Great Lakes Entertainment Canada Ltd.

Ice Sculpture Centre Hotel Development

Traffic Impact Study

Final

Great Lakes Entertainment Canada Ltd.

RVA 237140

November 23, 2023

ICE SCULPTURE CENTRE HOTEL DEVELOPMENT

TRAFFIC IMPACT STUDY

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1.0 Introduction

1.1 Study Objectives

R.V. Anderson Associates Limited (RVA) has been retained by Great Lakes Entertainment Canada Ltd. to prepare a traffic impact study in support of the proposed Ice Sculpture Centre Hotel Development. This development will be located in the northeast and northwest corners of the Bender Street and Ontario Street intersection (assuming Bender Street running east-west) in the City of Niagara Falls (currently occupied by parking lots). The proposed site location and its two separate parcels in the context of the surrounding road roadways are shown in **Figure 1.1**.

For traffic analysis purposes based on the City's TIS guidelines, it is assumed that this development will be fully built by the year 2025, and that a future (2030) horizon year is assumed to be the ultimate analysis year following the buildout of the development (5-year horizon beyond full buildout). Given the nature of the proposed land uses and their traffic generation, the weekday a.m., p.m. and Saturday Mid-day peak hours were analyzed as part of this study.

The study was completed according to a Terms of Reference (TOR) approved by the City at the outset of the project, as provided in **Appendix A**. The ultimate purpose of this study is to determine the impact of the site generated traffic on the surrounding roadway intersections.

1.2 Study Area

The subject site is situated within the key tourist area of the City of Niagara Falls, within close walking distance of many nearby amenities, commercial establishments, entertainment venues, and other key tourist destinations.

The site is within close proximity to major transportation links, such as the Rainbow Bridge providing access to/from the State of New York, and the Niagara Veterans Memorial Highway (Highway 420) connecting to the QEW Highway and the Greater Toronto Hamilton Area (GTHA).

Based on consultation with the City, the study area intersections considered for traffic impact analysis are listed below:

- Victoria Avenue at Falls Avenue (Hwy 420/Falls Avenue) On- and Off-Ramps
- Victoria Avenue at Bender Street
- Bender Street at Palmer Avenue
- Bender Street at Ontario Street
- Bender Street at Falls Avenue
- Hiram Street at Blondin Avenue
- Hiram Street at River Road
- Proposed Site Accesses

Figure 1.1 – Proposed Site Location and Study Area Roadways

2.0 Existing Traffic Conditions

2.1 Existing Transportation Network

2.1.1 Roads

The study area road network primarily consists of arterial and collector roads under the jurisdiction of the City of Niagara Falls; however, Falls Avenue is a Regional Road with MTO involvement concerning traffic operations on Falls Avenue due to the Connecting Links Program. The existing intersection lane configurations and traffic controls are presented in **Figure 2.1**.

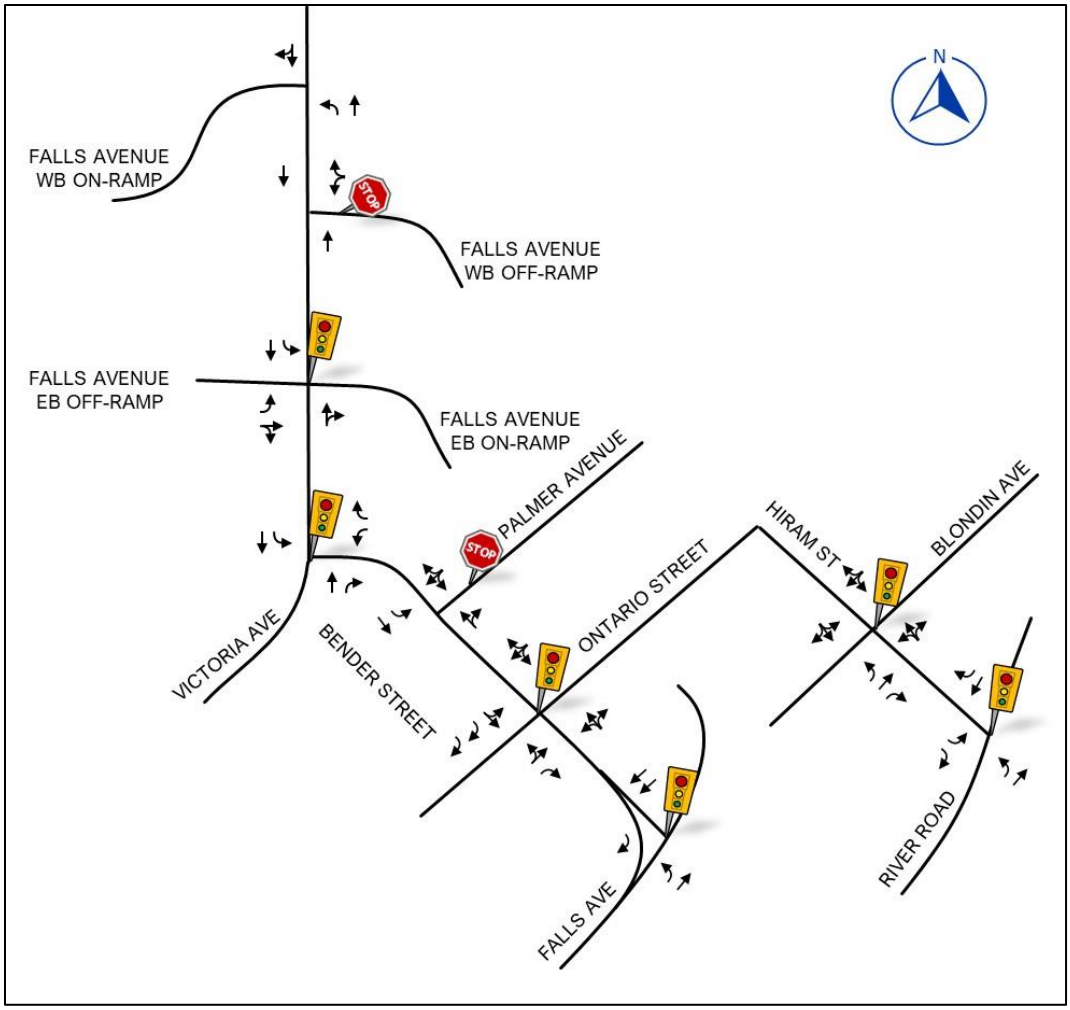

Figure 2.1 – Existing Intersection Lane Configurations and Traffic Controls

There is currently a municipal parking lot situated immediately adjacent to the subject lands with vehicular access off Palmer Avenue. It is noted that several intersections around the proposed site are spaced closely.

2.1.2 Active Transportation

Sidewalks are currently provided on both sides of all study area roadways, except for both sides of Falls Avenue north of its intersection with Bender Street and south side of Falls Avenue south of Bender Street, the south side of Palmer Avenue between Bender Street and the Falls Avenue bridge, and the north side of Ontario Street. There are currently no dedicated cycling facilities (i.e., on-street bike lanes) in the immediate vicinity of the subject site.

2.1.3 Transit

Niagara Transit currently operates several routes in the vicinity of the proposed site, and WEGO transit operates the Blue Line with multiple transit stops in close proximity of the subject site, including at Casino Niagara, on Victoria Avenue just north of Bender Street (northbound and southbound directions), and on Victoria Avenue just west of Walnut Street (eastbound and westbound directions).

2.2 Existing (2023) Traffic Data

Intersection turning movement count (TMC) data was collected for the study intersections in August 2023 during the weekday a.m., p.m., and Saturday mid-day peak hours. Raw count data is provided in **Appendix B**.

All the a.m. peak hours commenced at between 8:00 a.m. and 9:00 a.m. Generally, the p.m. peak hours commenced between 3:15 p.m. and 3:45 p.m. Since hotels in this area attract significant tourists on the weekends, a Saturday mid-day peak hour was chosen, which generally commenced between 2:00 p.m. and 6:00 p.m.

The existing (2023) intersection volumes for the weekday a.m., p.m. and Saturday Mid-day peak hours are presented in **Figure 2.2**.

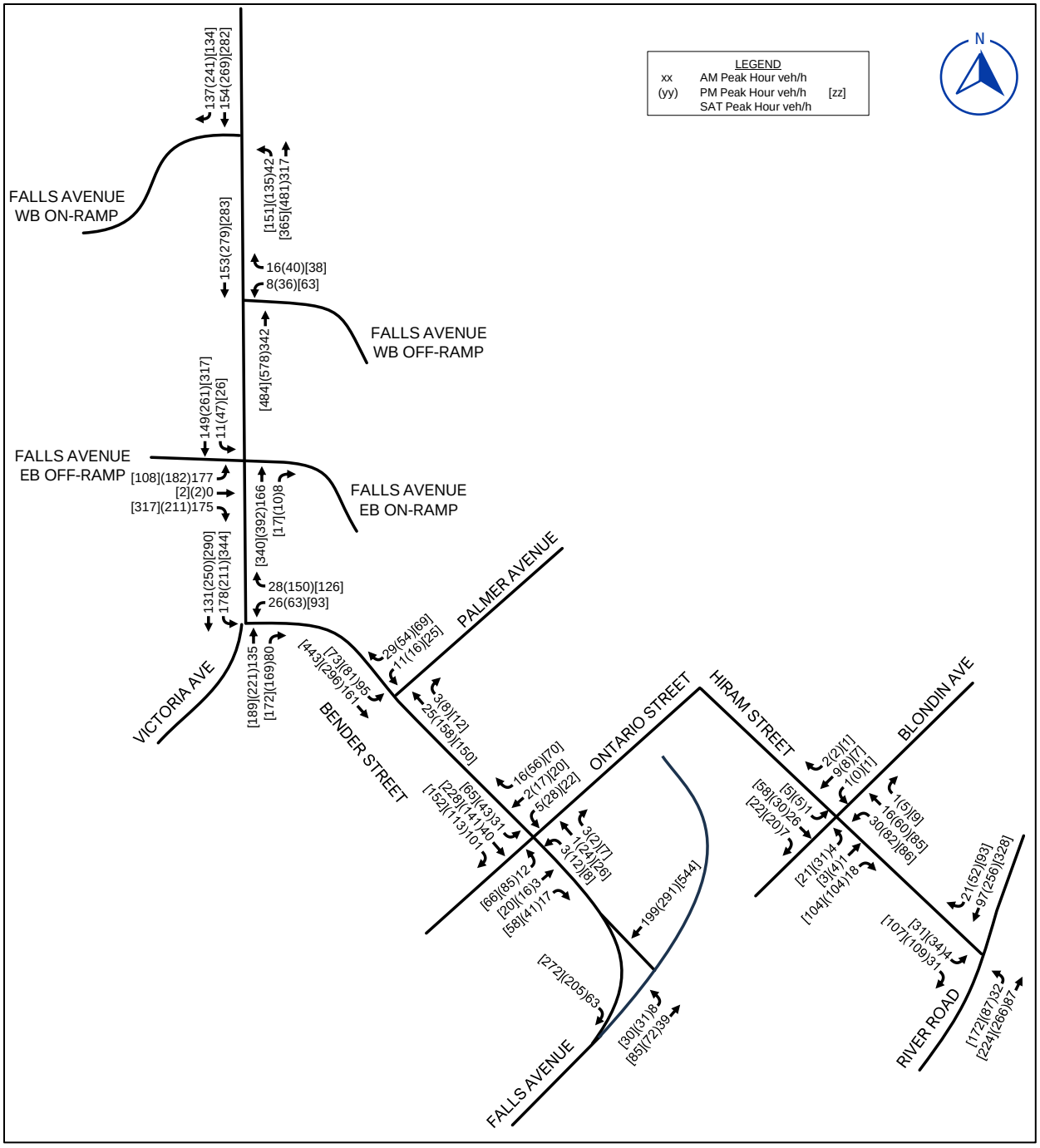

Figure 2.2 – Existing (2023) Traffic Volumes, AM, PM, and Saturday Mid-day Peak Hours

3.0 Future Background Conditions

3.1 Planned Network Improvements

As per consultation with the City staff and through confirmation with Regional staff, it was determined that there will be no road network improvements planned to be completed by the ultimate future (2030) horizon year of this study.

It should be noted however that a traffic study was undertaken by the Niagara Region examining the advantages of providing a southbound right-turn loop ramp from Falls Avenue to Bender Street. However, this improvement is not scheduled to be implemented within the horizon years of this study.

3.2 Future Background Traffic Volumes

As confirmed by City staff, a 2% per annum growth rate has been utilized for forecasting future background traffic volumes. The growth was applied to all intersection movements. The resulting 2025 and 2030 future background volumes are presented in **Figure 3.1**, and **Figure 3.2**, respectively.

3.3 Future Background Developments Traffic Volumes

The City provided RVA with the TIS Reports for three (3) proposed developments within the vicinity of the study area. It is assumed that all developments will be completed before the opening year (2025) of the Ice Sculpture Centre Hotel Development. The proposed developments are as follows:

Niagara River Road Luxury Resort

The traffic study for this development was completed in 2013. The resort is proposed to be situated at two parcels on the north side of River Road, and on both sides of Hiram Street. The estimated site generated traffic for weekday p.m. and Saturday peak hours are shown in **Figure 3.3**.

5613 Victoria Avenue Development

The traffic study for this development was completed in 2021. The subject site is proposed to be situated in the west corner of the Victoria Avenue and Walnut Street intersection. The estimated weekday a.m. and p.m., and Saturday peak hour site generated traffic for the proposed Development is shown in **Figure 3.4**.

5500 Victoria Avenue Development

The traffic study for this development was completed in 2022. The subject site is proposed to be situated in the northeast corner of the Victoria Avenue and Bender Street intersection. The

estimated weekday a.m. and p.m., and Saturday peak hour site generated traffic for the proposed Resort Development is shown in **Figure 3.5**.

Total Future Background Developments Traffic Volumes are presented in **Figure 3.6**.

