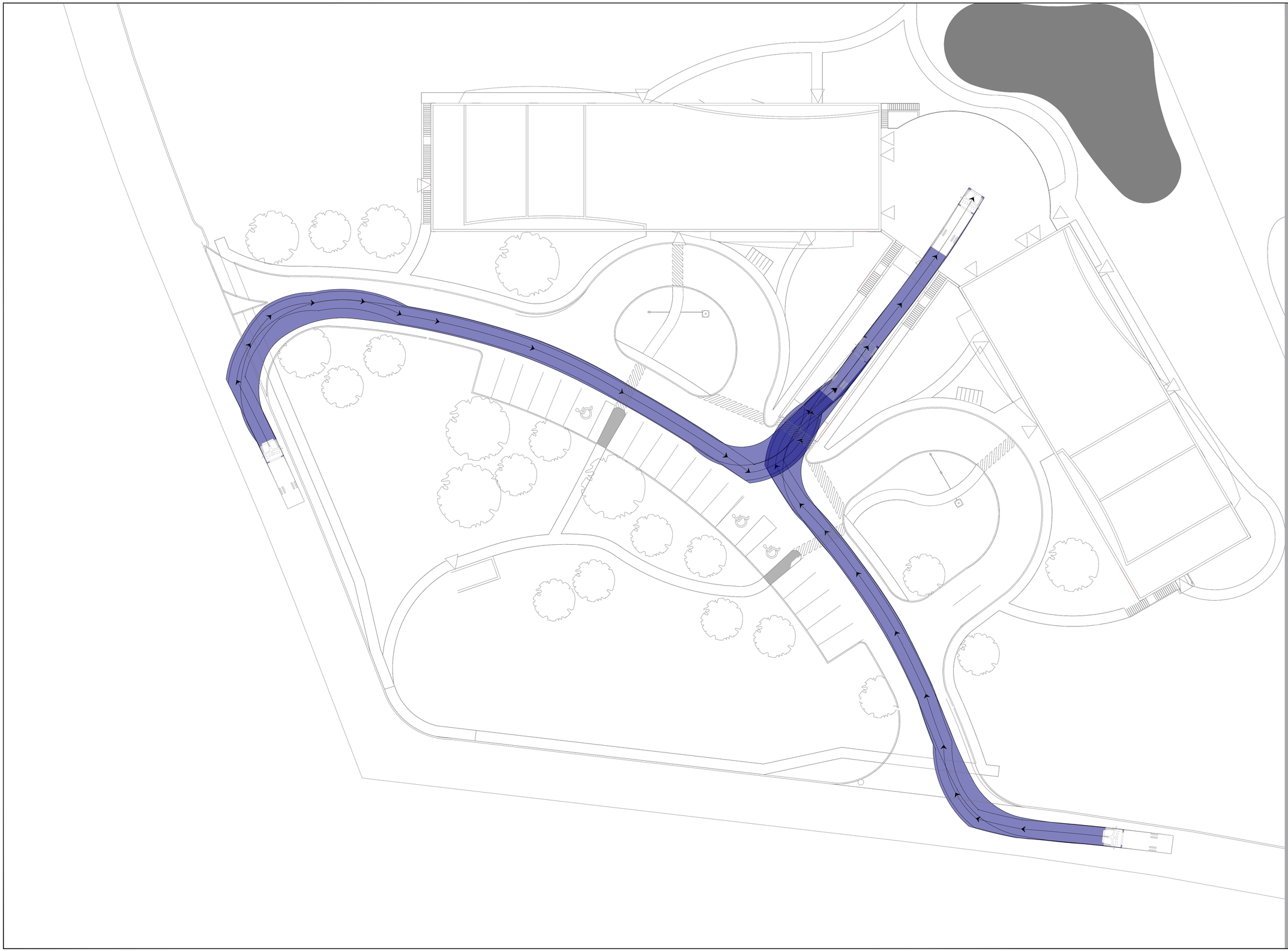
Date March 4, 2024
Scale NTS

Project No. 12630810

Title
VEHICLE MANEUVERING DIAGRAM - FIRE TRUCK (EASTBOUND)

Size ANSI D

Sheet No. AT-102



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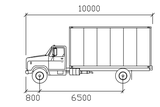
Mar. 4, 2024
W.C. MARIA
PROVINCE OF ONTARIO

Bar is 25mm on original size sheet
0 25mm



MSU

	mm
Width	: 2600
Track	: 2600
Lock to Lock Time	6.0
Steering Angle	: 40.2

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	3/4/24

Author	R.A	Designer	R.A
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

Client

9431870 CANADA CORP

Project

2430 ST. PAUL AVENUE

Date	Scale
March 4, 2024	NTS

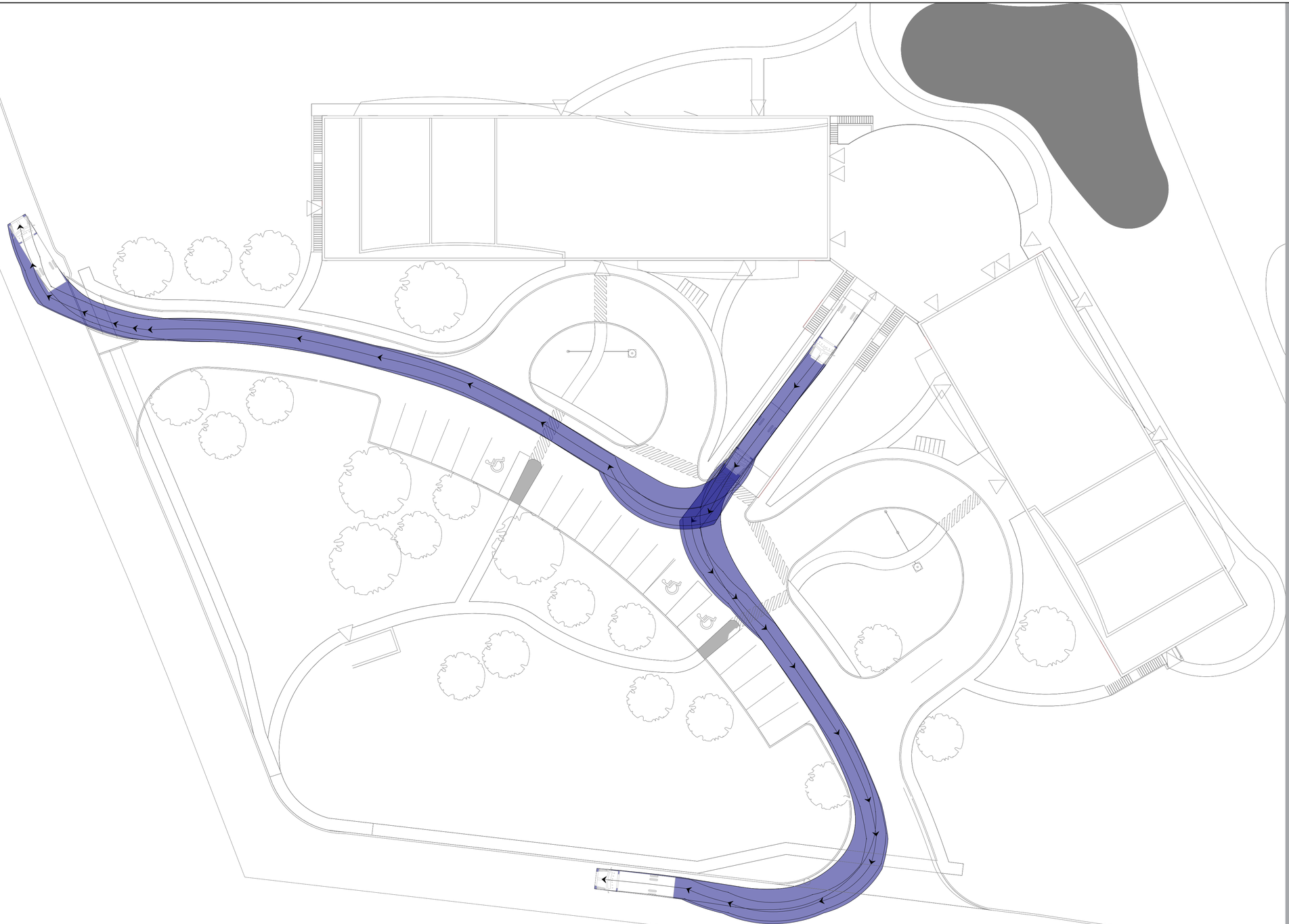
Project No.
12630810

Title

VEHICLE MANEUVERING DIAGRAM - MSU TRUCK (INBOUND)

Size
ANSI D

Sheet No.
AT-103



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Mar. 4, 2024
W.C. MARIA
PROVINCE OF ONTARIO

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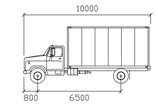
0 25mm