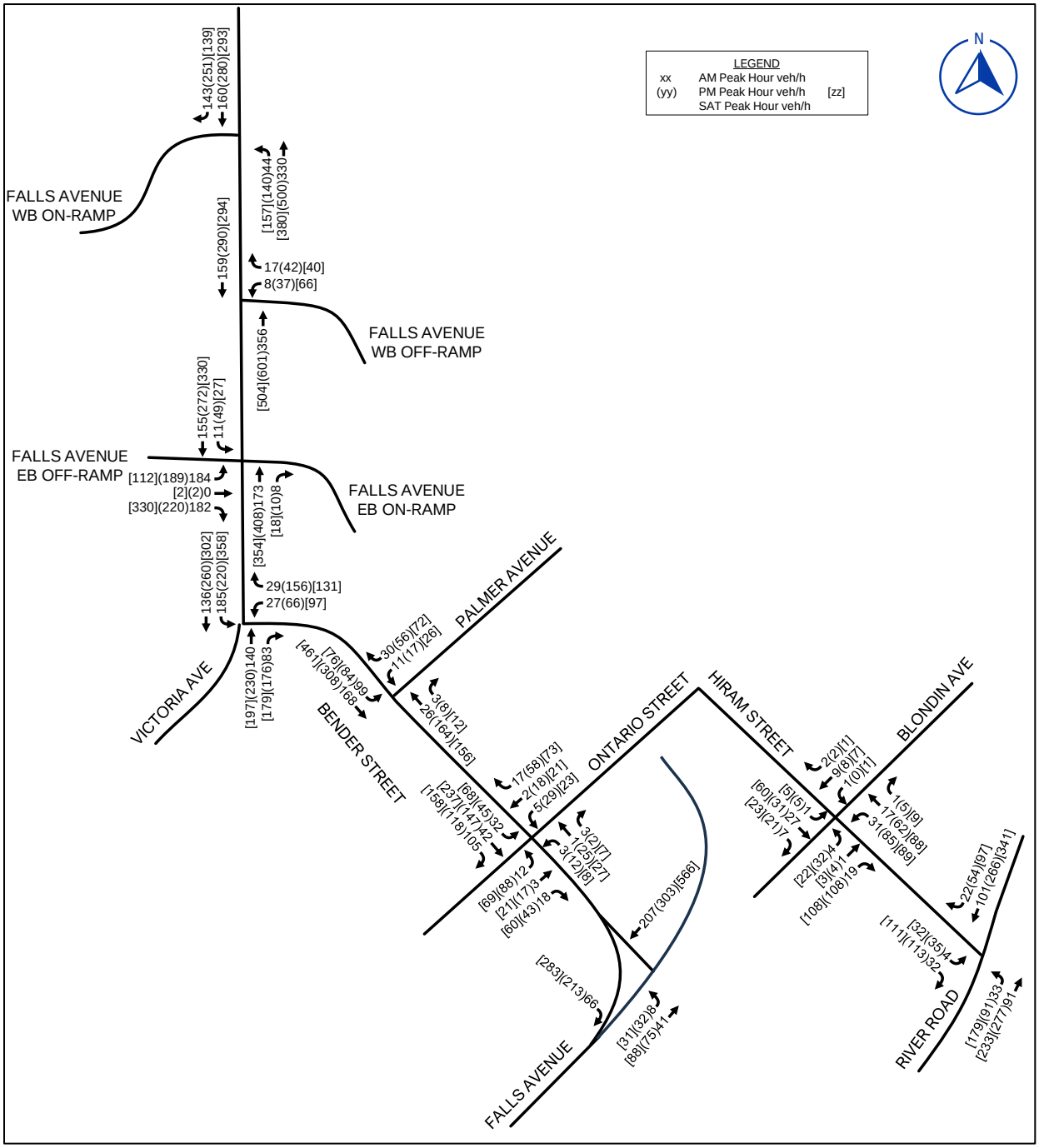

Figure 3.1 – Future (2025) Background Traffic Volumes

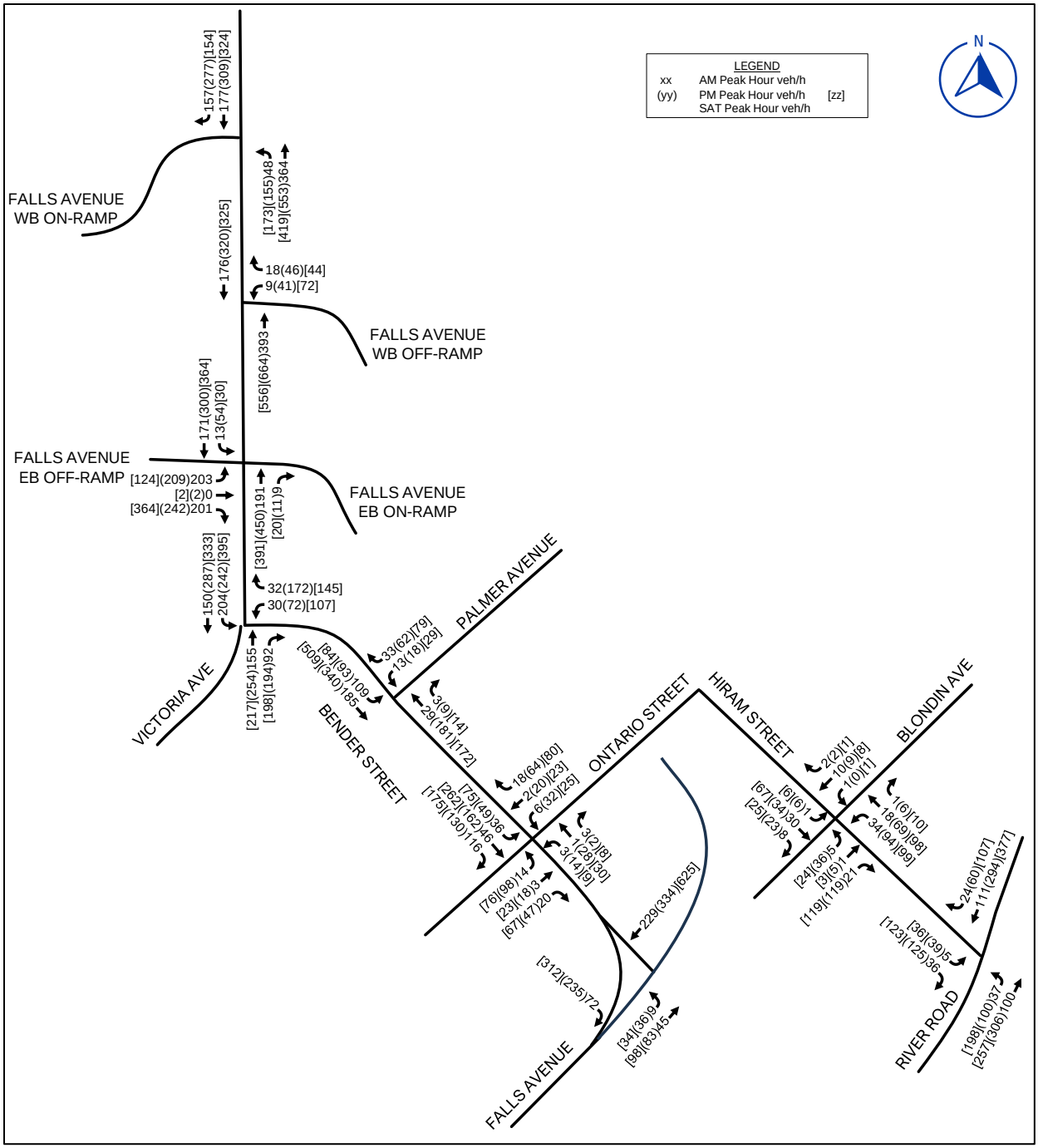

Figure 3.2 – Future (2030) Background Traffic Volumes

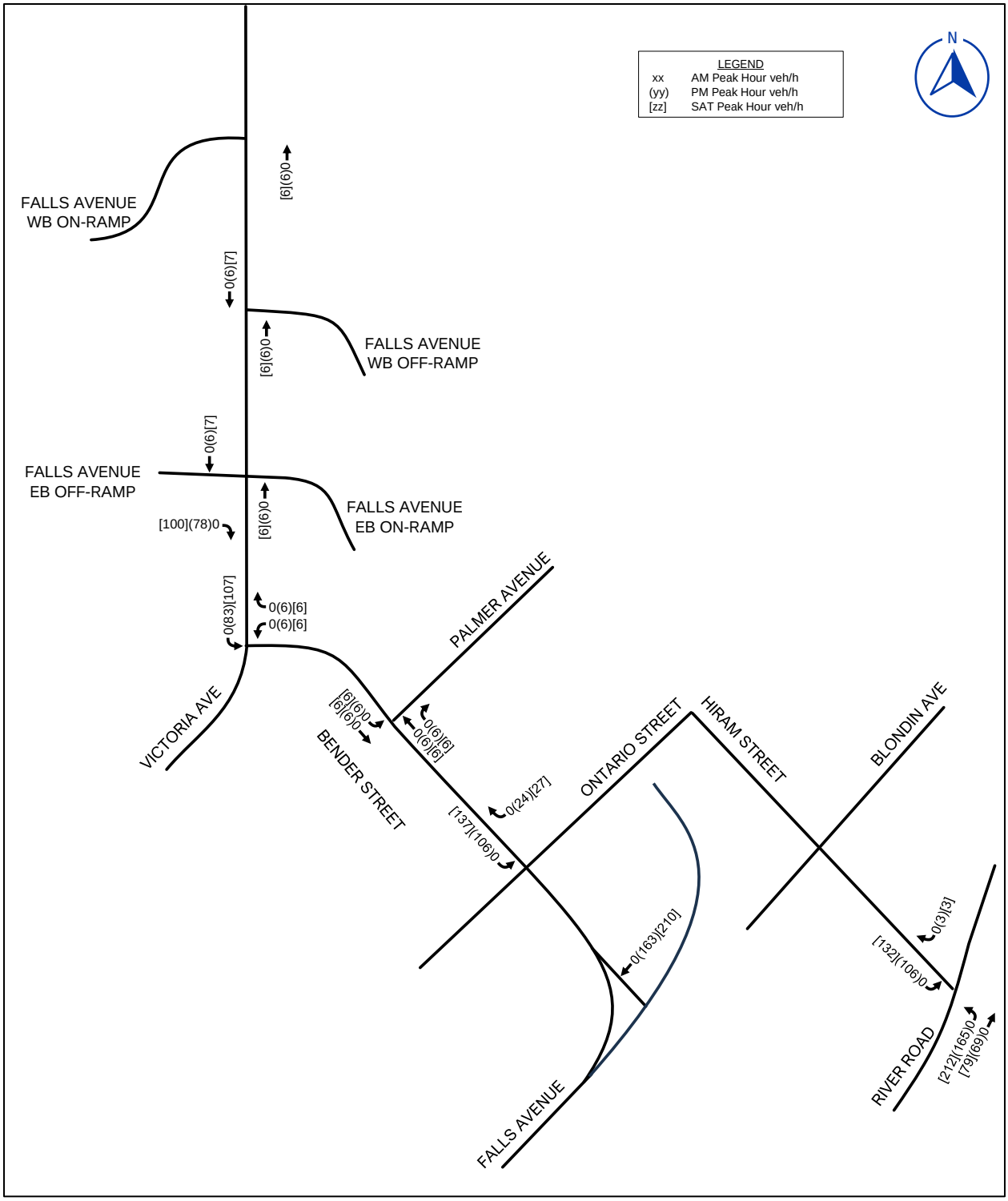

Figure 3.3 – Niagara River Luxury Resort Development Traffic Volumes

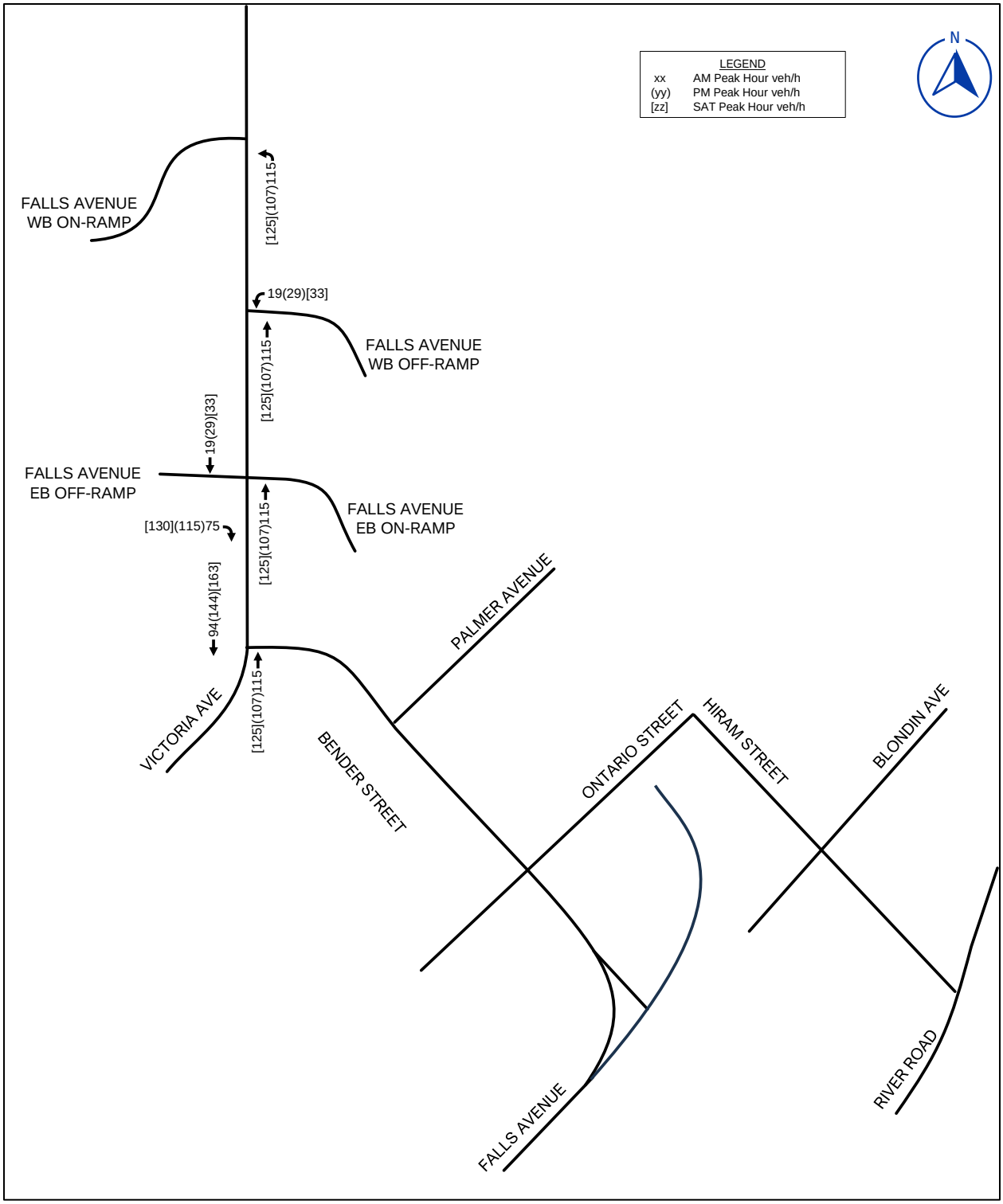

Figure 3.4 – 5613 Victoria Avenue Development Traffic Volumes

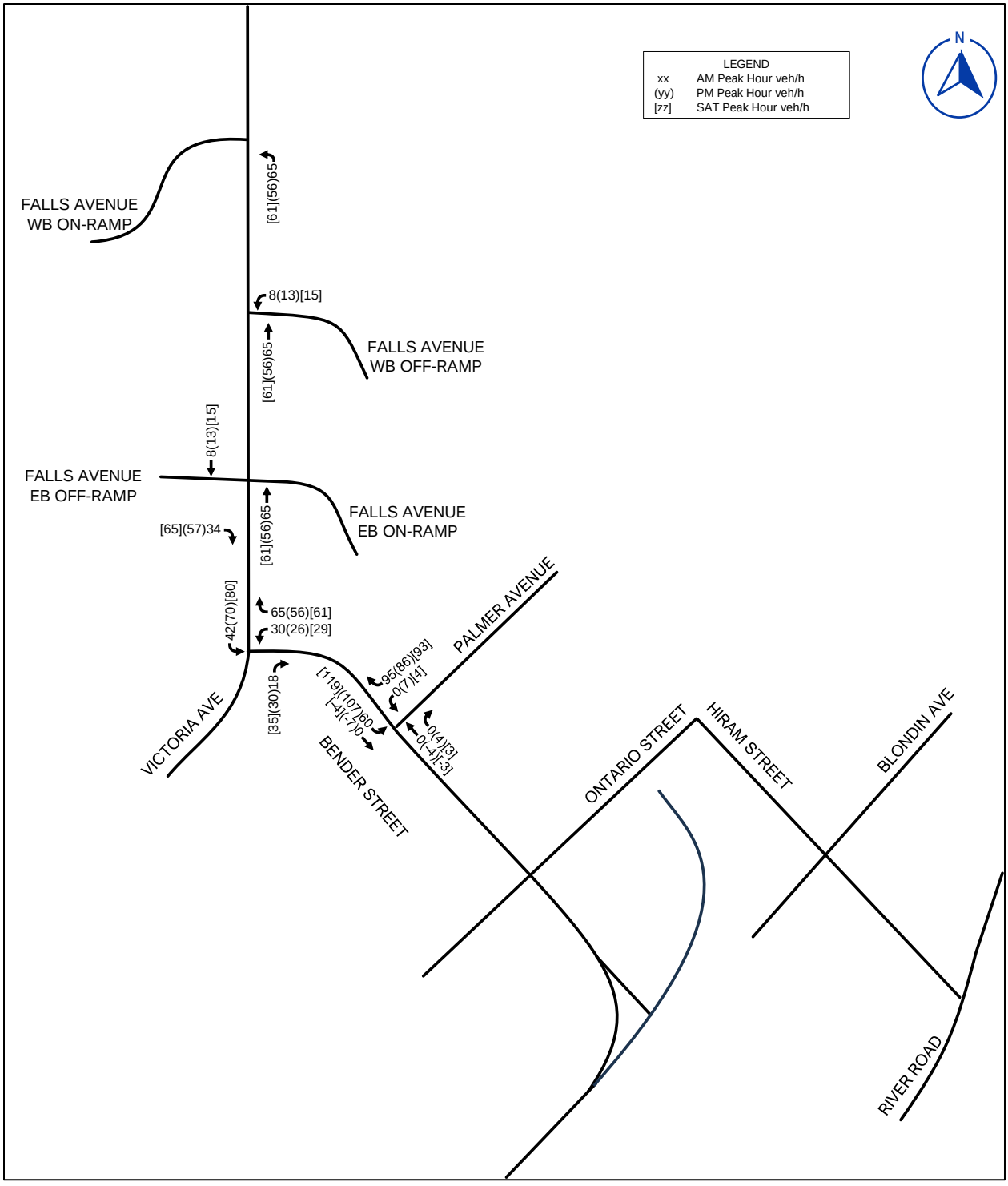

Figure 3.5 – 5500 Victoria Avenue Development Traffic Volumes

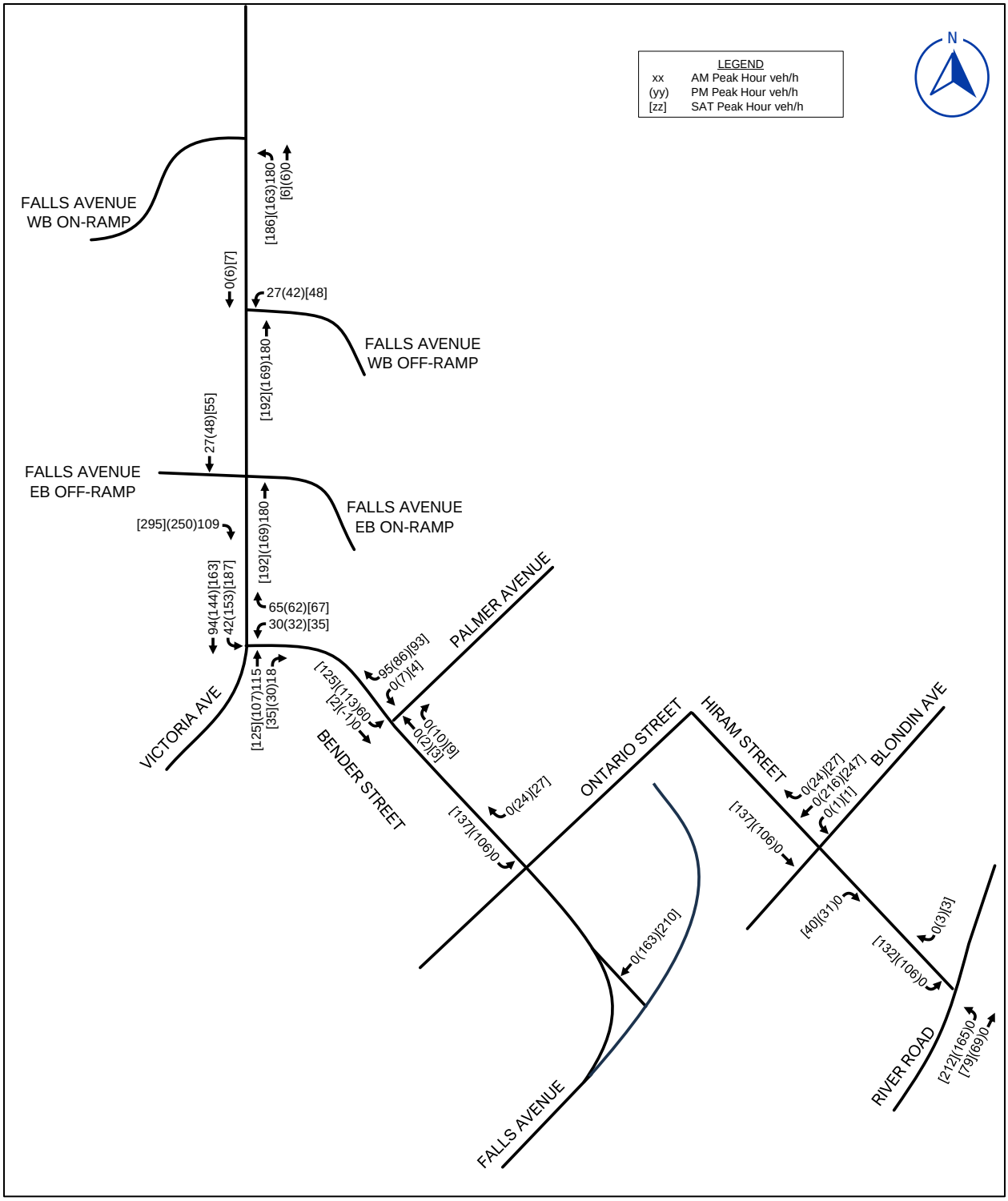

Figure 3.6 –Future Background Developments Total Site Traffic Volumes

3.4 Future Background Total Traffic Volumes

The future background total traffic volumes for the future horizon years were projected by combining the estimated site generated traffic from the future background developments (**Figure 3.6**) with the future background volumes (**Figures 3.1 and 3.2**) for each horizon year. The resulting 2025 and 2030 future background total traffic volumes are presented in **Figure 3.7**, and **Figure 3.8**, respectively.