MSU

	mm
Width	: 2600
Track	: 2600
Lock to Lock Time	6.0
Steering Angle	: 40.2

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	3/4/24

Author	R.A	Designer	R.A
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

Client
9431870 CANADA CORP

Project
2430 ST. PAUL AVENUE

Date March 4, 2024

Scale NTS

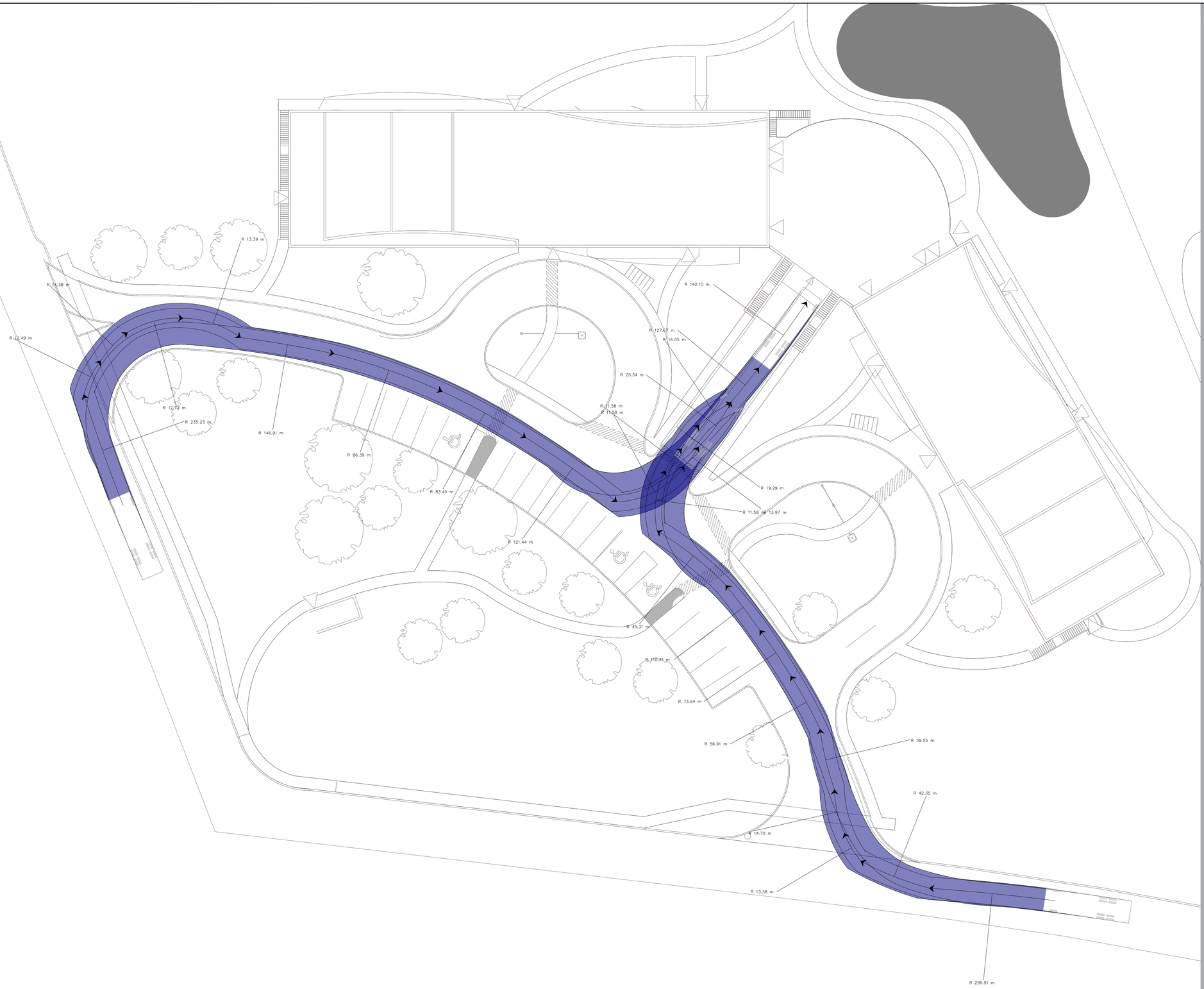
Project No. 12630810

Title
VEHICLE MANEUVERING DIAGRAM - MSU TRUCK (OUTBOUND)

Size ANSI D

Sheet No. AT-104

Plot Date: 2/22/2024 Plotted By: Raf Andrenacci Path and Filename: \\ghdnet\ghd\CA\Waterloo\Projects\662\12571996\AutoTurn



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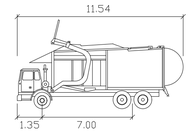
PROVINCE OF ONTARIO