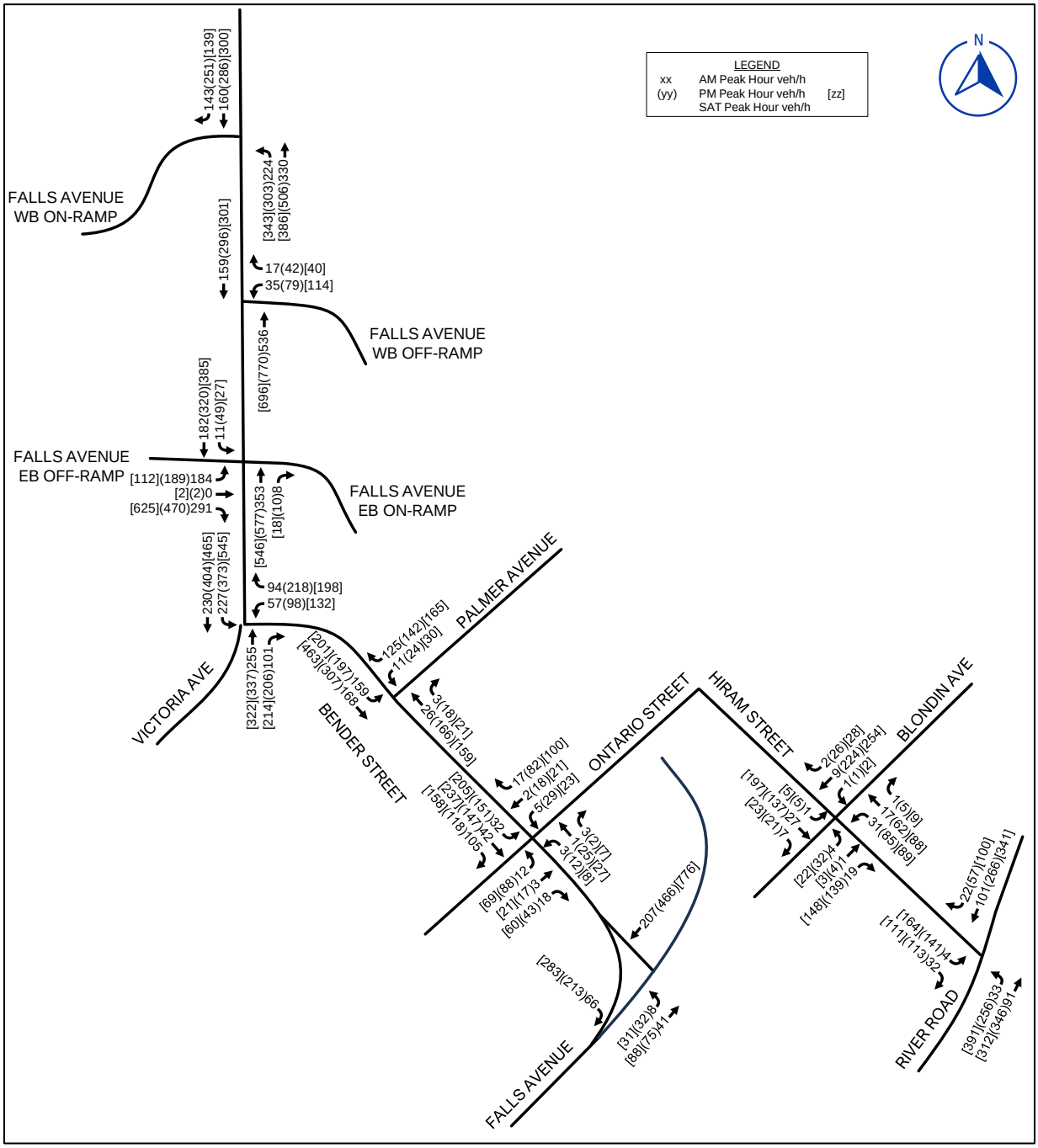

Figure 3.7 – Future (2025) Background Total Traffic Volumes

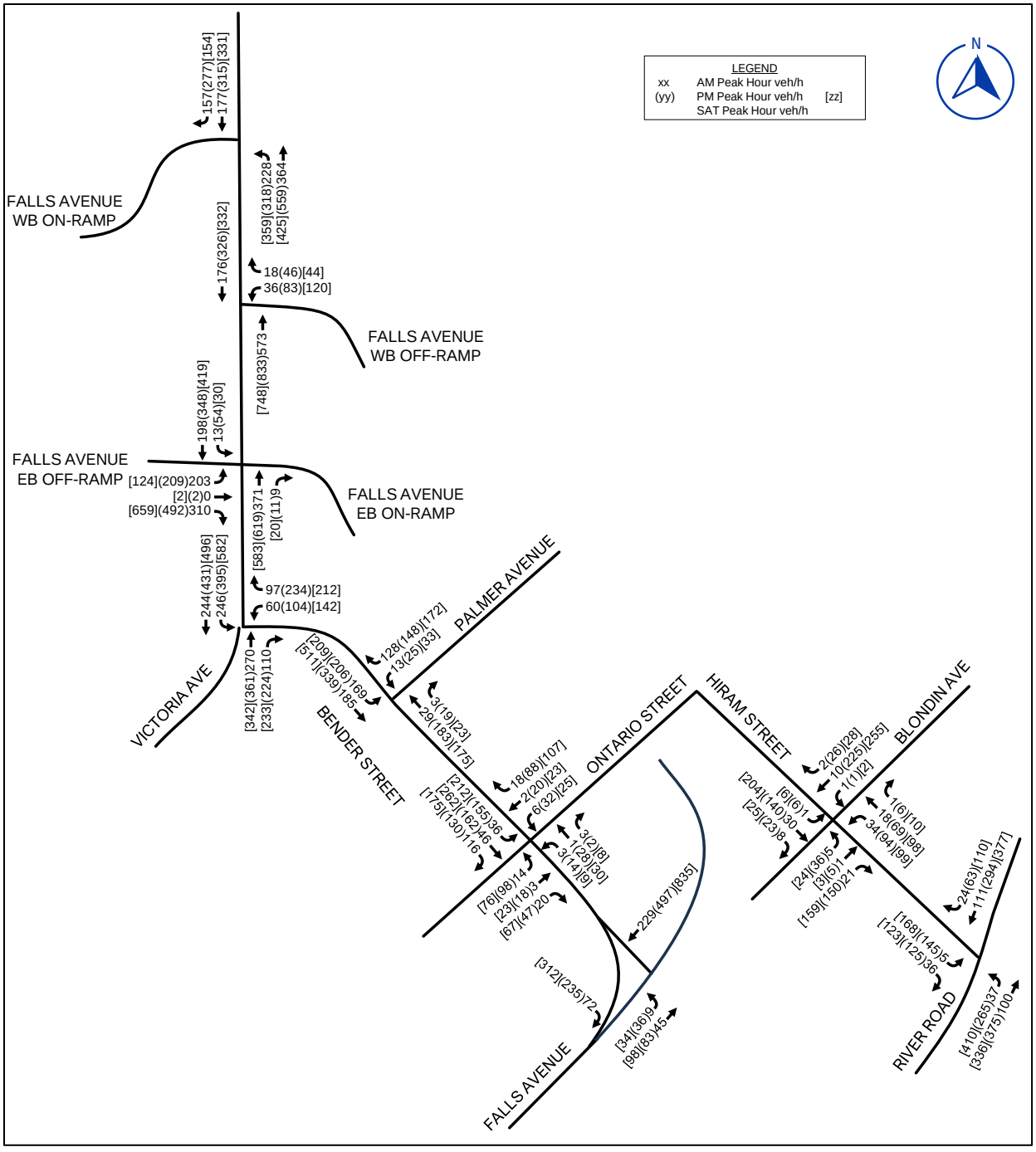

Figure 3.8 – Future (2030) Background Total Traffic Volumes

4.0 Future Total Traffic Conditions

4.1 Ice Sculpture Centre Hotel Development

The proposed site plan prepared by TAES Architects Inc., dated June 2023, consists of the proposed 17-storey Ice Sculpture Centre Hotel Development, which consists of the following key features relevant to this study:

- 402 hotel units,
- Typical hotel ancillary uses (i.e., hotel lobby, buffet, mechanical/storage, etc.);
- Retail;
- Tropical Atrium (approximately 4,100 m^2);
- Ice Gallery (approximately 8,000 m^2); and
- Loading area.

As shown in **Figure 4.1**, the 2 proposed vehicular accesses are located on both east and west sides of Ontario Street. The west access leads directly to the parking garage, while the east entrance features a layby fronting the hotel lobby main entrance before accessing the parking garage. Unloading/loading activities (i.e., delivery, waste collection, etc.) is proposed to occur within a designated Loading Area accessible from Bender Street and at the west access.

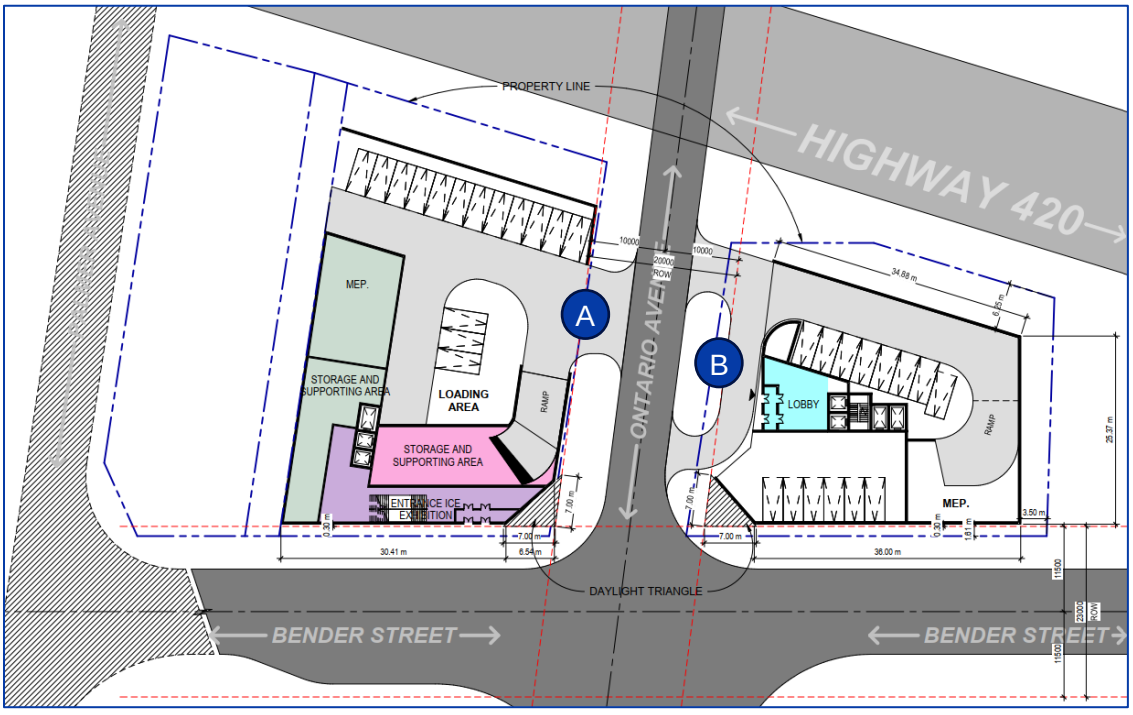

Figure 4.1 – Ice Sculpture Centre Hotel Driveway Accesses

4.1.1 Proposed Parking Supply

A total of 320 parking spaces are proposed for the development as shown in the drawings provided in **Appendix C**. Based on the City of Niagara Falls Zoning By-law a parking rate of 0.8 spaces per room is required and there are no parking provision requirements for retail or exhibition centre uses that are ancillary to the hotel. Given there are 402 proposed rooms as part of the development, the required parking for the site would then be 322 spaces (402 x 0.8 = 322). As only 317 spaces are proposed, this results in a shortfall of only 5 spaces. This is a minor shortfall in parking and should not impact the site or surrounding area.

In addition, the proposed development is required to provide a certain number of accessible spaces inclusive of the required parking according to Ontario Regulation 413/12 under the Accessibility for Ontarians with Disabilities Act, 2005. According to the act, for lots ranging between 201 and 1000 spaces, the accessible parking space formula is 2 + 2% of the total number of parking spaces. In this case, the required number of accessible spaces for the development would be 8 spaces (317 x 0.02 = 6 + 2 spaces = 8 total). Based on the site plan, 12 spaces have been provided and meets this requirement.

4.1.2 Site Generated Traffic

Vehicle trip generation for the proposed development during peak hours was estimated by using the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th edition) methodology for a Hotel (LUC 310). The ITE Trip Generational Manual describes a typical hotel as having restaurants and recreational facilities, similar to the proposed development. No trip adjustments for multi-modal transportation users or site synergy have been applied as a conservative approach.

As presented in **Table 4.1,** the proposed development is projected to generate approximately 194 total two-way trips during the weekday a.m. peak hour (108 inbound and 86 outbound), 270 total two-way trips during the weekday p.m. peak hour (137 inbound and 133 outbound), and 283 total two-way trips during the Saturday mid-day peak hour (159 inbound and 124 outbound).

Table 4.1 – Hotel Trip Generation

LUC	Peak Hour	# of Suites	Total Trips	Trip % IN	Trip % OUT	Trips IN	Trips OUT
310	AM	402	194	56%	44%	108	86
	PM		270	51%	49%	137	133
	SAT		283	56%	44%	159	124

4.1.3 Site Traffic Distribution & Assignment

Given that this site is a hotel development in an area surrounded already by other hotels and attractions, the site generated traffic was assigned to the study area intersections based on the existing travel patterns within the study area. **Table 4.2** presents the results distributions based on the existing (2023) traffic volumes.

Table 4.2 – Development Trip Distribution

Roadway	Direction From/To	% Distribution		
		AM	PM	SAT
Victoria Avenue	N	30%	35%	30%
Victoria Avenue	S	25%	25%	30%
Falls Avenue	E	25%	25%	15%
Falls Avenue	W	5%	5%	15%
Palmer Street	N	10%	5%	5%
Ontario Street	N	5%	5%	5%

Both the proposed accesses on Ontario Street are assumed to have an equal number of trips as a result of an equivalent number of parking spaces on either side. The assigned intersection site traffic from the proposed hotel development is presented in **Figure 4.2.**

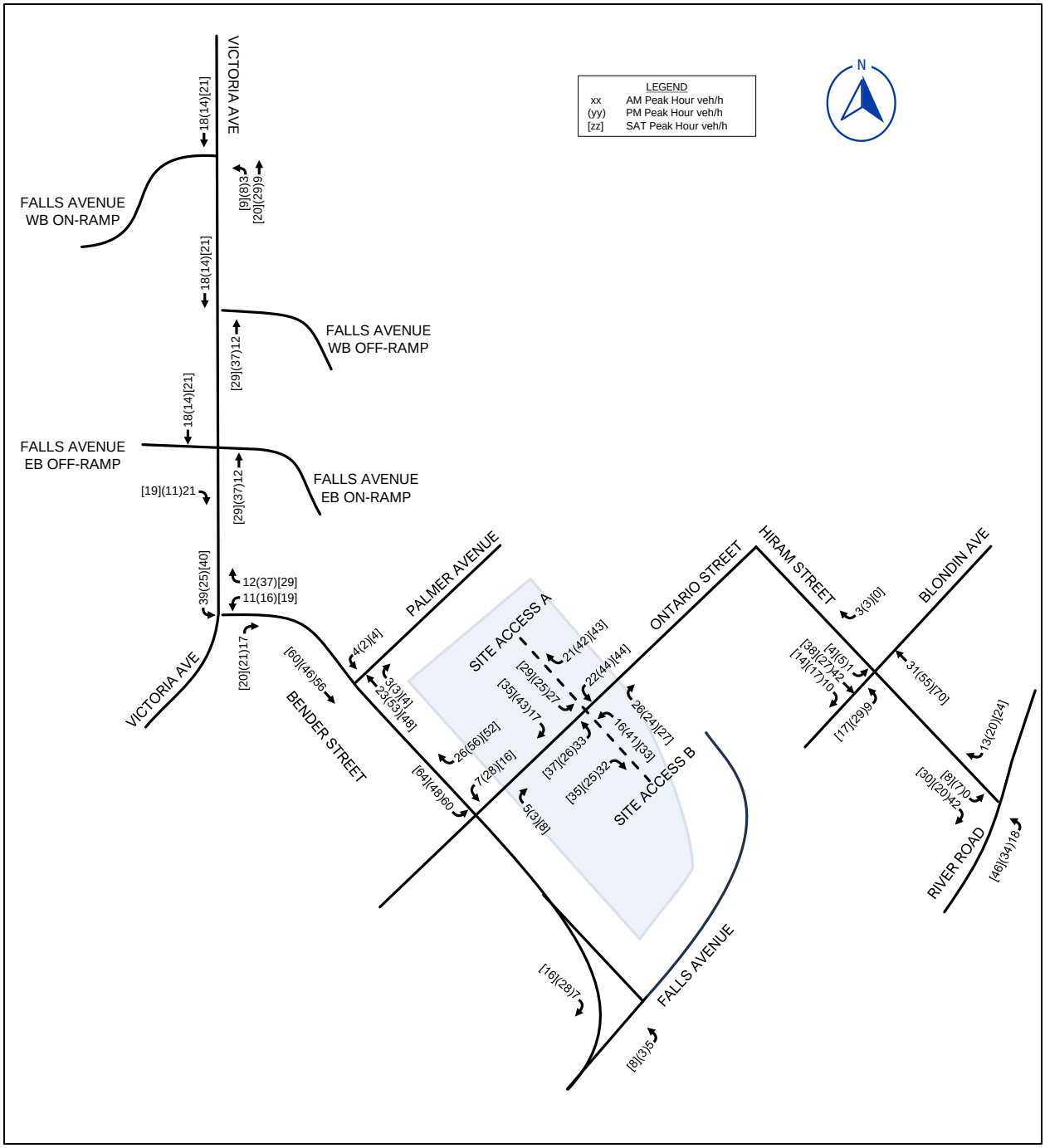

Figure 4.2 – The Proposed Hotel Development Site Generated Traffic Volumes

4.2 Future Total Traffic Volumes

Traffic volumes for the future horizon years were estimated by adding future background total traffic volumes with the site generated traffic volumes. The resulting 2025 and 2030 future total intersection volumes are shown in **Figure 4.3** and **Figure 4.4,** respectively.

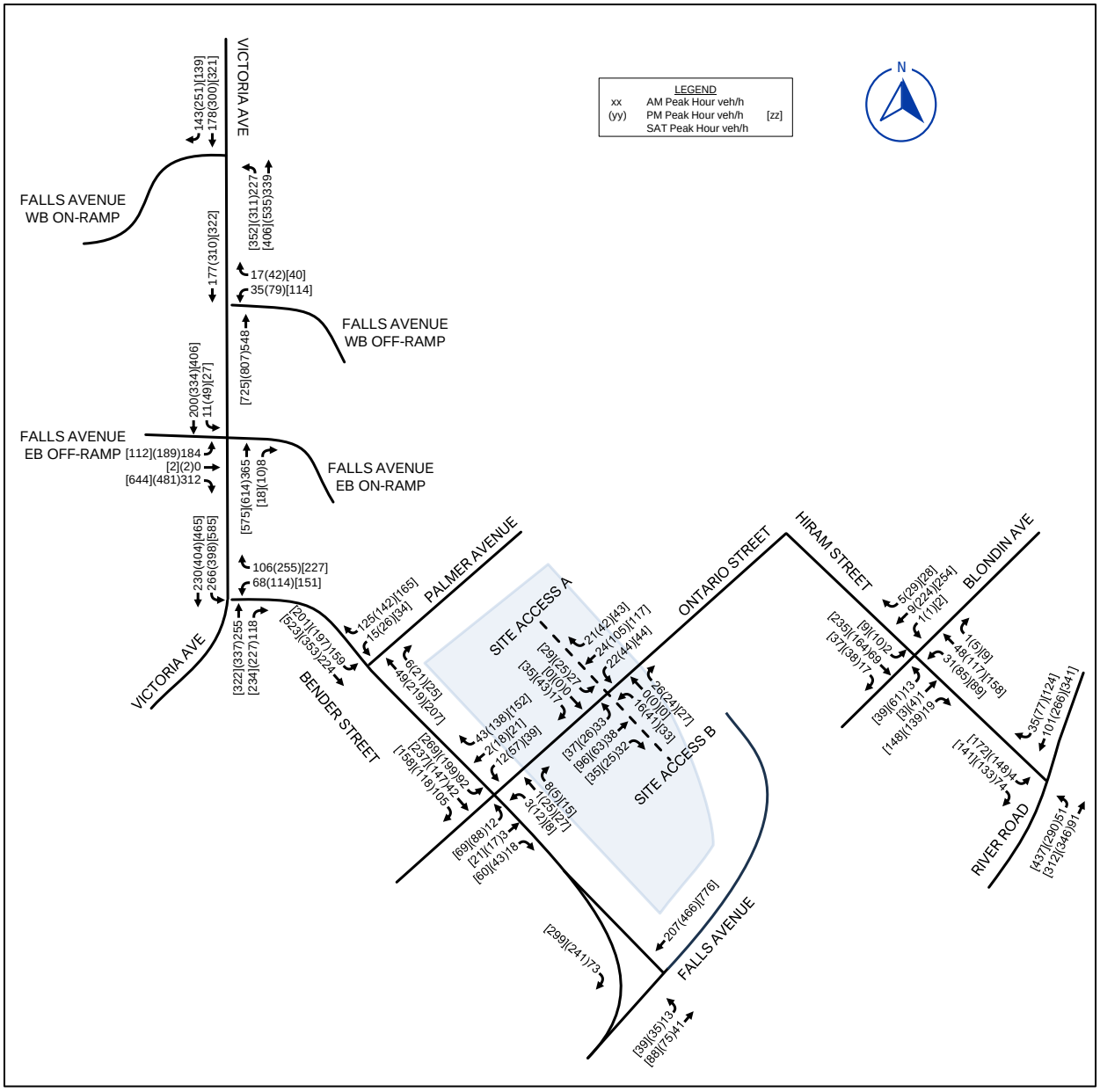

Figure 4.3 – Future (2025) Total Traffic Volumes

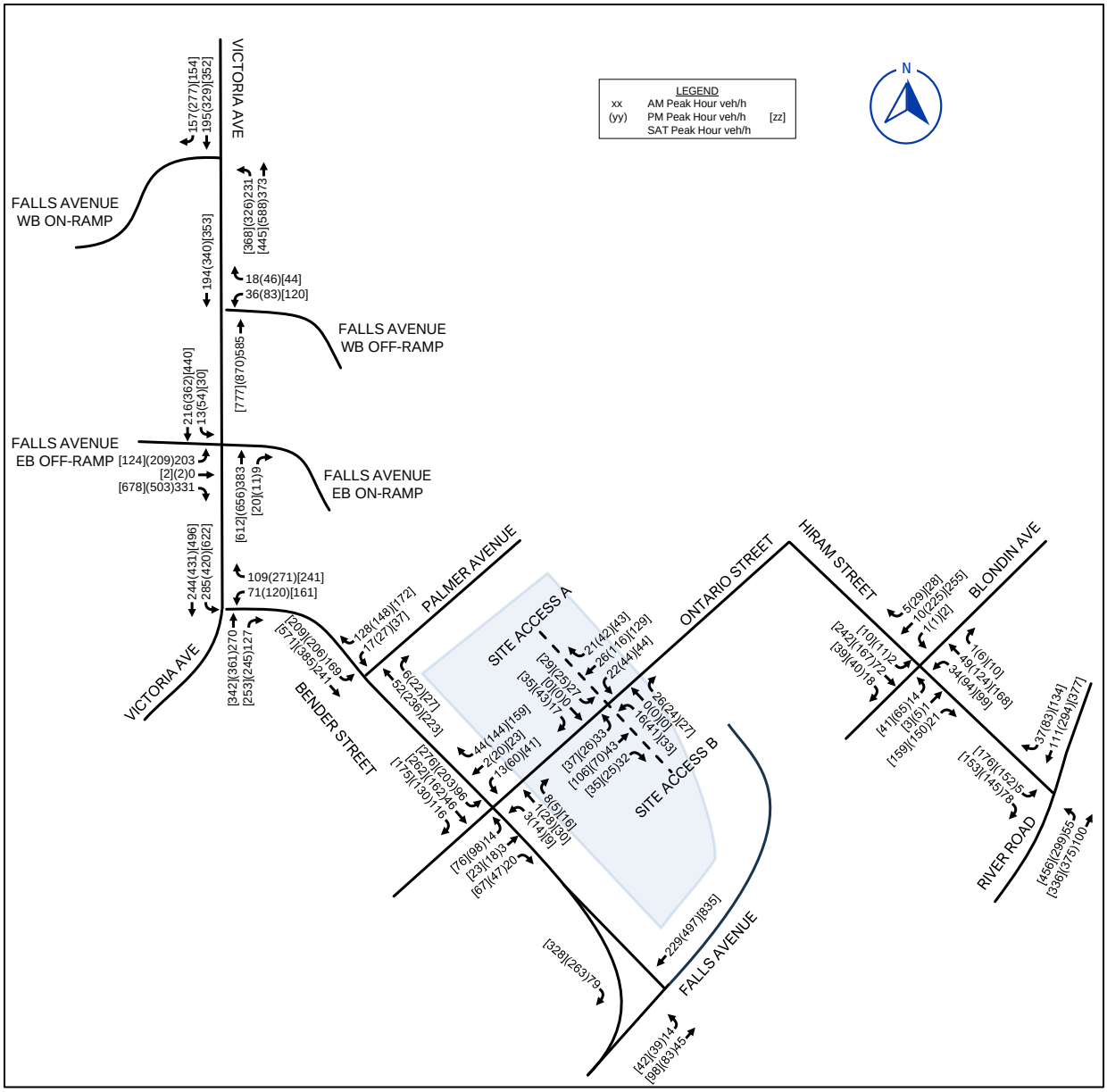

Figure 4.4 – Future (2030) Total Traffic Volumes

5.0 Intersection Operational Analysis

The following sections present the methodology utilized in the completion of the intersection operational analysis along with results of the completed analysis for the study area intersections. All HCM analysis Synchro reports can be found in **Appendix D**.

5.1 Intersection Operational Analysis Methodology

An operational analysis was completed for the study intersections using the Highway Capacity Manual (HCM) 2000 methodologies. The industry standard Synchro software (Version 11) utilizing HCM methodologies was used to analyze intersection operations for each horizon year.

Based on the Traffic Impact Study (TIS) Guidelines from the City of Niagara Falls, the following parameters were used in intersection operation analysis:

- A saturation flow rates of 1750 vphpl was used for all movements.

Key performance measures such as Level of Service (LOS), volume-to-capacity ratio (V/C ratio), and 95th percentile queue estimates that were reported are defined below:

- Average vehicle control delay is used to characterize LOS for entire intersection, an approach, or movement. Delay quantifies the variations in travel time and is also a surrogate measure of driver discomfort and fuel consumption. Based on the City's TIS Guidelines, scenarios with no geometric improvements have LOS of E or better are considered acceptable.
- V/C ratio quantifies a degree to which the capacity is utilized by a defined lane group. Based on the City's TIA Guidelines, a V/C of 0.85 or better is considered acceptable for a through or shared movement. A V/C of 0.95 or better is considered acceptable for auxiliary turn lanes.
- 95th percentile queue is the estimated queue length which is expected to be exceeded only 5% of the time; it is a common practice to identify preferred storage length requirements for auxiliary turn lanes based on estimated 95th percentile queues for peak hour.

Table 5-1 identifies the control delay thresholds (seconds of delay per vehicle) for signalized and unsignalized intersections for each LOS based on Highway Capacity Manual (HCM) 2000 methodology.

Table 5-1: Characteristics of Level of Service, Signalized Intersection

LEVEL OF SERVICE (LOS)	AVERAGE CONTROL DELAY (seconds / vehicle)	
	Signalized Intersection	Unsignalized Intersection
A	≤ 10	≤ 10
B	> 10 to 20	> 10 to 15
C	> 20 to 35	> 15 to 25
D	> 35 to 55	> 25 to 35
E	> 55 to 80	> 35 to 50
F	> 80	> 50

5.2 Left Turn Lane Warrants

Ontario Ministry of Transportation (MTO) left-turn lane warrants were completed for the unsignalized intersection for the site driveways, with the results illustrated in **Appendix E**. Using the 2030 future total traffic volumes, it was determined that left turn lanes are not warranted at the Ontario Street and Driveway Access intersections.

5.3 Intersection Operational Analysis Results

The following sections present intersection operation analysis results for the Existing (2023), Future (2025, 2030) Background and Future (2025, 2030) total traffic volumes.

5.3.1 Victoria Avenue at Falls Avenue (WB On Ramp)

As presented in **Table 5-2**, the Victoria Avenue at Falls Avenue Westbound On-Ramp is expected to operate with reserve capacity (v/c ratios not exceeding 0.42), no delay issues, or queuing concerns for years up to and including the ultimate future total 2030 horizon year.

Table 5-2: Unsignalized Intersection Operational Analysis, Victoria Avenue & Falls Avenue (WB On Ramp)

SCENARIO	MOVE.	WEEKDAY AM PEAK HOUR			SATURDAY PEAK HOUR			SATURDAY PEAK HOUR			STORAGE / LINK LENGTH (M)
		V/C	LOS	95TH % Q (M)	V/C	LOS	95TH % Q (M)	V/C	LOS	95TH % Q (M)	
Existing 2023	NBL	0.04	A	1	0.14	A	4	0.16	A	4	20
	Overall	**-**	**A**	**-**	**-**	**A**	**-**	**-**	**A**	**-**	**-**
Future Background 2025	NBL	0.21	A	6	0.33	B	11	0.37	B	13	20
	Overall	**-**	**A**	**-**	**-**	**B**	**-**	**-**	**B**	**-**	**-**
Future Total 2025	NBL	0.22	A	6	0.34	B	12	0.39	B	14	20
	Overall	**-**	**A**	**-**	**-**	**B**	**-**	**-**	**B**	**-**	**-**
Future Background 2030	NBL	0.22	A	7	0.36	B	13	0.40	B	15	20
	Overall	**-**	**A**	**-**	**-**	**B**	**-**	**-**	**B**	**-**	**-**

SCENARIO	MOVE.	WEEKDAY AM PEAK HOUR			SATURDAY PEAK HOUR			SATURDAY PEAK HOUR			STORAGE / LINK LENGTH (M)
		V/C	LOS	95TH % Q (M)	V/C	LOS	95TH % Q (M)	V/C	LOS	95TH % Q (M)	
Future Total 2030	NBL	0.23	A	7	0.38	B	14	0.42	B	16	20
	Overall	**-**	**A**	**-**	**-**	**B**	**-**	**-**	**B**	**-**	**-**

5.3.2 Victoria Avenue at Falls Avenue (WB Off Ramp)

As presented in **Table 5-3**, the Victoria Avenue at Falls Avenue Westbound Off-Ramp is expected to operate with reserve capacity (v/c ratios not exceeding 0.16), no delay issues, or queuing concerns during the weekday a.m. peak hour for years up to and including the ultimate future total 2030 horizon year.

In the weekday p.m. and Saturday mid-day peak hours, by the 2025 horizon under future background conditions, the westbound movement is forecast to operate at a LOS F. This is a result of background traffic growth and the addition of the background developments site traffic. With the continued increase of additional background traffic growth, by the 2030 future background horizon year, this movement is forecast to exceed theoretical capacity. The addition of the site generated traffic to the intersection has had only a minimal impact to the operational results under future total traffic conditions as compared to background conditions.

Table 5-3: Unsignalized Intersection Operational Analysis, Victoria Avenue & Falls Avenue (WB Off Ramp)

SCENARIO	MOVE.	WEEKDAY AM PEAK HOUR			SATURDAY PEAK HOUR			SATURDAY PEAK HOUR			STORAGE / LINK LENGTH (M)
		V/C	LOS	95TH % Q (M)	V/C	LOS	95TH % Q (M)	V/C	LOS	95TH % Q (M)	
Existing 2023	WBLR	0.04	B	1	0.24	C	7	0.33	C	11	170
	Overall	**-**	**A**	**-**	**-**	**C**	**-**	**-**	**D**	**-**	**-**
Future Background 2025	WBLR	0.13	B	4	0.68	**F (55s)**	31	0.86	**F (82s)**	48	170
	Overall	**-**	**B**	**-**	**-**	**G**	**-**	**-**	**H**	**-**	**-**
Future Total 2025	WBLR	0.14	C	4	0.77	**F (74s)**	38	0.97	**F (115s)**	60	170
	Overall	**-**	**C**	**-**	**-**	**G**	**-**	**-**	**H**	**-**	**-**
Future Background 2030	WBLR	0.15	C	4	0.91	**F (108s)**	49	1.12	**F (164s)**	72	170
	Overall	**-**	**C**	**-**	**-**	**G**	**-**	**-**	**H**	**-**	**-**
Future Total 2030	WBLR	0.16	C	4	1.08	**F (167s)**	60	1.29	**F (234s)**	84	170

SCENARIO	MOVE.	WEEKDAY AM PEAK HOUR			SATURDAY PEAK HOUR			SATURDAY PEAK HOUR			STORAGE / LINK LENGTH (M)
		V/C	LOS	95TH % Q (M)	V/C	LOS	95TH % Q (M)	V/C	LOS	95TH % Q (M)	
	Overall	**-**	**C**	**-**	**-**	**H**	**-**	**-**	**H**	**-**	**-**

5.3.3 Victoria Avenue at Falls Avenue (EB Off / EB On Ramp)

As presented in **Table 5-4**, the Victoria Avenue at Falls Avenue Eastbound Off-Ramp / Eastbound On-Ramp is expected to operate with reserve capacity (v/c ratios not exceeding 0.63), no delay issues, or queuing concerns during the weekday a.m. peak hour for years up to and including the ultimate future total 2030 horizon year.

The p.m. peak hour is forecast to operate well into the 2030 horizon year with reasonable delays and v/c's for shared movements not exceeding 0.86.

During the Saturday mid-day peak hour, by the 2025 horizon year under future background conditions, the eastbound movement is forecast to operate over the City's planning capacity threshold of 0.85, and the northbound movement is forecast to approach this threshold. This is a result of background traffic growth and site generated traffic from other proposed developments independent from the subject development. As a result of the increased traffic during the 2030 future background horizon year, both movements are forecast to operate above this planning threshold.

The site generated traffic has had only minimal impacts to intersection operations in comparison with of the future total traffic conditions with future background traffic conditions.

Table 5-4: Signalized Intersection Operational Analysis, Victoria Avenue at Falls Avenue (EB Off / EB On Ramp)

SCENARIO	MOVE.	WEEKDAY AM PEAK HOUR			SATURDAY PEAK HOUR			SATURDAY PEAK HOUR			STORAGE / LINK LENGTH (M)
		V/C	LOS	95TH % QUEUE (M)	V/C	LOS	95TH % QUEUE (M)	V/C	LOS	95TH % QUEUE (M)	
Existing 2023	EBL	0.63	C	39	0.63	C	40	0.43	C	25	221
	EBTR	0.13	C	0	0.17	C	15	0.36	C	24	30
	NBTR	0.18	A	20	0.41	A	50	0.35	A	40	166
	SBL	0.02	A	3	0.10	A	8	0.05	A	4	15
	SBT	0.16	A	18	0.26	A	31	0.30	A	35	95
	Overall	**0.29**	**B**	**-**	**0.46**	**B**	**-**	**0.36**	**B**	**-**	**-**

SCENARIO	MOVE.	WEEKDAY AM PEAK HOUR			SATURDAY PEAK HOUR			SATURDAY PEAK HOUR			STORAGE / LINK LENGTH (M)
		V/C	LOS	95TH % QUEUE (M)	V/C	LOS	95TH % QUEUE (M)	V/C	LOS	95TH % QUEUE (M)	
Future Background 2025	EBL	0.64	C	41	0.41	B	34	0.17	B	21	221
	EBTR	0.21	C	0	0.80	C	67	**0.94**	D	146	30
	NBTR	0.38	A	45	0.72	B	155	0.84	C	148	166
	SBL	0.02	A	3	0.22	B	14	0.19	B	9	15
	SBT	0.19	A	22	0.39	B	62	0.56	C	78	95
	Overall	**0.44**	**B**	**-**	**0.75**	**C**	**-**	**0.89**	**C**	**-**	**-**
Future Total 2025	EBL	0.63	C	40	0.40	B	34	0.17	B	21	221
	EBTR	0.23	C	0	0.82	C	73	**0.96**	D	156	30
	NBTR	0.39	A	49	0.78	C	**169**	**0.90**	D	160	166
	SBL	0.02	A	3	0.27	B	15	0.25	C	10	15
	SBT	0.21	A	25	0.41	B	65	0.61	C	84	95
	Overall	**0.45**	**B**	**-**	**0.79**	**C**	**-**	**0.93**	**D**	**-**	**-**
Future Background 2030	EBL	0.66	C	44	0.42	B	38	0.18	B	23	221
	EBTR	0.23	C	0	0.84	C	78	**0.98**	D	163	30
	NBTR	0.40	A	52	0.80	C	**172**	**0.93**	D	164	166
	SBL	0.03	A	3	0.32	B	18	0.32	C	12	15
	SBT	0.21	A	26	0.44	B	69	0.63	C	67	95
	Overall	**0.47**	**B**	**-**	**0.81**	**C**	**-**	**0.95**	**D**	**-**	**-**
Future Total 2030	EBL	0.66	C	44	0.41	B	38	0.18	B	23	221
	EBTR	0.24	C	4	**0.86**	D	85	**1.00**	E	173	30
	NBTR	0.42	A	55	**0.86**	C	**186**	**0.99**	E	**175**	166
	SBL	0.03	A	3	0.39	B	20	0.38	C	13	15
	SBT	0.24	A	28	0.47	B	72	0.68	C	93	95
	Overall	**0.48**	**B**	**-**	**0.86**	**C**	**-**	**0.99**	**D**	**-**	**-**

5.3.4 Victoria Avenue at Bender Street

As presented in **Table 5-5** the Bender Street at Victoria Avenue intersection is expected to operate with reserve capacity under the City's planning thresholds with no delay issues for years up to and including the ultimate future total 2030 horizon year. An existing queuing concern is noted in the Saturday mid-day peak hour for the southbound left movement that continues to be exasperated as a result of future background traffic volumes.

Table 5-5: Signalized Intersection Operational Analysis, Victoria Avenue at Bender Street

SCENARIO	MOVE.	WEEKDAY AM PEAK HOUR			SATURDAY PEAK HOUR			SATURDAY PEAK HOUR			STORAGE / LINK LENGTH (M)
		V/C	LOS	95TH % QUEUE (M)	V/C	LOS	95TH % QUEUE (M)	V/C	LOS	95TH % QUEUE (M)	
Existing 2023	WBL	0.32	D	12	0.41	D	23	0.51	D	31	75
	WBR	0.02	D	8	0.11	C	17	0.11	C	16	15
	NBT	0.13	A	17	0.23	A	33	0.21	A	34	85
	NBR	0.07	A	5	0.16	A	10	0.14	A	10	26
	SBL	0.22	A	10	0.30	A	15	0.46	A	**29**	15
	SBT	0.10	A	9	0.21	A	21	0.24	A	27	112
	Overall	**0.24**	**A**	-	**0.32**	**B**	-	**0.48**	**B**	-	-
Future Background 2025	WBL	0.46	D	21	0.55	D	33	0.62	D	41	75
	WBR	0.07	D	14	0.16	C	19	0.18	C	19	15
	NBT	0.26	A	37	0.40	B	68	0.47	C	76	85
	NBR	0.09	A	9	0.24	B	25	0.26	B	29	26
	SBL	0.33	A	15	0.58	A	**34**	0.78	B	**68**	15
	SBT	0.19	A	18	0.35	A	43	0.40	A	56	112
	Overall	**0.35**	**A**	-	**0.60**	**B**	-	**0.78**	**B**	-	-
Future Total 2025	WBL	0.42	D	24	0.59	D	37	0.66	D	47	75
	WBR	0.08	C	14	0.19	C	21	0.20	C	21	15
	NBT	0.28	A	40	0.41	B	76	0.52	C	78	85
	NBR	0.11	A	10	0.27	B	30	0.31	C	32	26
	SBL	0.39	A	19	0.63	A	**40**	0.84	B	**98**	15
	SBT	0.19	A	19	0.35	A	46	0.41	A	60	112
	Overall	**0.41**	**B**	-	**0.64**	**B**	-	**0.83**	**B**	-	-
Future Background 2030	WBL	0.39	D	22	0.56	D	34	0.64	D	44	75
	WBR	0.08	C	14	0.17	C	20	0.19	C	20	15
	NBT	0.29	A	41	0.44	B	82	0.55	C	83	85
	NBR	0.11	A	10	0.27	B	32	0.31	C	33	26
	SBL	0.36	A	17	0.63	A	38	0.84	B	**96**	15
	SBT	0.21	A	20	0.37	A	48	0.43	A	63	112
	Overall	**0.38**	**B**	-	**0.64**	**B**	-	**0.84**	**B**	-	-
Future Total 2030	WBL	0.44	D	25	0.60	D	38	0.68	D	49	75
	WBR	0.09	C	14	0.20	C	21	0.22	C	21	15
	NBT	0.30	A	44	0.46	B	87	0.55	C	85	85
	NBR	0.12	A	11	0.31	B	37	0.34	C	37	26
	SBL	0.42	A	21	0.67	A	44	0.92	C	**133**	15
	SBT	0.21	A	21	0.37	A	51	0.44	A	68	112
	Overall	**0.44**	**B**	-	**0.68**	**B**	-	**0.90**	**C**	-	-

5.3.5 Bender Street at Palmer Street

As presented in **Table 5-6**, the Bender Street at Palmer Street is expected to operate with reserve capacity (v/c ratios not exceeding 0.60), no delay issues, or queuing concerns for years up to and including the ultimate future total 2030 horizon year.

Table 5-6: Unsignalized Intersection Operational Analysis, Bender Street at Palmer Street

SCENARIO	MOVE.	WEEKDAY AM PEAK HOUR			SATURDAY PEAK HOUR			SATURDAY PEAK HOUR			STORAGE / LINK LENGTH (M)
		V/C	LOS	95TH % QUEUE (M)	V/C	LOS	95TH % QUEUE (M)	V/C	LOS	95TH % QUEUE (M)	
Existing 2023	EBL	0.07	A	2	0.07	A	2	0.06	A	2	15
	SBLR	0.05	A	1	0.12	B	3	0.19	B	5	45
	Overall	**-**	**A**	**-**	**-**	**A**	**-**	**-**	**A**	**-**	
Future Background 2025	EBL	0.11	A	3	0.16	A	5	0.17	A	5	15
	SBLR	0.16	A	4	0.32	B	10	0.43	C	16	45
	Overall	**-**	**A**	**-**	**-**	**A**	**-**	**-**	**A**	**-**	**-**
Future Total 2025	EBL	0.11	A	3	0.17	A	5	0.18	A	5	15
	SBLR	0.18	B	5	0.37	C	13	0.52	C	22	45
	Overall	**-**	**A**	**-**	**-**	**A**	**-**	**-**	**A**	**-**	**-**
Future Background 2030	EBL	0.12	A	3	0.18	A	5	0.18	A	5	15
	SBLR	0.17	A	5	0.35	C	12	0.50	C	21	45
	Overall	**-**	**A**	**-**	**-**	**A**	**-**	**-**		**-**	**-**
Future Total 2030	EBL	0.12	A	3	0.18	A	5	0.19	A	5	15
	SBLR	0.19	B	5	0.41	C	15	0.60	D	28	45
	Overall	**-**	**A**	**-**	**-**	**A**	**-**	**-**	**A**	**-**	**-**

5.3.6 Bender Street at Ontario Street

As presented in **Table 5-7**, the Bender Street at Ontario Street intersection is expected to operate with reserve capacity (v/c ratios not exceeding 0.60), no delay issues, or queuing concerns during the weekday a.m. peak hour for years up to and including the ultimate future total 2030 horizon year.