Bar is 25mm on original size sheet
0 25mm



NR_GRBG12.8M_OUT_RAD
meters

Width	: 2.98
Track	: 2.98
Lock to Lock Time	3.0
Steering Angle	: 37.2

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	3/4/24

Author	R.A	Designer	R.A
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

Client
9431870 CANADA CORP

Project
2430 ST. PAUL AVENUE

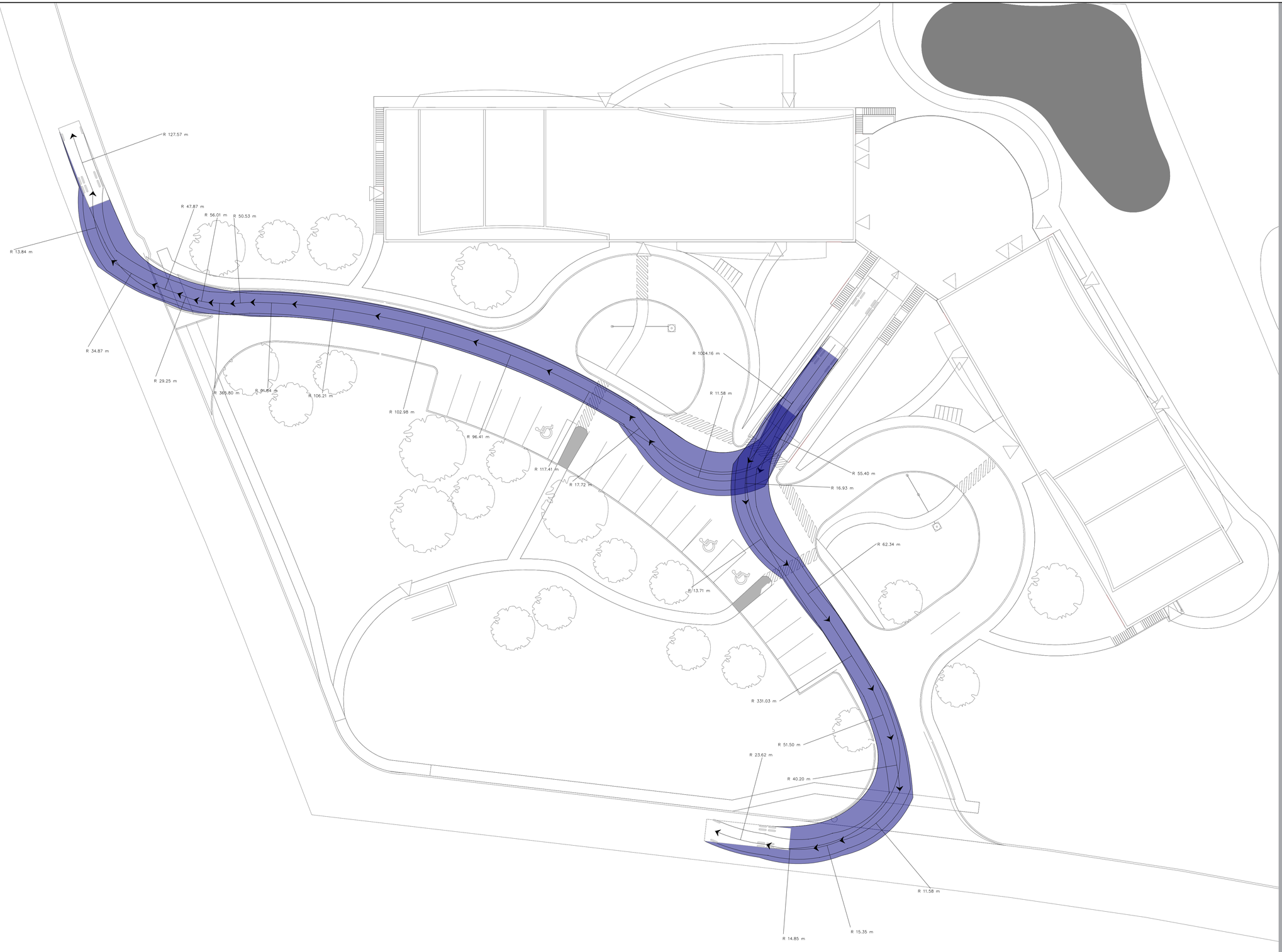
Date March 4, 2024
Scale NTS

Project No. 12630810

Title
VEHICLE MANEUVERING DIAGRAM - WASTE COLLECTION (INBOUND)

Size ANSI D

Sheet No. AT-105



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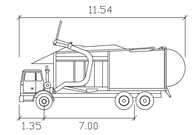
PROVINCE OF ONTARIO