In the weekday p.m. and Saturday mid-day peak hours, the intersection is forecast to operate well for years up to and including the 2030 horizon year with reasonable levels of capacity and delay. By the 2025 horizon year in the future background scenario, the eastbound through-right is forecast to operate with queuing concerns. The southbound movement is forecast to operate with queues exceeding the distance of the proposed driveway. These queuing concerns are exasperated by the increased traffic volumes in the 2030 horizon year in both the background and total scenarios.

As a result of the queuing concern noted in the southbound movement, there are expected operational issues forecasted for vehicles entering and exiting the western site access, which is located approximately 30 metres north of the Bender Street at Ontario Street intersection. To mitigate these queuing issues, RVA explored an adjusted lane configuration for the east leg of the intersection, as presented in **Figure 5.1**, with an updated timing plan.

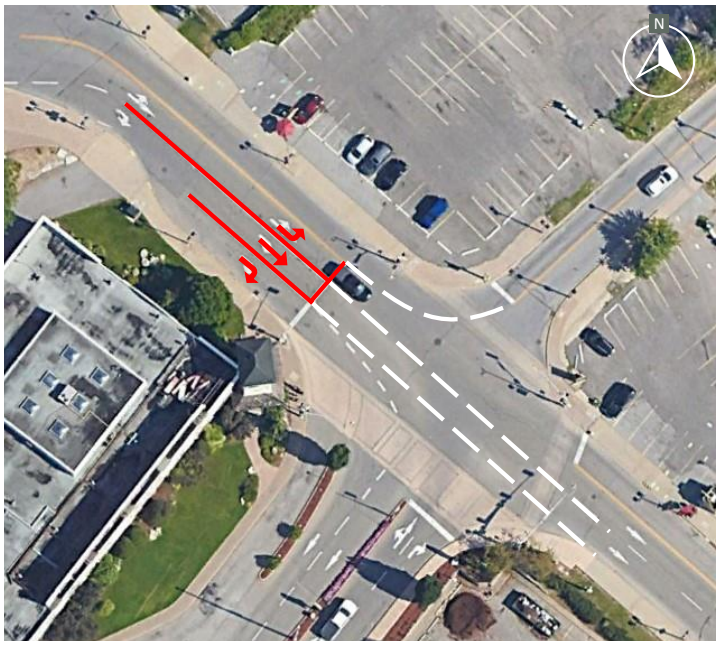

Figure 5.1 – Bender Street at Ontario Street – Adjusted Lane Configuration

As a result, queues are not forecasted to extend beyond the western site access. Additional there would be improvements to the operations at this intersection, with improved delays and considerable excess capacity at the intersection. The suggested improvement will require modifications to the lane marking only.

Table 5-7: Signalized Intersection Operational Analysis, Bender Street at Ontario Street

SCENARIO	MOVE.	WEEKDAY AM PEAK HOUR			SATURDAY PEAK HOUR			SATURDAY PEAK HOUR			STORAGE / LINK LENGTH (M)
		V/C	LOS	95TH % Q (M)	V/C	LOS	95TH % Q (M)	V/C	LOS	95TH % Q (M)	
Existing 2023	EBTL	0.48	B	14	0.52	B	36	0.65	C	57	75
	EBRR	0.21	B	10	0.25	B	14	0.36	C	20	15
	WBLTR	0.03	B	3	0.12	B	9	0.09	B	9	130
	NBTL	0.05	B	5	0.34	B	23	0.32	C	24	70
	NBR	0.01	B	0	0.03	B	2	0.04	B	5	70
	SBLTR	0.03	B	5	0.25	B	18	0.28	C	20	30
	Overall	**0.20**	**B**	**-**	**0.39**	**B**	**-**	**0.48**	**C**	**-**	**-**

SCENARIO	MOVE.	WEEKDAY AM PEAK HOUR			SATURDAY PEAK HOUR			SATURDAY PEAK HOUR			STORAGE / LINK LENGTH (M)
		V/C	LOS	95TH % Q (M)	V/C	LOS	95TH % Q (M)	V/C	LOS	95TH % Q (M)	
Future Background 2025	EBTL	0.49	B	14	0.66	C	65	0.78	C	**102**	75
	EBRR	0.21	B	10	0.29	C	19	0.44	C	28	15
	WBLTR	0.03	B	3	0.08	B	10	0.06	B	9	130
	NBTL	0.05	B	5	0.40	C	31	0.39	C	32	70
	NBR	0.01	B	0	0.04	C	2	0.05	C	6	70
	SBLTR	0.04	B	5	0.35	C	27	0.44	C	**39**	30
	Overall	**0.21**	**B**	**-**	**0.53**	**C**	**-**	**0.65**	**C**	**-**	**-**
Future Total 2025	EBTL	0.57	B	24	0.67	C	**105**	0.85	C	**132**	75
	EBRR	0.23	B	12	0.34	C	20	0.48	D	32	15
	WBLTR	0.02	B	3	0.07	B	12	0.06	B	9	130
	NBTL	0.05	B	5	0.47	C	34	0.43	D	37	70
	NBR	0.01	B	0	0.04	C	2	0.05	C	6	70
	SBLTR	0.09	B	9	0.65	D	**48**	0.72	D	**84**	30
	Overall	**0.30**	**B**	**-**	**0.63**	**C**	**-**	**0.76**	**C**	**-**	**-**
Future Background 2030	EBTL	0.53	C	15	0.67	C	74	0.80	C	**116**	75
	EBRR	0.24	B	11	0.31	C	20	0.48	C	33	15
	WBLTR	0.03	B	3	0.09	B	11	0.07	B	10	130
	NBTL	0.05	B	5	0.44	C	35	0.43	C	37	70
	NBR	0.01	B	0	0.04	C	3	0.05	C	8	70
	SBLTR	0.04	B	6	0.41	C	30	0.51	C	**50**	30
	Overall	**0.23**	**B**	**-**	**0.56**	**C**	**-**	**0.68**	**C**	**-**	**-**
Future Total 2030	EBTL	0.59	C	25	0.70	C	**118**	**0.87**	C	**149**	75
	EBRR	0.25	B	13	0.37	C	22	0.53	D	35	15
	WBLTR	0.02	B	3	0.08	B	13	0.07	B	10	130
	NBTL	0.06	B	6	0.52	C	38	0.47	D	40	70
	NBR	0.01	B	0	0.04	C	2	0.05	C	8	70
	SBLTR	0.09	B	10	0.68	D	**52**	0.84	E	**93**	30
	Overall	**0.31**	**B**	**-**	**0.68**	**C**	**-**	**0.80**	**D**	**-**	**-**
Future Total 2030 **Adjusted Lane Config**	EBL	0.24	A	9	0.51	B	32	0.57	B	42	75
	EBT	0.09	A	5	0.29	A	22	0.37	A	31	15
	EBR	0.09	A	5	0.10	A	8	0.13	A	8	15
	WBLTR	0.02	A	2	0.09	A	8	0.08	A	7	130
	NBLT	0.24	B	3	0.35	B	20	0.35	B	21	70
	NBR	0.01	A	2	0.04	A	5	0.05	B	8	70
	SBLTR	0.26	B	5	0.41	B	25	0.35	B	23	30
	Overall	**0.24**	**A**	**-**	**0.46**	**B**	**-**	**0.49**	**B**	**-**	**-**

5.3.7 Bender Street at Falls Avenue

As presented in **Table 5-8**, the Bender Street at Falls Avenue intersection is expected to operate with reserve capacity (v/c ratios not exceeding 0.50), no delay issues, or queuing concerns for years up to and including the ultimate future total 2030 horizon year.

Table 5-8: Signalized Intersection Operational Analysis, Bender Street at Falls Avenue

SCENARIO	MOVE.	WEEKDAY AM PEAK HOUR			SATURDAY PEAK HOUR			SATURDAY PEAK HOUR			STORAGE / LINK LENGTH (M)
		V/C	LOS	95TH % Q (M)	V/C	LOS	95TH % Q (M)	V/C	LOS	95TH % Q (M)	
Existing 2023	EBR	0.05	D	0	0.26	D	0	0.34	D	0	100
	NBL	0.30	D	5	0.53	D	12	0.50	D	12	20
	NBT	0.03	A	1	0.05	A	2	0.06	A	2	160
	SBT	0.08	A	7	0.13	A	11	0.23	A	20	-
	Overall	**0.09**	**B**	**-**	**0.15**	**B**	**-**	**0.24**	**B**	**-**	**-**
Future Background 2025	EBR	0.05	D	0	0.27	D	0	0.36	D	2	100
	NBL	0.30	D	5	0.55	D	13	0.49	D	12	20
	NBT	0.03	A	1	0.06	A	2	0.06	A	2	160
	SBT	0.09	A	8	0.21	A	17	0.33	A	30	-
	Overall	**0.09**	**B**	**-**	**0.22**	**B**	**-**	**0.33**	**B**	**-**	**-**
Future Total 2025	EBR	0.06	D	0	0.31	D	0	0.38	D	8	100
	NBL	0.47	D	7	0.38	D	13	0.40	D	14	20
	NBT	0.03	A	1	0.06	A	2	0.06	A	2	160
	SBT	0.09	A	8	0.21	A	17	0.34	A	31	-
	Overall	**0.09**	**B**	**-**	**0.22**	**B**	**-**	**0.34**	**B**	**-**	**-**
Future Background 2030	EBR	0.06	D	0	0.30	D	0	0.40	D	17	100
	NBL	0.33	D	5	0.39	D	13	0.54	D	13	20
	NBT	0.03	A	1	0.06	A	2	0.07	A	2	160
	SBT	0.10	A	8	0.23	A	19	0.35	A	33	-
	Overall	**0.10**	**B**	**-**	**0.24**	**B**	**-**	**0.36**	**B**	**-**	**-**
Future Total 2030	EBR	0.06	D	0	0.34	D	0	0.42	D	24	100
	NBL	0.50	D	7	0.42	D	14	0.44	D	15	20
	NBT	0.03	A	1	0.06	A	2	0.07	A	2	160
	SBT	0.10	A	8	0.23	A	19	0.37	A	34	-
	Overall	**0.10**	**B**	**-**	**0.24**	**B**		**0.37**	**B**	**-**	**-**

5.3.8 Hiram Street at Blondin Avenue

As presented in **Table 5-9**, the Hiram Street at Blondin Avenue intersection is expected to operate with reserve capacity (v/c ratios not exceeding 0.60), no delay issues, or queuing concerns during the weekday a.m. and p.m. peak hour for years up to and including the ultimate future total 2030 horizon year.

The Saturday mid-day peak hour is forecast to operate well into the 2030 horizon year with reasonable delays and v/c's for most movements not exceeding the City's planning threshold. The westbound and southbound movements are expected to exceed the city's planning threshold by 2030 but are not forecast to operate over capacity. The southbound queues are forecast to extend to the end of the link length by the 2025 future background scenario and continue to increase with the addition of background and site generated traffic into the subsequent scenarios.

Table 5-9: Signalized Intersection Operational Analysis, Hiram Street at Blondin Avenue

SCENARIO	MOVE.	WEEKDAY AM PEAK HOUR			SATURDAY PEAK HOUR			SATURDAY PEAK HOUR			STORAGE / LINK LENGTH (M)
		V/C	LOS	95TH % Q (M)	V/C	LOS	95TH % Q (M)	V/C	LOS	95TH % Q (M)	
Existing 2023	EBLTR	0.21	D	14	0.15	D	17	0.25	D	27	137
	WBLTR	0.46	D	19	0.70	D	50	0.73	D	60	100
	NBL	0.01	B	3	0.06	C	12	0.04	C	9	40
	NBT	0.00	B	1	0.01	C	3	0.00	C	3	70
	NBR	0.01	B	0	0.08	C	12	0.08	C	12	40
	SBLTR	0.02	C	6	0.02	C	6	0.02	C	6	90
	Overall	**0.06**	**A**	**-**	**0.19**	**D**	**-**	**0.21**	**D**	**-**	**-**
Future Background 2025	EBLTR	0.22	D	14	0.51	C	40	0.60	C	49	137
	WBLTR	0.47	D	20	0.69	D	41	0.78	D	47	100
	NBL	0.01	B	3	0.08	C	11	0.05	B	8	40
	NBT	0.00	B	1	0.01	C	3	0.01	B	2	70
	NBR	0.01	B	0	0.10	C	14	0.11	B	14	40
	SBLTR	0.02	C	6	0.55	C	62	0.80	D	89	90
	Overall	**0.06**	**C**	**-**	**0.42**	**C**	**-**	**0.53**	**C**	**-**	**-**
Future Total 2025	EBLTR	0.43	D	29	0.57	C	50	0.63	C	61	137
	WBLTR	0.50	D	29	0.82	D	57	**0.87**	D	67	100
	NBL	0.02	B	6	0.15	C	20	0.10	C	14	40
	NBT	0.00	B	2	0.01	C	3	0.01	C	3	70
	NBR	0.01	B	0	0.10	C	14	0.11	C	15	40
	SBLTR	0.03	C	6	0.58	C	68	0.86	D	**101**	90
	Overall	**0.09**	**D**	**-**	**0.51**	**C**	**-**	**0.60**	**D**	**-**	**-**
Future Background 2030	EBLTR	0.24	D	15	0.51	D	52	0.58	C	51	137
	WBLTR	0.50	D	22	0.82	E	60	0.81	D	53	100
	NBL	0.01	B	3	0.07	C	14	0.06	C	9	40
	NBT	0.00	B	1	0.01	C	4	0.01	B	2	70
	NBR	0.02	B	0	0.11	C	15	0.12	C	15	40
	SBLTR	0.02	C	6	0.58	D	83	0.83	D	**95**	90

SCENARIO	MOVE.	WEEKDAY AM PEAK HOUR			SATURDAY PEAK HOUR			SATURDAY PEAK HOUR			STORAGE / LINK LENGTH (M)
		V/C	LOS	95TH % Q (M)	V/C	LOS	95TH % Q (M)	V/C	LOS	95TH % Q (M)	
	Overall	**0.07**	**C**	**-**	**0.45**	**D**	**-**	**0.56**	**D**	**-**	**-**
Future Total 2030	EBLTR	0.44	D	30	0.55	C	52	0.61	C	62	137
	WBLTR	0.52	D	31	0.83	D	62	**0.89**	D	73	100
	NBL	0.02	B	6	0.17	C	22	0.11	C	15	40
	NBT	0.00	B	1	0.01	C	4	0.01	C	3	70
	NBR	0.02	B	0	0.11	C	15	0.12	C	16	40
	SBLTR	0.03	C	7	0.60	C	72	**0.89**	E	**107**	90
	Overall	**0.10**	**D**	**-**	**0.53**	**C**	**-**	**0.63**	**D**	**-**	**-**

5.3.9 Hiram Street at River Road

As presented in **Table 5-10**, the Hiram Street at River Road intersection is expected to operate with reserve capacity not exceeding the City's thresholds, no delay issues, or queuing concerns for years up to and including the ultimate future total 2030 horizon year.

Table 5-10: Signalized Intersection Operational Analysis, Hiram Street at Blondin Avenue

SCENARIO	MOVE.	WEEKDAY AM PEAK HOUR			SATURDAY PEAK HOUR			SATURDAY PEAK HOUR			STORAGE / LINK LENGTH (M)
		V/C	LOS	95TH % Q (M)	V/C	LOS	95TH % Q (M)	V/C	LOS	95TH % Q (M)	
Existing 2023	EBL	0.05	C	3	0.19	C	10	0.19	C	10	100
	EBR	0.02	C	6	0.08	C	11	0.08	C	11	100
	NBL	0.04	A	3	0.15	A	6	0.30	A	11	25
	NBT	0.09	A	12	0.34	A	35	0.30	A	31	-
	SBT	0.10	A	13	0.32	A	33	0.45	A	47	115
	SBR	0.02	A	3	0.04	A	5	0.07	A	7	30
	Overall	**0.09**	**A**	**-**	**0.29**	**B**	**-**	**0.38**	**B**	**-**	**-**
Future Background 2025	EBL	0.05	C	2	0.52	C	32	0.61	C	37	100
	EBR	0.02	C	6	0.09	C	11	0.08	C	11	100
	NBL	0.04	A	3	0.44	A	23	0.74	B	47	25
	NBT	0.09	A	12	0.54	B	64	0.54	B	62	-
	SBT	0.10	A	13	0.41	B	48	0.59	B	68	115
	SBR	0.02	A	3	0.05	B	7	0.08	B	9	30
	Overall	**0.09**	**A**	**-**	**0.52**	**B**	**-**	**0.71**	**B**	**-**	**-**
Future Total 2025	EBL	0.03	C	2	0.53	C	34	0.63	C	40	100
	EBR	0.05	C	9	0.10	C	12	0.11	C	12	100
	NBL	0.07	A	4	0.50	A	37	0.82	B	64	25
	NBT	0.10	A	12	0.55	B	65	0.55	B	62	-
	SBT	0.11	A	13	0.42	B	48	0.60	C	69	115
	SBR	0.03	A	4	0.06	B	8	0.10	B	10	30
	Overall	**0.10**	**A**	**-**	**0.54**	**B**	**-**	**0.77**	**C**	**-**	**-**

SCENARIO	MOVE.	WEEKDAY AM PEAK HOUR			SATURDAY PEAK HOUR			SATURDAY PEAK HOUR			STORAGE / LINK LENGTH (M)
		V/C	LOS	95TH % Q (M)	V/C	LOS	95TH % Q (M)	V/C	LOS	95TH % Q (M)	
Future Background 2030	EBL	0.06	C	3	0.53	C	33	0.63	C	38	100
	EBR	0.03	C	6	0.10	C	12	0.09	C	12	100
	NBL	0.05	A	3	0.48	A	24	0.81	B	62	25
	NBT	0.10	A	13	0.59	B	73	0.59	C	67	-
	SBT	0.11	A	14	0.46	B	54	0.66	C	85	115
	SBR	0.02	A	3	0.05	B	7	0.09	B	10	30
	Overall	**0.10**	**A**	**-**	**0.55**	**B**	**-**	**0.76**	**C**	**-**	**-**
Future Total 2030	EBL	0.03	C	3	0.55	C	34	0.64	C	40	100
	EBR	0.06	C	9	0.11	C	13	0.12	C	13	100
	NBL	0.08	A	4	0.54	A	28	0.90	C	82	25
	NBT	0.12	A	13	0.60	B	72	0.60	C	68	-
	SBT	0.13	A	14	0.46	B	54	0.67	C	87	115
	SBR	0.03	A	4	0.07	B	8	0.11	B	11	30
	Overall	**0.11**	**A**	**-**	**0.57**	**B**	**-**	**0.83**	**C**	**-**	**-**

5.3.10 Ontario Street at Site Accesses A and B

As presented in **Table 5-1**, the Ontario Street at Site Accesses intersection is expected to operate with reserve capacity (v/c ratios not exceeding 0.12), no delay issues, or queuing concerns for years up to and including the ultimate future total 2030 horizon year.

Table 5-11: Signalized Intersection Operational Analysis, Ontario Street at Site Accesses 1 and 2

SCENARIO	MOVE.	WEEKDAY AM PEAK HOUR			SATURDAY PEAK HOUR			SATURDAY PEAK HOUR			STORAGE / LINK LENGTH (M)
		V/C	LOS	95TH % Q (M)	V/C	LOS	95TH % Q (M)	V/C	LOS	95TH % Q (M)	
Future Total 2025	EBLTR	0.06	A	2	0.10	B	3	0.11	B	3	-
	WBLTR	0.05	A	1	0.12	B	3	0.11	B	3	-
	NBLTR	0.02	A	1	0.02	A	1	0.03	A	1	30
	SBLTR	0.02	A	0	0.03	A	1	0.03	A	1	60
	Overall	**-**	**A**	**-**	**-**	**A**	**-**	**-**	**A**	**-**	**-**
Future Total 2030	EBLTR	0.06	A	2	0.11	B	3	0.12	B	3	-
	WBLTR	0.05	A	1	0.12	B	3	0.12	B	3	-
	NBLTR	0.02	A	1	0.02	A	1	0.03	A	1	30
	SBLTR	0.02	A	0	0.03	A	1	0.03	A	1	60
	Overall	**-**	**A**	**-**	**-**	**A**	**-**	**-**	**A**	**-**	**-**

6.0 Conclusions

The conclusions derived from the completion of the traffic impact study for the proposed Ice Sculpture Centre Hotel Development can be summarized as follows:

- The Ice Sculpture Centre Hotel Development is proposed to consist of a 402-room hotel development including a Tropical Atrium of approximately 4,100 m^2 and an Ice Gallery of approximately 8,000 m^2. The development is proposed to be located on the northeast and southeast corners of the Bender Street and Ontario Street intersection.
- Based on the City of Niagara Falls Zoning By-law, 322 parking spaces are required for the development. There area a total of 320 parking spaces proposed resulting in a shortfall of only 2 spaces. This is a minor shortfall in parking and should not impact the site or surrounding area.
- The proposed development is required to provide a total of 8 accessible parking spaces inclusive of the required parking according to Ontario Regulation 413/12 under the Accessibility for Ontarians with Disabilities Act, 2005. Based on the site plan, 12 spaces have been provided.
- The proposed hotel development is estimated to generate approximately 108 inbound and 86 outbound vehicle trips during the weekday a.m. peak hour, 137 inbound and 133 outbound vehicle trips during the weekday p.m. peak hour, and 159 inbound and 124 outbound vehicle trips during the Saturday peak hour. No reductions for multi-modal transportation users or site synergy were considered as a conservative approach.
- All study intersections and their respective movements are anticipated to operate with acceptable delays and v/c's under 1.00 up to the final 2030 horizon year, except for the unsignalized intersection of Victoria Avenue and Falls Avenue Westbound Off-Ramp, which is forecast to operate over capacity as a result of background traffic.
- Adjusted lane configurations resulted in considerable improvements in intersection operations at the Bender Street and Ontario Street intersection. With the suggested lane marking modification improvements, the queues from this intersection do not extend beyond the western driveway of the subject site. No additional geometric improvements are required at the study area intersections in response to the site traffic generated from the proposed development.

APPENDIX A

TERMS OF REFERENCE

Rebecca Conrod

From: Matthew Di Maria
Sent: August 21, 2023 11:38 AM
To: Rebecca Conrod
Subject: FW: [EXTERNAL]-Bender St. Hotel Development TIS

Matthew Di Maria, C.E.T., RSP1, CAPM

Transportation Planner

R.V. Anderson Associates Limited
43 Church Street, Suite 104, St. Catharines ON L2R 7E1
t 905 685 5049 ext. 4237 |
LinkedIn | Facebook | Website

From: John Grubich <jgrubich@niagarafalls.ca>
Sent: Wednesday, July 19, 2023 8:56 AM
To: Matthew Di Maria <MDiMaria@rvanderson.com>
Cc: Altaf Hussain <ahussain@rvanderson.com>; Mathew Bilodeau <mbilodeau@niagarafalls.ca>
Subject: RE: [EXTERNAL]-Bender St. Hotel Development TIS

Matthew;

Thank you for forwarding the terms of reference for the TIS you will be preparing for this proposed development. I added some notes to your list below. Please let me know if you have any questions or wish to discuss any item further.

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: Matthew Di Maria <MDiMaria@rvanderson.com>
Sent: Tuesday, July 4, 2023 1:59 PM
To: John Grubich <jgrubich@niagarafalls.ca>
Cc: Altaf Hussain <ahussain@rvanderson.com>; Mathew Bilodeau <mbilodeau@niagarafalls.ca>
Subject: RE: [EXTERNAL]-Bender St. Hotel Development TIS

Hey John,

Hope things are well. We'd like to get approval for the below Terms of Reference to update the Bender St. Hotel TIS based on the latest plans and pre-con meeting notes held in February 2023 and your email below (Feb. 28, 2023).

1. The overall study will adhere to both the City's TIS Guidelines dated November 2011 and the MTO Guidelines dated March 2023. Transportation engineer must sign the report.

2. The following study area intersections will be analyzed: OK
    a. Victoria Ave. at Falls Ave. (Hwy 420/Falls Ave) On- and Off-Ramps
    b. Victoria Ave. at Bender St.
    c. Bender St. at Palmer Ave.
    d. Bender St. & Ontario St.
    e. Bender St. & Falls Ave.
    f. Hiram St. & Blondin Ave.
    g. Hiram St. & River Rd.

3. Traffic Data for the above-mentioned intersections will be collected in July or August to reflect peak tourist conditions. OK

4. The peak hour time periods for traffic analysis in this study will be: OK
    a. Weekday a.m. peak hour
    b. Weekday p.m. peak hour
    c. Saturday midday peak hour

5. Traffic Analysis software to be utilized:
    a. Synchro, Please use a 1,750 saturation flow rate.

6. Trip Generation for the development will be based on land use code 310-Hotel found in the ITE Trip Generation Manual 11th Edition. Also, provide trip generation for the restaurants, retail and attractions. All other hotels with attractions allow for outside users (for example, anyone can buy a daily pass to use the waterpark across the street even though it is affiliated with the hotel).

7. Trip Distribution for the development will be based on assignment percentages outlined in the previously completed TIS dated November 13, 2020 as follows:
    a. To/from the Victoria Avenue interchange ramps → 55%
    b. To/from the Victoria Avenue tourist corridor → 20%
    c. To/from the Rainbow Bridge → 10%
    d. To/from Falls Avenue → 10%
    e. To/from Palmer Avenue → 5%

Provide information in report to support the distribution figures.

8. Any applied Modal Split Reduction to the trip generation to be justified (i.e., reference to TMP forecasts, discussion on existing and future transit service, etc.) OK

9. MTO's traffic signal and left-turn lane warrants will be completed where applicable. OK

10. Future road network improvements to be reflected in the analysis:
    a. Can the City please confirm planned transportation network improvements to be reflected in the study and confirm completion years. Niagara Region plans to modify the Falls Avenue / Bender Street intersection to allow for outbound traffic from the Rainbow Bridge.

11. Analysis Horizon Years: OK
    a. Existing 2023
    b. Build-out year (to be confirmed with client)
    c. 5 years post full build-out.

12. Traffic Growth: OK
    a. A 2% growth rate will be utilized to forecast background traffic growth. This rate will be applied to all intersection movements.

13. Can the City provide any available Traffic Impact Studies for planned background developments to be considered in this study? The three sites below to be included in background conditions.
    a. Niagara River Road Luxury Resort Development (already obtained during completion of November 2020 TIS).
    b. Victoria & Bender St. Development (site trips provided via email).
    c. Victoria & Walnut Development (site trips provided via email).

14. Access Review OK
    a. Access review (operations, safety, locations, configuration, traffic controls) to be completed based on Access Management Guidelines, TAC Geometric Design Guide, and based on the results of the Synchro analysis.

15. Parking Assessment
    a. If a parking study is to be done to support the requested parking reduction, then proxy sites will be selected in consultation with the City. If the site is proposing less parking than what is required in the Zoning by-law, then a parking study will be required. The latest set of plans reviewed noted an 80-parking space deficit. The field studies will need to be done in the summer (by late August). Please advise as soon as you can if this remains the case and if so, we can discuss the parking study requirements.

If you have any questions or wish to discuss the TOR, please feel free to reach out to us..

Matthew Di Maria, C.E.T., RSP1, CAPM

Transportation Planner

R.V. Anderson Associates Limited
43 Church Street, Suite 104, St. Catharines ON L2R 7E1
t 905 685 5049 ext. 4237 |
LinkedIn | Facebook | Website

From: John Grubich <jgrubich@niagarafalls.ca>
Sent: Tuesday, February 28, 2023 11:05 AM
To: Matthew Di Maria <MDiMaria@rvanderson.com>
Cc: Altaf Hussain <ahussain@rvanderson.com>; Mathew Bilodeau <mbilodeau@niagarafalls.ca>
Subject: RE: [EXTERNAL]-Bender St. Hotel Development TIS

Matthew;

I checked our files and we do not have any recent traffic data than what we have already provided you.

Based on the most recent plans provided, the development has an 80-parking space shortfall. If the applicant intends to proceed as shown in the latest plans, then the applicant would be required to demonstrate through a parking demand analysis study that the proposed parking rate is appropriate for the site. A term of reference will be required and approved by City Staff prior to carrying out field work to support the parking analysis. All field work will need to be done in the summer months (early July to mid-August only). Multiple hotels with attractions open to the public will need to be studied.

If a parking study is to be done to support the requested parking reduction, then new TMC's will also need to be done concurrently. All TMC data must only be done between early July and mid-August. Thursday and Saturday counts are required, on a non-holiday weekend.

The City is currently carrying out a study to review and update of the previously completed People Mover Environmental Assessments which considered an elevated fixed rail system through the existing municipal parking lot, adjacent to the proposed development. Access through the municipal parking lot may be permitted in the interim through an agreement; however, will not be permitted once the construction of the system begins and is operational. Alternatives for the future consideration are to be provided prior to approval of the use of the parking lot. The TIS should not place any trips through the parking lot, as this route will not be available long term.

Since your client filed their application, there has been a new development approved that impacts the study area. It is at the corner of Victoria Avenue & Walnut Street. The development consists of two high rise buildings consisting of one hotel tower and one residential building. The same applicant has applied to build a 45-storey residential building at the corner of Victoria Avenue and Bender Street. Site trips for both sites are attached. Please include these two developments in your analysis.

Please update the horizon years in your TIS (expected opening day, and 5 years beyond opening day). Finally, please review the updated pre-consultation notes and address any transportation matters in your report.

Please let me know if you have any questions.

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: John Grubich
Sent: Tuesday, February 7, 2023 9:06 AM
To: Matthew Di Maria <MDiMaria@rvanderson.com>
Cc: Altaf Hussain <ahussain@rvanderson.com>
Subject: RE: [EXTERNAL]-Bender St. Hotel Development TIS

Matthew;

Sorry for the late response.

The applicant has submitted a revised proposal which requires a new pre-consultation. The TIS will need to be updated to reflect new/proposed developments in the area and to justify a parking deficit. A new terms of reference for your TIS will likely be required. We can address this after the pre-con meeting.

In terms of summer data, I will check my files to see what information we have available but will not be provided until after the pre-con.

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: Matthew Di Maria <MDiMaria@rvanderson.com>
Sent: Tuesday, January 31, 2023 4:55 PM
To: John Grubich <jgrubich@niagarafalls.ca>
Cc: Altaf Hussain <ahussain@rvanderson.com>
Subject: [EXTERNAL]-Bender St. Hotel Development TIS

Hi John,

We are in the process of updating our TIS for the Bender St. Hotel based on comments provided by the City. There is one comment we are hoping to discuss with you to find a suitable path forward that would allow us to complete our study in a timely manner. The comment as shown below was in regards to the traffic volumes used in the previous study:

"Traffic counts were noted to be counted in October 2019. October data does not represent peak summer tourist volumes. City Staff did not agree to use of autumn (non-peak) data nor factoring to represent summer data"

In order to collect summer peak tourist volumes we would have to delay our study and our client wishes to submit as soon as possible. Does the City have any historical summer TMC data that we could use for the study and an applicable growth rate we could apply to bring the data to current conditions?

If you have any questions, please reach out to us.

Thanks,

Matthew Di Maria, C.E.T., RSP1, CAPM
TRANSPORTATION PLANNER
t 905 685 5049 ext. 4237 |
a 43 Church Street, Suite 104, St. Catharines, ON L2R 7E1
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APPENDIX B

TURNING MOVEMENT COUNTS

Victoria Ave @ North Ramp 1

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 8:00:00
To: 9:00:00

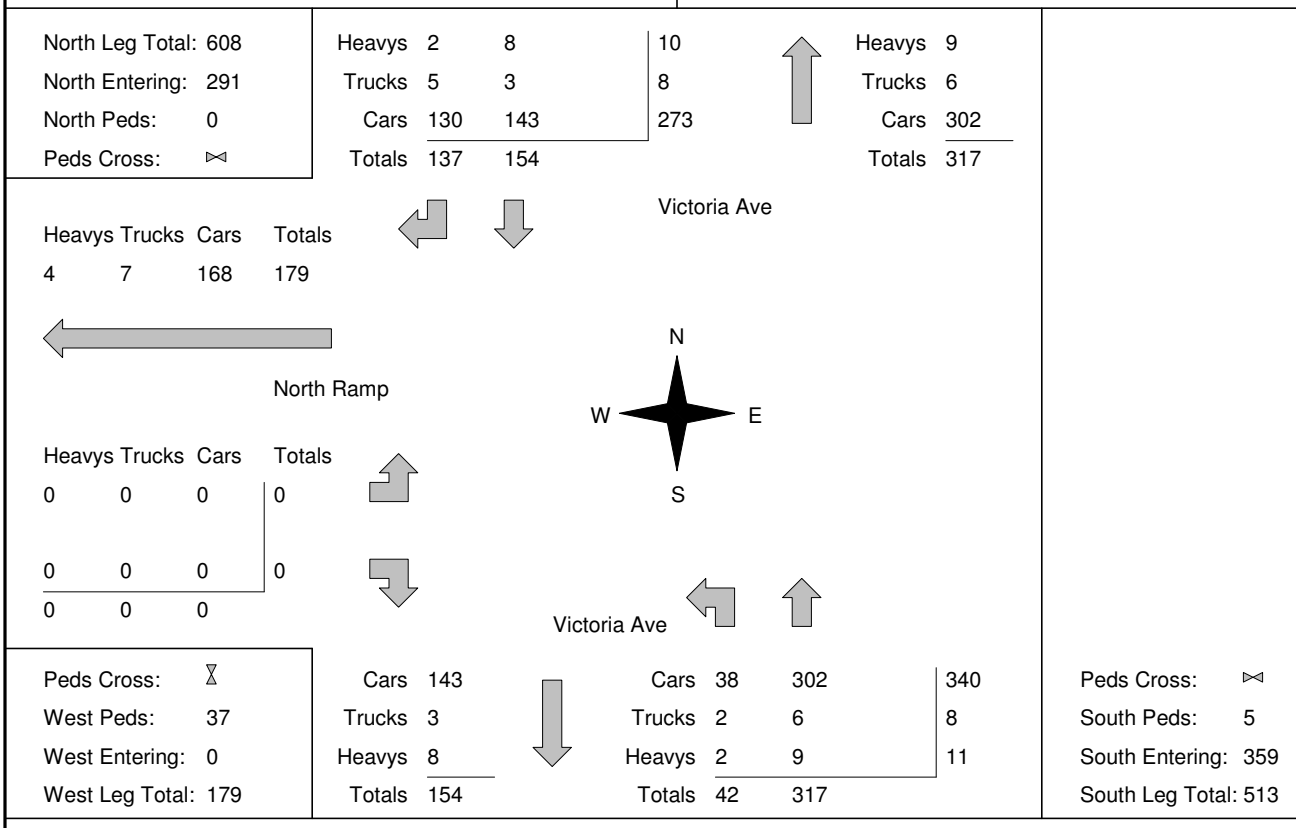
Municipality: Niagara Falls
Site #: 0000000001
Intersection: Victoria Ave & North Ramp
TFR File #: 1
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

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

Major Road: Victoria Ave runs N/S



Comments

Victoria Ave @ North Ramp 1

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 13:00:00
To: 14:00:00

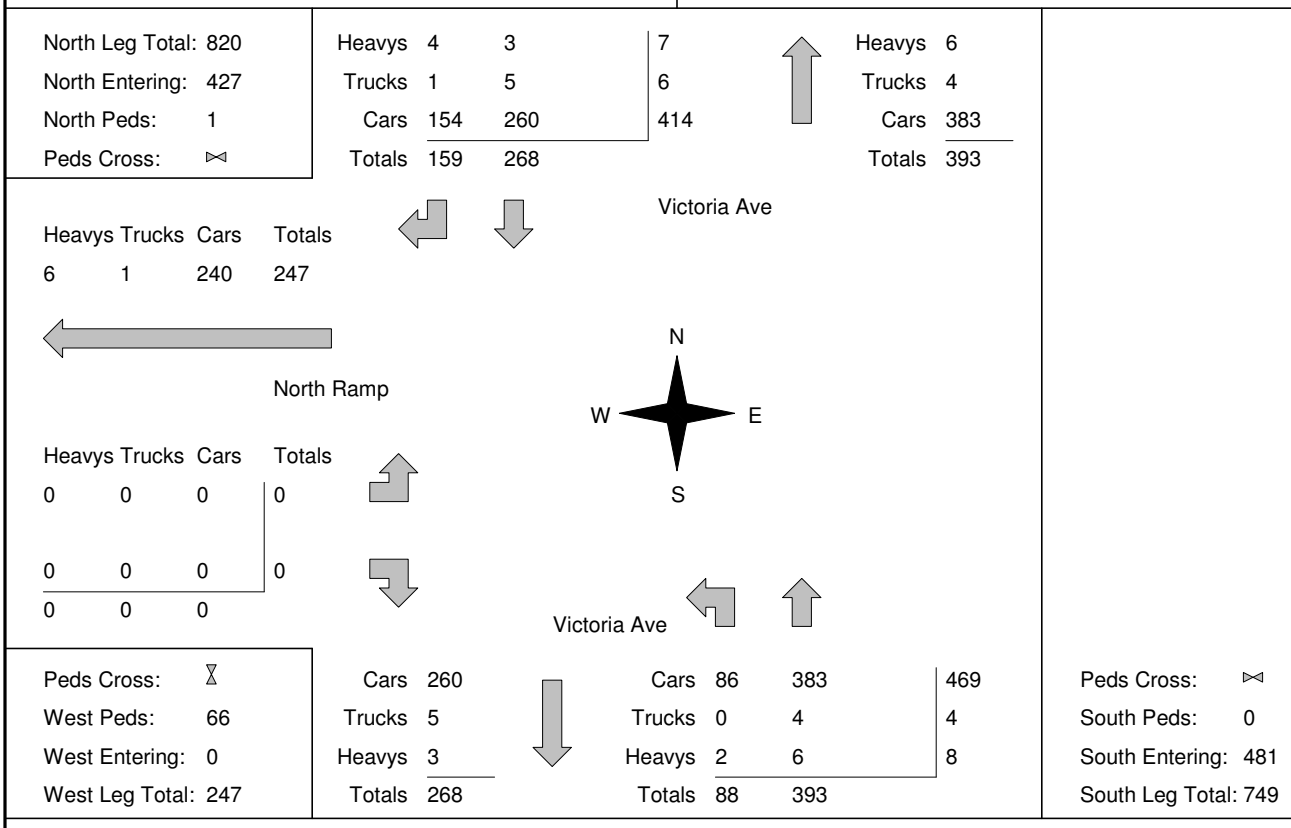
Municipality: Niagara Falls
Site #: 0000000001
Intersection: Victoria Ave & North Ramp
TFR File #: 1
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