Bar is 25mm on original size sheet
0 25mm



NR_GRBG12.8M_OUT_RAD

meters

Width	: 2.98
Track	: 2.98
Lock to Lock Time	3.0
Steering Angle	: 37.2

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	3/4/24

Author	R.A	Designer	R.A
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

Client
9431870 CANADA CORP

Project
2430 ST. PAUL AVENUE

Date March 4, 2024

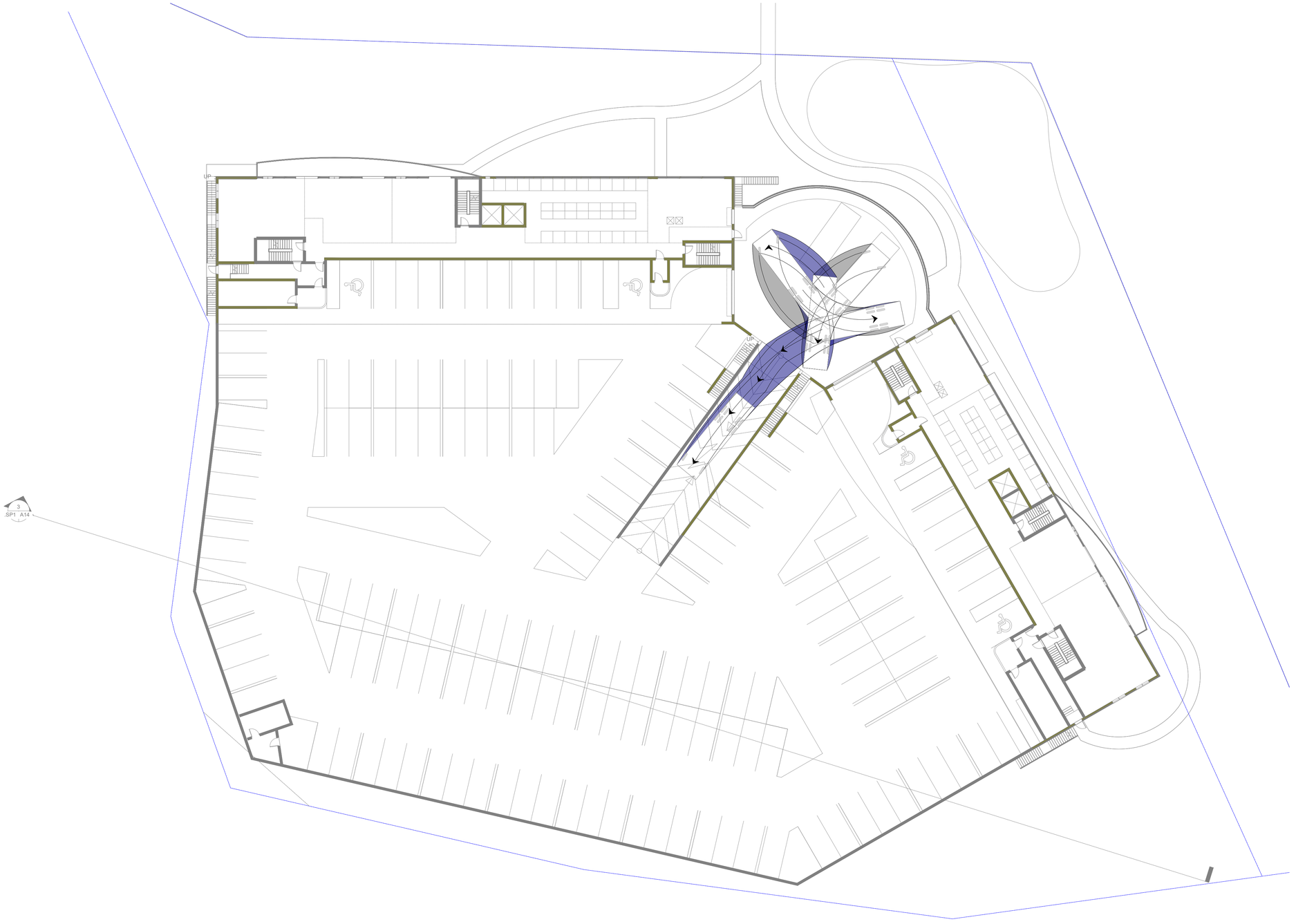
Scale NTS

Project No. 12630810

Title
VEHICLE MANEUVERING DIAGRAM - WASTE COLLECTION (OUTBOUND)

Size ANSI D

Sheet No. AT-106



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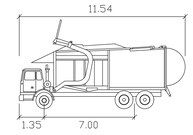
LICENSED PROFESSIONAL ENGINEER
Mar. 4, 2024
W.C. MARIA
PROVINCE OF ONTARIO

Bar is 25mm on original size sheet
0 25mm



NR_GRBG12.8M_OUT_RAD

meters

Width	: 2.98
Track	: 2.98
Lock to Lock Time	3.0
Steering Angle	: 37.2

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	3/4/24

Author	R.A	Designer	R.A
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

Client

9431870 CANADA CORP

Project

2430 ST. PAUL AVENUE

Date	Scale
March 4, 2024	NTS

Project No.
12630810

Title

VEHICLE MANEUVERING DIAGRAM - WASTE COLLECTION (LOADING AREA)

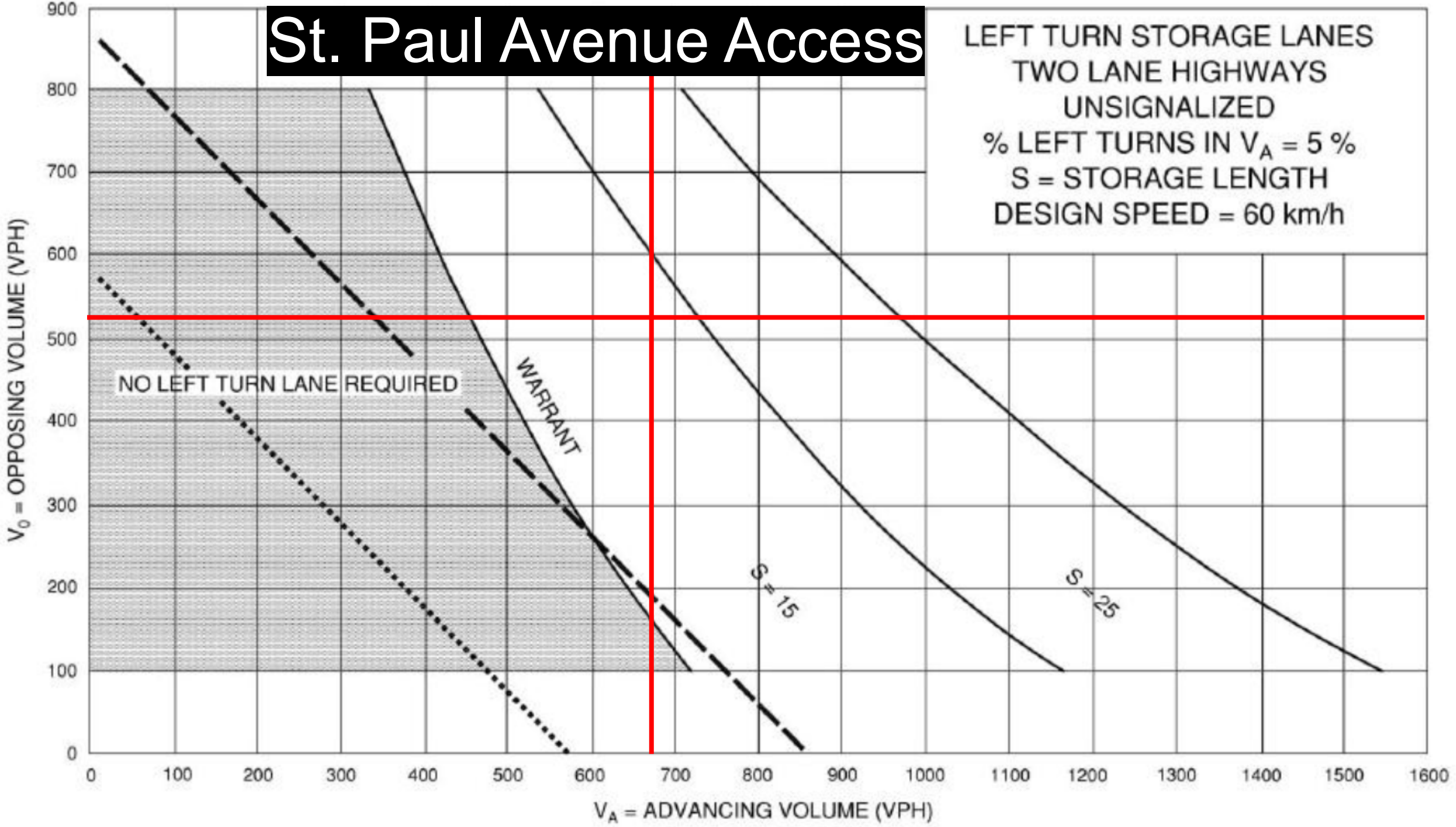
Size
ANSI D

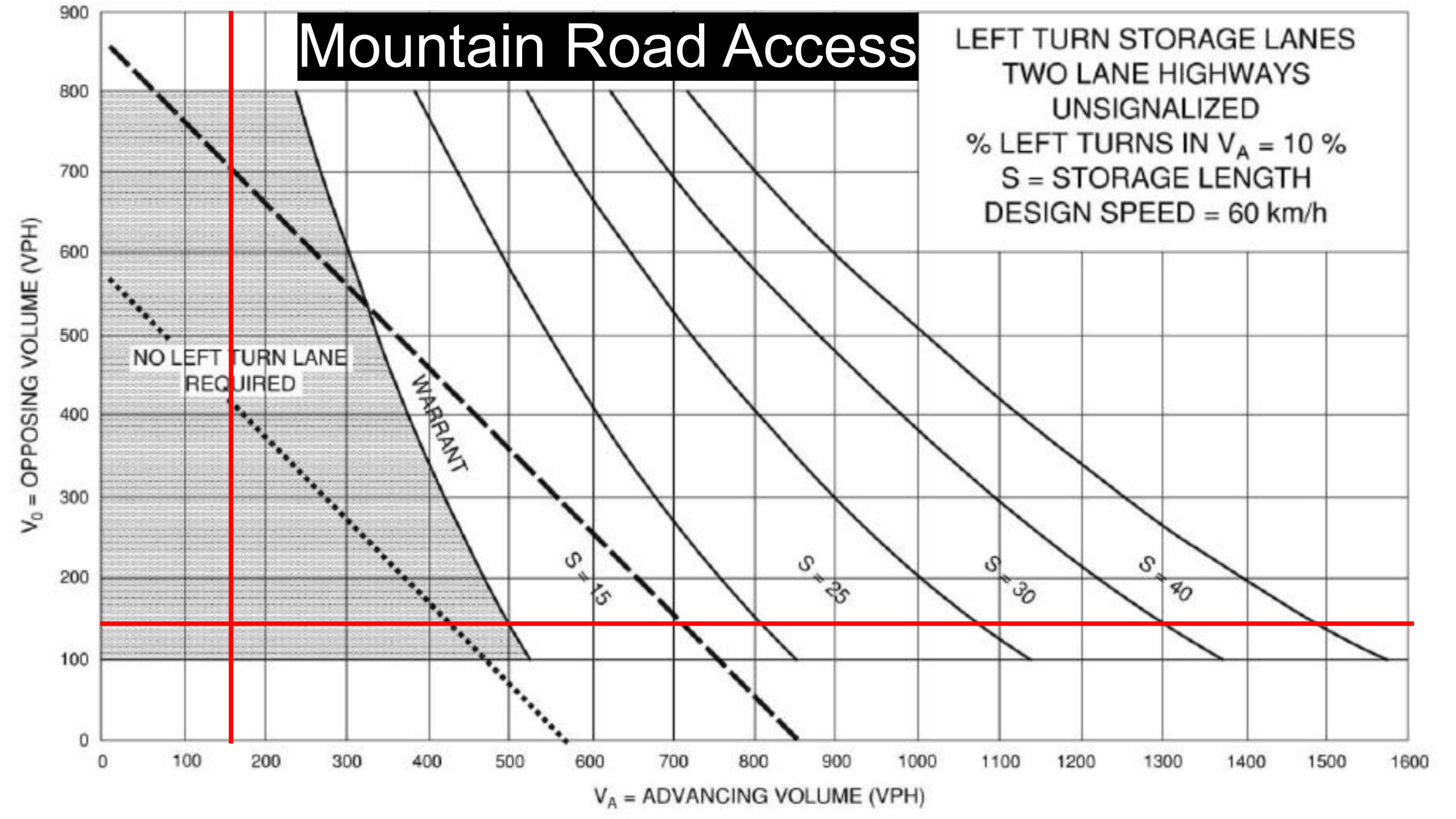
Sheet No.
AT-107

Appendix H

Left Turn Lane Requirements

St. Paul Avenue Access




Mountain Road Access
LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 10 %
S = STORAGE LENGTH
DESIGN SPEED = 60 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S = 15
S = 25
S = 30
S = 40
V_0 = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600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