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

Major Road: Victoria Ave runs N/S



Comments

Victoria Ave @ North Ramp 1

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 15:45:00
To: 16:45:00

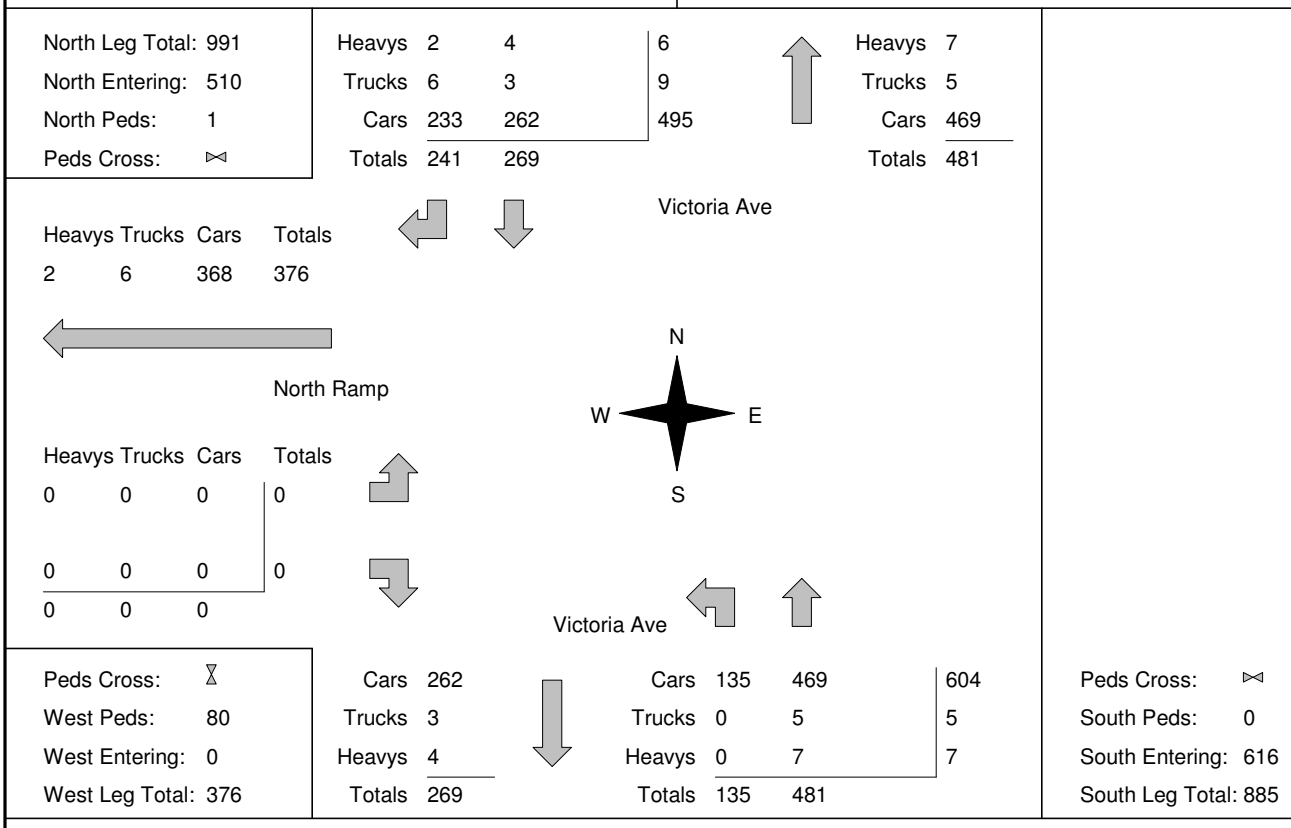
Municipality: Niagara Falls
Site #: 0000000001
Intersection: Victoria Ave & North Ramp
TFR File #: 1
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

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

Major Road: Victoria Ave runs N/S



Comments

Victoria Ave @ North Ramp 1

Total Count Diagram

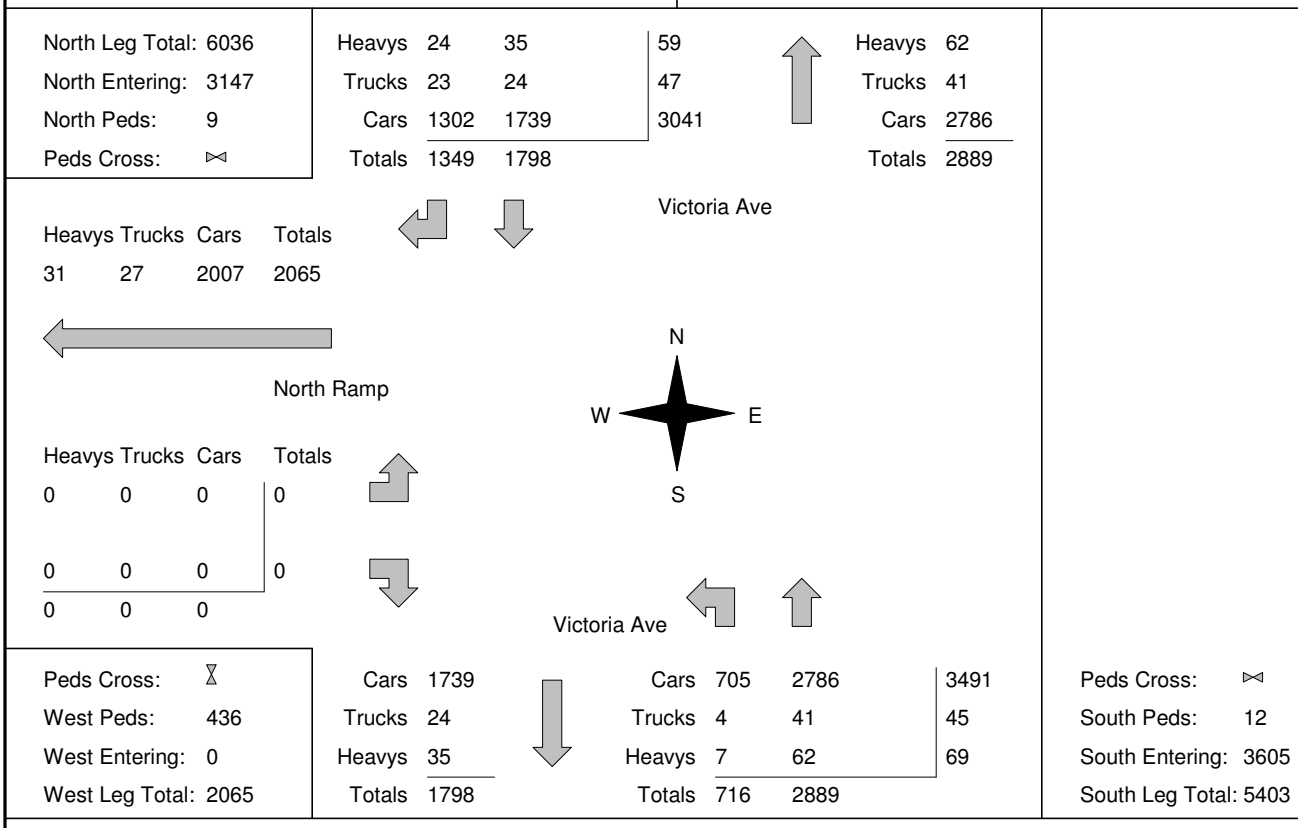
Municipality: Niagara Falls
Site #: 0000000001
Intersection: Victoria Ave & North Ramp
TFR File #: 1
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

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

Major Road: Victoria Ave runs N/S



Comments

Victoria Ave @ North Ramp 2

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 8:00:00
To: 9:00:00

Municipality: Niagara Falls
Site #: 0000000002
Intersection: Victoria Ave & North Ramp
TFR File #: 2
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

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

Major Road: Victoria Ave runs N/S

North Leg Total: 511
North Entering: 153
North Peds: 0
Peds Cross: ⋈

Heavys	8	0	8
Trucks	3	0	3
Cars	142	0	142
Totals	153	0	

Heavys	10
Trucks	8
Cars	340
Totals	358

East Leg Total: 24
East Entering: 24
East Peds: 10
Peds Cross: ⋈

Victoria Ave

Cars	Trucks	Heavys	Totals
15	0	1	16
8	0	0	8
23	0	1	

N
W E
S

North Ramp

Cars	Trucks	Heavys	Totals
0	0	0	0

Victoria Ave

Cars	150		
Trucks	3		
Heavys	8		
Totals	161		

Cars	325	0	325
Trucks	8	0	8
Heavys	9	0	9
Totals	342	0	

Peds Cross: ⋈
South Peds: 0
South Entering: 342
South Leg Total: 503

Comments

Victoria Ave @ North Ramp 2

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 13:00:00
To: 14:00:00

Municipality: Niagara Falls
Site #: 0000000002
Intersection: Victoria Ave & North Ramp
TFR File #: 2
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

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

Major Road: Victoria Ave runs N/S

North Leg Total: 752
North Entering: 270
North Peds: 1
Peds Cross: ⋈

Heavys	3	0	3
Trucks	5	0	5
Cars	262	0	262
Totals	270	0	

Heavys	9	
Trucks	3	
Cars	470	
Totals	482	

East Leg Total: 106
East Entering: 106
East Peds: 30
Peds Cross: ⋈

Victoria Ave

Cars	Trucks	Heavys	Totals
46	0	0	46
59	0	1	60
105	0	1	

N
W E
S

North Ramp

Cars	Trucks	Heavys	Totals
0	0	0	0

Victoria Ave

Cars	321		
Trucks	5		
Heavys	4		
Totals	330		

Cars	424	0	424
Trucks	3	0	3
Heavys	9	0	9
Totals	436	0	

Peds Cross: ⋈
South Peds: 0
South Entering: 436
South Leg Total: 766

Comments

Victoria Ave @ North Ramp 2

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 15:30:00
To: 16:30:00

Municipality: Niagara Falls
Site #: 0000000002
Intersection: Victoria Ave & North Ramp
TFR File #: 2
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

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

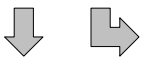
Major Road: Victoria Ave runs N/S

North Leg Total: 897
North Entering: 279
North Peds: 0
Peds Cross: ⋈

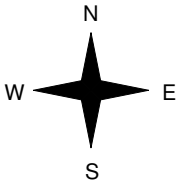
Heavys	3	0	3
Trucks	3	0	3
Cars	273	0	273
Totals	279	0	

Heavys	10
Trucks	5
Cars	603
Totals	618

East Leg Total: 76
East Entering: 76
East Peds: 40
Peds Cross: ⋈



	Cars	Trucks	Heavys	Totals
	38	1	1	40
	36	0	0	36
	74	1	1	



North Ramp

Cars	Trucks	Heavys	Totals
0	0	0	0

Cars	565	0	565
Trucks	4	0	4
Heavys	9	0	9
Totals	578	0	

Cars	309
Trucks	3
Heavys	3
Totals	315

Peds Cross: ⋈
South Peds: 0
South Entering: 578
South Leg Total: 893

Comments

Victoria Ave @ North Ramp 2

Total Count Diagram

Municipality: Niagara Falls
Site #: 0000000002
Intersection: Victoria Ave & North Ramp
TFR File #: 2
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

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

Major Road: Victoria Ave runs N/S

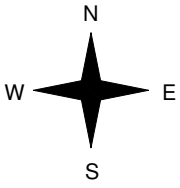
North Leg Total: 5418
North Entering: 1805
North Peds: 1
Peds Cross: ⋈

Heavys	34	0	34
Trucks	24	0	24
Cars	1747	0	1747
Totals	1805	0	

Heavys	72
Trucks	45
Cars	3496
Totals	3613

East Leg Total: 508
East Entering: 508
East Peds: 260
Peds Cross: ⋈

	Cars	Trucks	Heavys	Totals
	205	3	3	211
	294	0	3	297
	499	3	6	



North Ramp

Cars	Trucks	Heavys	Totals
0	0	0	0

Victoria Ave

Cars	2041		
Trucks	24		
Heavys	37		
Totals	2102		

Cars	3291	0	3291
Trucks	42	0	42
Heavys	69	0	69
Totals	3402	0	

Peds Cross: ⋈
South Peds: 9
South Entering: 3402
South Leg Total: 5504

Comments

Victoria Ave @ South Ramp

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 8:00:00
To: 9:00:00

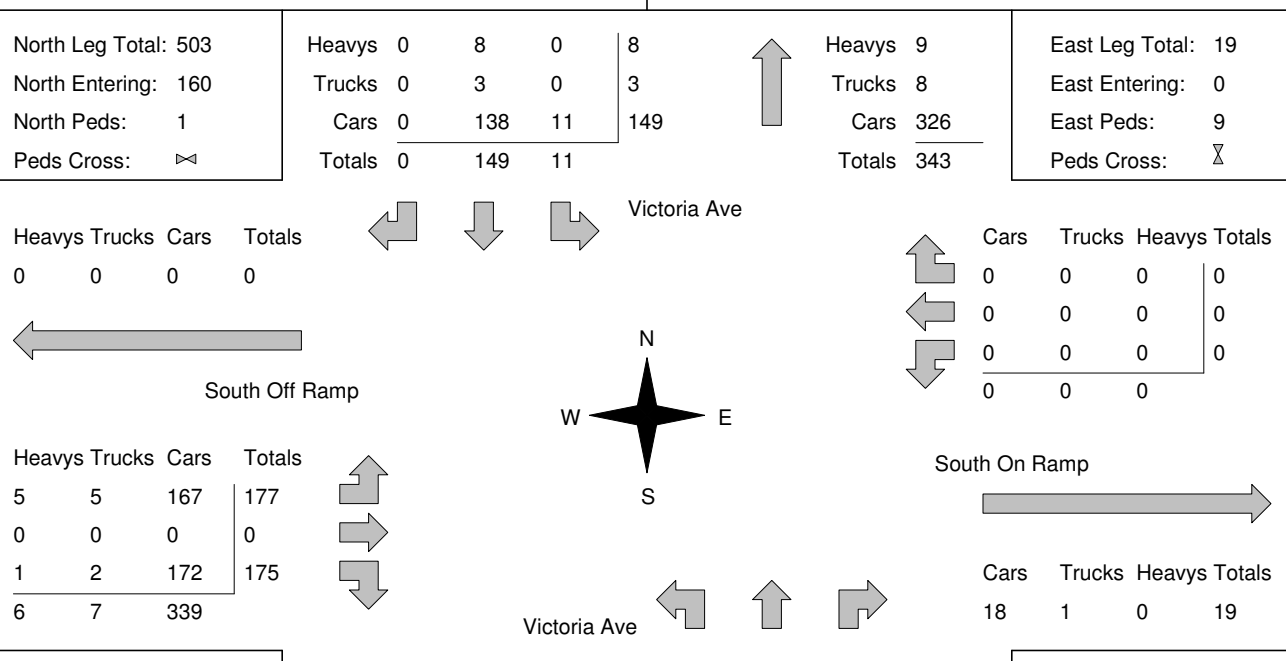
Municipality: Niagara Falls
Site #: 0000000003
Intersection: Victoria Ave & South Ramp
TFR File #: 3
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Victoria Ave runs N/S



Comments

Victoria Ave @ South Ramp

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 11:15:00
To: 12:15:00

Municipality: Niagara Falls
Site #: 0000000003
Intersection: Victoria Ave & South Ramp
TFR File #: 3
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

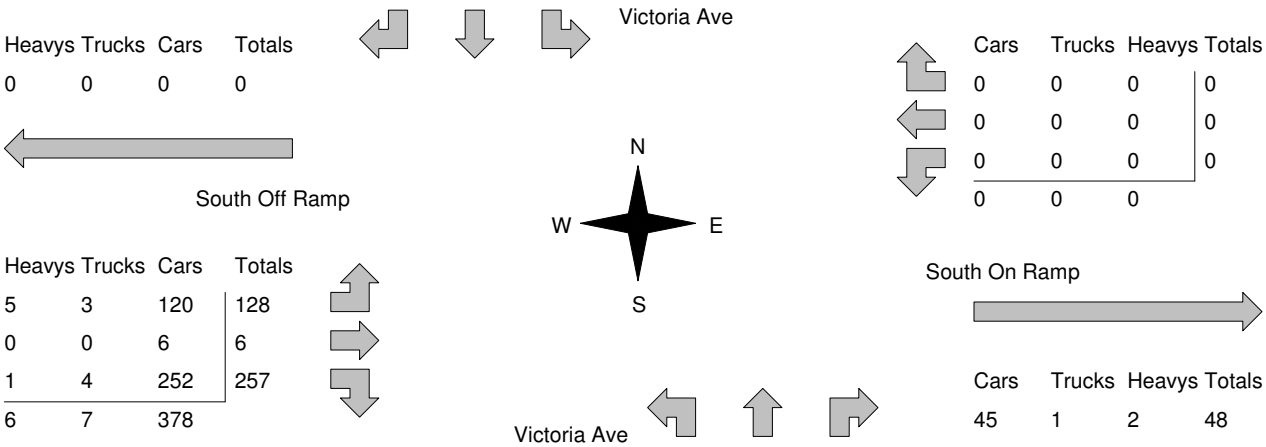
Major Road: Victoria Ave runs N/S

North Leg Total:	730
North Entering:	311
North Peds:	1
Peds Cross:	⋈

Heavys	0	4	2	6
Trucks	0	3	0	3
Cars	0	277	25	302
Totals	0	284	27	

Heavys	9
Trucks	7
Cars	403
Totals	419

East Leg Total:	48
East Entering:	0
East Peds:	28
Peds Cross:	⧖



Peds Cross:	⧖
West Peds:	58
West Entering:	391
West Leg Total:	391

Cars	529			
Trucks	7			
Heavys	5			
Totals	541			

Cars	0	283	14	297
Trucks	0	4	1	5
Heavys	0	4	0	4
Totals	0	291	15	

Peds Cross:	⋈
South Peds:	2
South Entering:	306
South Leg Total:	847

Comments

Victoria Ave @ South Ramp

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 15:45:00
To: 16:45:00

Municipality: Niagara Falls
Site #: 0000000003
Intersection: Victoria Ave & South Ramp
TFR File #: 3
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

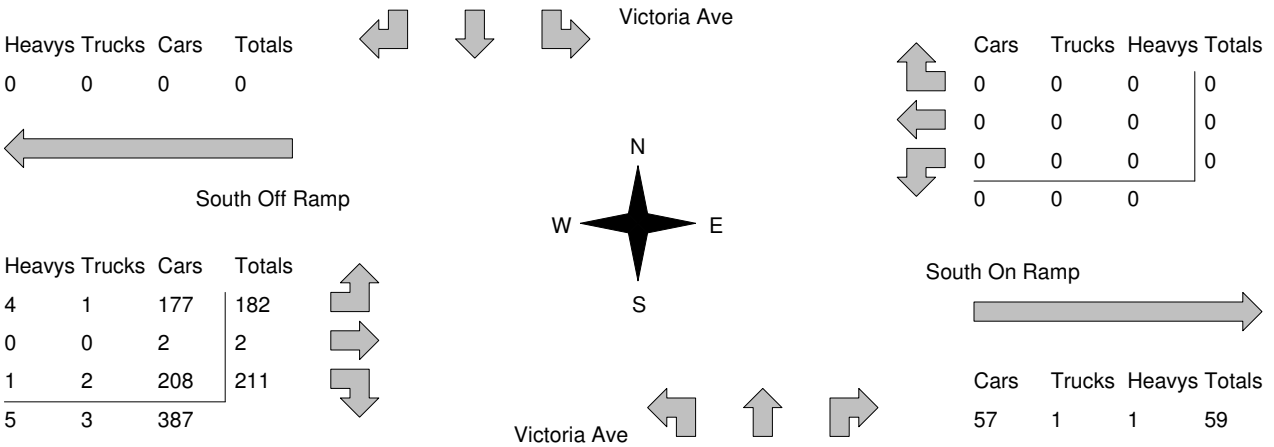
Major Road: Victoria Ave runs N/S

North Leg Total: 882
North Entering: 308
North Peds: 0
Peds Cross: ⋈

Heavys	0	3	1	4
Trucks	0	2	1	3
Cars	0	256	45	301
Totals	0	261	47	

Heavys	8
Trucks	3
Cars	563
Totals	574

East Leg Total: 59
East Entering: 0
East Peds: 47
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 69
West Entering: 395
West Leg Total: 395

Cars	464			
Trucks	4			
Heavys	4			
Totals	472			

Cars	0	386	10	396
Trucks	0	2	0	2
Heavys	0	4	0	4
Totals	0	392	10	

Peds Cross: ⋈
South Peds: 13
South Entering: 402
South Leg Total: 874

Comments

Victoria Ave @ South Ramp

Total Count Diagram

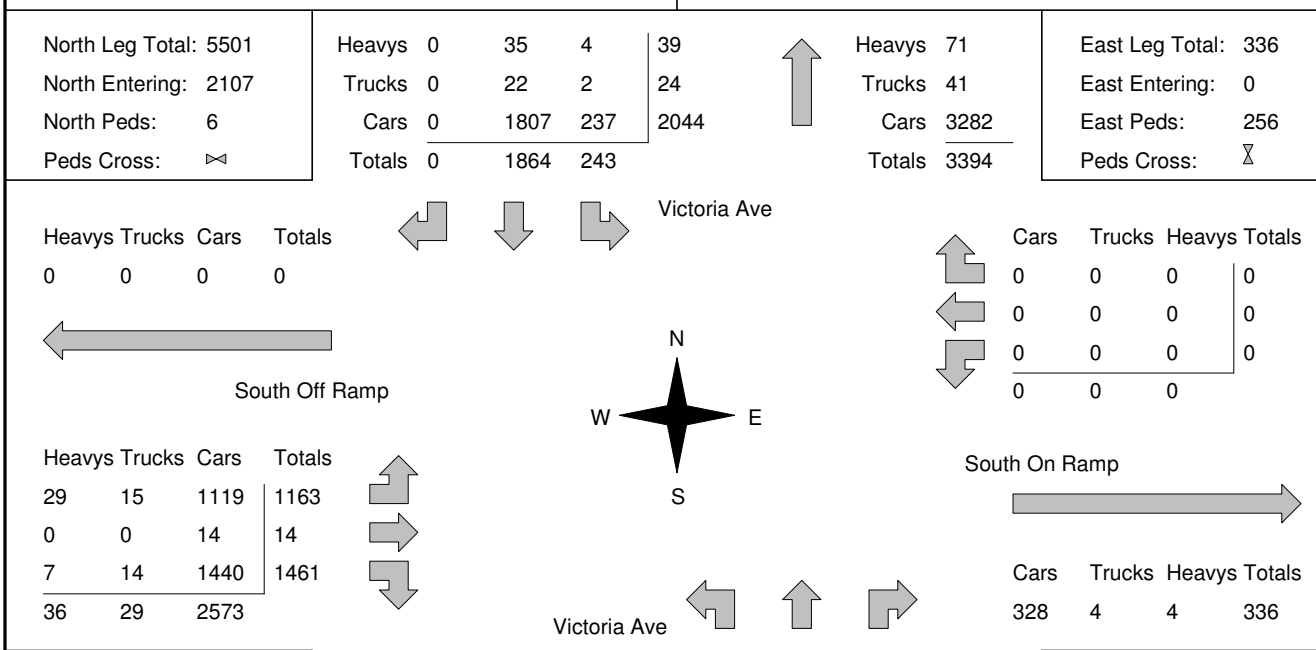
Municipality: Niagara Falls
Site #: 0000000003
Intersection: Victoria Ave & South Ramp
TFR File #: 3
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Victoria Ave runs N/S



Comments

Victoria Ave @ Bender St

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 8:00:00
To: 9:00:00

Municipality: Niagara Falls
Site #: 0000000004
Intersection: Victoria Ave & Bender St
TFR File #: 4
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Victoria Ave runs N/S

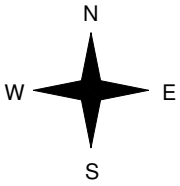
North Leg Total: 472
North Entering: 309
North Peds: 3
Peds Cross: ⋈

Heavys	8	1	9
Trucks	3	2	5
Cars	120	175	295
Totals	131	178	

Heavys	4
Trucks	3
Cars	156
Totals	163

East Leg Total: 312
East Entering: 54
East Peds: 6
Peds Cross: ⋈

Cars	Trucks	Heavys	Totals
26	1	1	28
25	1	0	26
51	2	1	



Cars	Trucks	Heavys	Totals
247	3	8	258

Cars	145
Trucks	4
Heavys	8
Totals	157

Cars	130	72	202
Trucks	2	1	3
Heavys	3	7	10
Totals	135	80	

Peds Cross: ⋈
South Peds: 13
South Entering: 215
South Leg Total: 372

Comments

Victoria Ave @ Bender St

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 13:00:00
To: 14:00:00

Municipality: Niagara Falls
Site #: 0000000004
Intersection: Victoria Ave & Bender St
TFR File #: 4
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Victoria Ave runs N/S

North Leg Total: 838
North Entering: 550
North Peds: 7
Peds Cross: ⋈

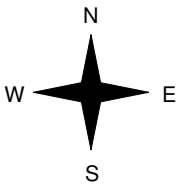
Heavys	2	2	4
Trucks	4	1	5
Cars	300	241	541
Totals	306	244	

Heavys	8
Trucks	3
Cars	277
Totals	288

East Leg Total: 547
East Entering: 160
East Peds: 45
Peds Cross: ⋈

Victoria Ave

Cars	Trucks	Heavys	Totals
95	1	1	97
63	0	0	63
158	1	1	



Bender St

Cars	Trucks	Heavys	Totals
377	4	6	387

Victoria Ave

Cars	363		
Trucks	4		
Heavys	2		
Totals	369		

Cars	182	136	318
Trucks	2	3	5
Heavys	7	4	11
Totals	191	143	

Peds Cross: ⋈
South Peds: 34
South Entering: 334
South Leg Total: 703

Comments

Victoria Ave @ Bender St

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

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

Municipality: Niagara Falls
Site #: 0000000004
Intersection: Victoria Ave & Bender St
TFR File #: 4
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Victoria Ave runs N/S

North Leg Total: 832
North Entering: 461
North Peds: 1
Peds Cross: ⋈

Heavys	2	0	2
Trucks	1	1	2
Cars	247	210	457
Totals	250	211	

Heavys	5
Trucks	4
Cars	362
Totals	371

East Leg Total: 593
East Entering: 213
East Peds: 74
Peds Cross: ⋈

Victoria Ave

Cars	Trucks	Heavys	Totals
150	0	0	150
63	0	0	63
213	0	0	

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Bender St

Cars	Trucks	Heavys	Totals
374	1	5	380

Victoria Ave

Cars	310		
Trucks	1		
Heavys	2		
Totals	313		

Cars	212	164	376
Trucks	4	0	4
Heavys	5	5	10
Totals	221	169	

Peds Cross: ⋈
South Peds: 52
South Entering: 390
South Leg Total: 703

Comments

Victoria Ave @ Bender St

Total Count Diagram

Municipality: Niagara Falls
Site #: 0000000004
Intersection: Victoria Ave & Bender St
TFR File #: 4
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Victoria Ave runs N/S

North Leg Total: 5371
North Entering: 3244
North Peds: 53
Peds Cross: ⋈

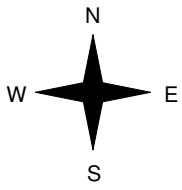
Heavys	34	11	45
Trucks	26	9	35
Cars	1729	1435	3164
Totals	1789	1455	

Heavys	41
Trucks	28
Cars	2058
Totals	2127

East Leg Total: 3614
East Entering: 1182
East Peds: 446
Peds Cross: ⋈

Victoria Ave

Cars	Trucks	Heavys	Totals
722	7	2	731
450	1	0	451
1172	8	2	



Bender St

Cars	Trucks	Heavys	Totals
2379	20	33	2432

Victoria Ave

Cars	2179
Trucks	27
Heavys	34
Totals	2240

Cars	1336	944	2280
Trucks	21	11	32
Heavys	39	22	61
Totals	1396	977	

Peds Cross: ⋈
South Peds: 391
South Entering: 2373
South Leg Total: 4613

Comments

Bender St @ Palmer Ave

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 8:00:00
To: 9:00:00

Municipality: Niagara Falls
Site #: 0000000005
Intersection: Bender St & Palmer Ave
TFR File #: 5
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

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

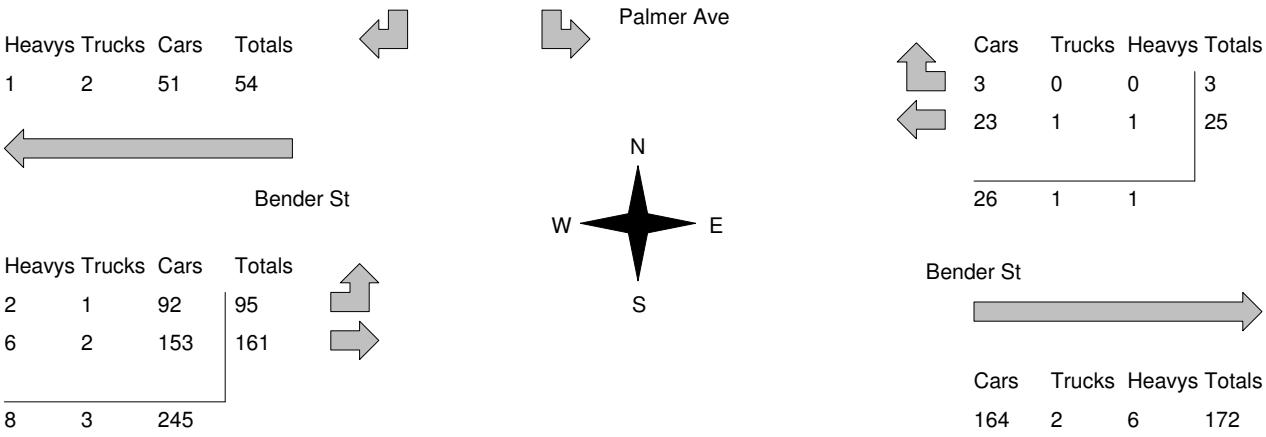
Major Road: Bender St runs W/E

North Leg Total: 138
North Entering: 40
North Peds: 5
Peds Cross: ⋈

Heavys	0	0	0
Trucks	1	0	1
Cars	28	11	39
Totals	29	11	

Heavys	2
Trucks	1
Cars	95
Totals	98

East Leg Total: 200
East Entering: 28
East Peds: 2
Peds Cross: ⧖



Heavys	Trucks	Cars	Totals
1	2	51	54

Cars	Trucks	Heavys	Totals
3	0	0	3
23	1	1	25
26	1	1	

Heavys	Trucks	Cars	Totals
2	1	92	95
6	2	153	161
8	3	245	

Cars	Trucks	Heavys	Totals
164	2	6	172

Peds Cross: ⧖
West Peds: 0
West Entering: 256
West Leg Total: 310

Comments

Bender St @ Palmer Ave

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 11:15:00
To: 12:15:00

Municipality: Niagara Falls
Site #: 0000000005
Intersection: Bender St & Palmer Ave
TFR File #: 5
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

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

Major Road: Bender St runs W/E

North Leg Total: 160
North Entering: 70
North Peds: 21
Peds Cross: ⋈

Heavys	0	0	0
Trucks	0	0	0
Cars	60	10	70
Totals	60	10	

Heavys	0
Trucks	1
Cars	89
Totals	90

East Leg Total: 420
East Entering: 104
East Peds: 6
Peds Cross: ⧖

Palmer Ave

Heavys	Trucks	Cars	Totals
0	1	149	150

Bender St

Cars	Trucks	Heavys	Totals
14	0	0	14
89	1	0	90
103	1	0	

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Heavys	Trucks	Cars	Totals
0	1	75	76
3	2	301	306
3	3	376	

Bender St

Cars	Trucks	Heavys	Totals
311	2	3	316

Peds Cross: ⧖
West Peds: 0
West Entering: 382
West Leg Total: 532

Comments

Bender St @ Palmer Ave

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

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

Municipality: Niagara Falls
Site #: 0000000005
Intersection: Bender St & Palmer Ave
TFR File #: 5
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

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

Major Road: Bender St runs W/E

North Leg Total: 159
North Entering: 70
North Peds: 35
Peds Cross: ⋈

Heavys	0	0	0
Trucks	0	0	0
Cars	54	16	70
Totals	54	16	

Heavys	0
Trucks	0
Cars	89
Totals	89

East Leg Total: 478
East Entering: 166
East Peds: 13
Peds Cross: ⧖

Palmer Ave

Heavys	Trucks	Cars	Totals
0	0	212	212

Bender St

Heavys	Trucks	Cars	Totals
0	0	81	81
5	1	290	296
5	1	371	

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Cars	Trucks	Heavys	Totals
8	0	0	8
158	0	0	158
166	0	0	

Bender St

Cars	Trucks	Heavys	Totals
306	1	5	312

Peds Cross: ⧖
West Peds: 14
West Entering: 377
West Leg Total: 589

Comments

Bender St @ Palmer Ave

Total Count Diagram

Municipality: Niagara Falls
Site #: 0000000005
Intersection: Bender St & Palmer Ave
TFR File #: 5
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

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

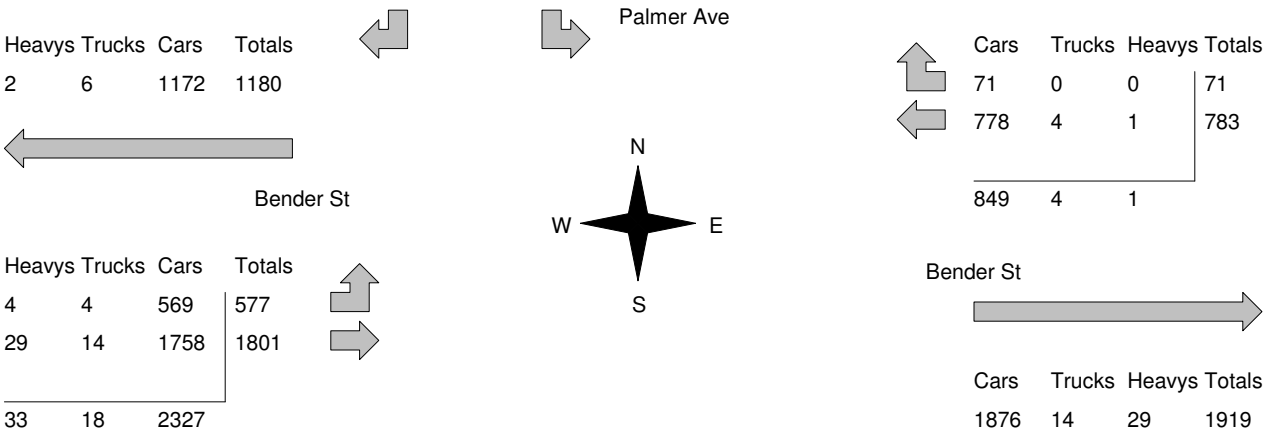
Major Road: Bender St runs W/E

North Leg Total: 1163
North Entering: 515
North Peds: 174
Peds Cross: ⋈

Heavys	1	0	1
Trucks	2	0	2
Cars	394	118	512
Totals	397	118	

Heavys	4
Trucks	4
Cars	640
Totals	648

East Leg Total: 2773
East Entering: 854
East Peds: 64
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 51
West Entering: 2378
West Leg Total: 3558

Comments

Bender St @ Ontario Ave

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 8:00:00
To: 9:00:00

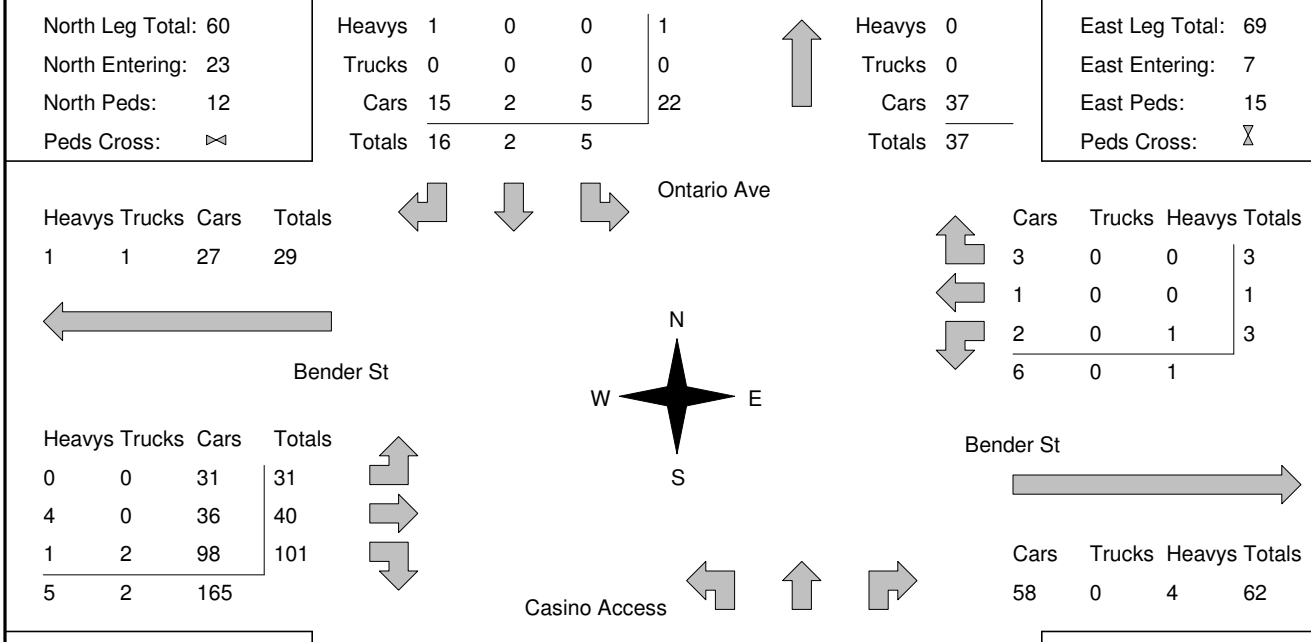
Municipality: Niagara Falls
Site #: 0000000006
Intersection: Bender St & Ontario Ave
TFR File #: 6
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Bender St runs W/E



Comments

Bender St @ Ontario Ave

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 11:15:00
To: 12:15:00

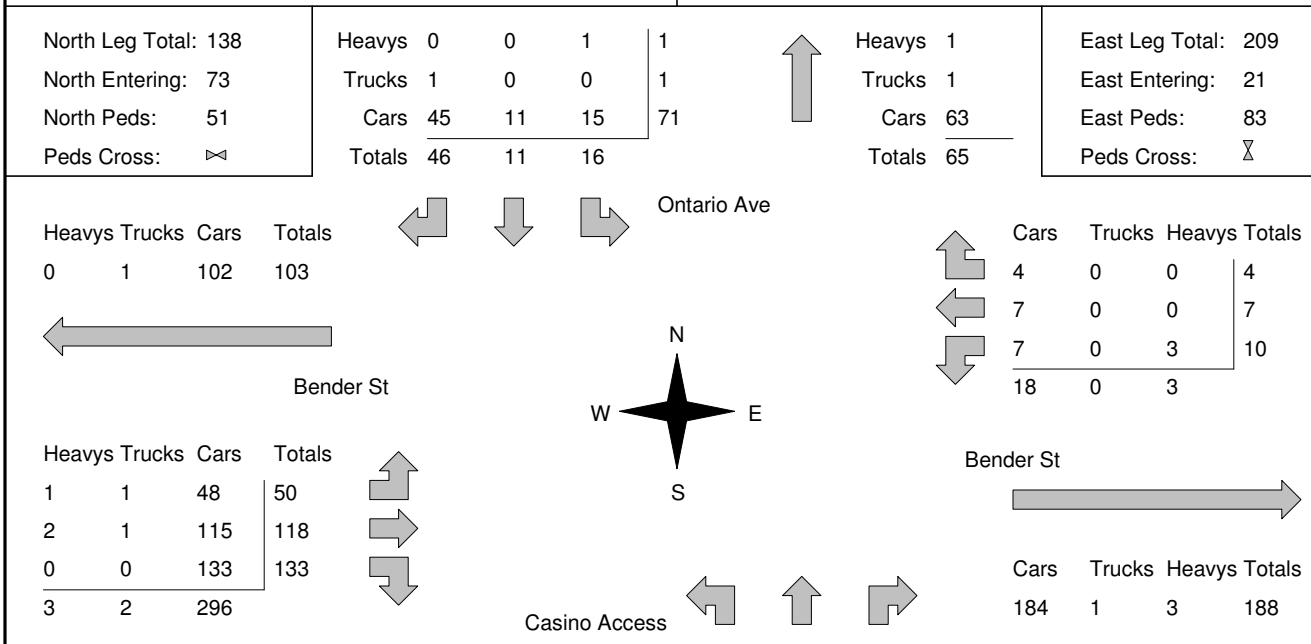
Municipality: Niagara Falls
Site #: 0000000006
Intersection: Bender St & Ontario Ave
TFR File #: 6
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Bender St runs W/E



Comments

Bender St @ Ontario Ave

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

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

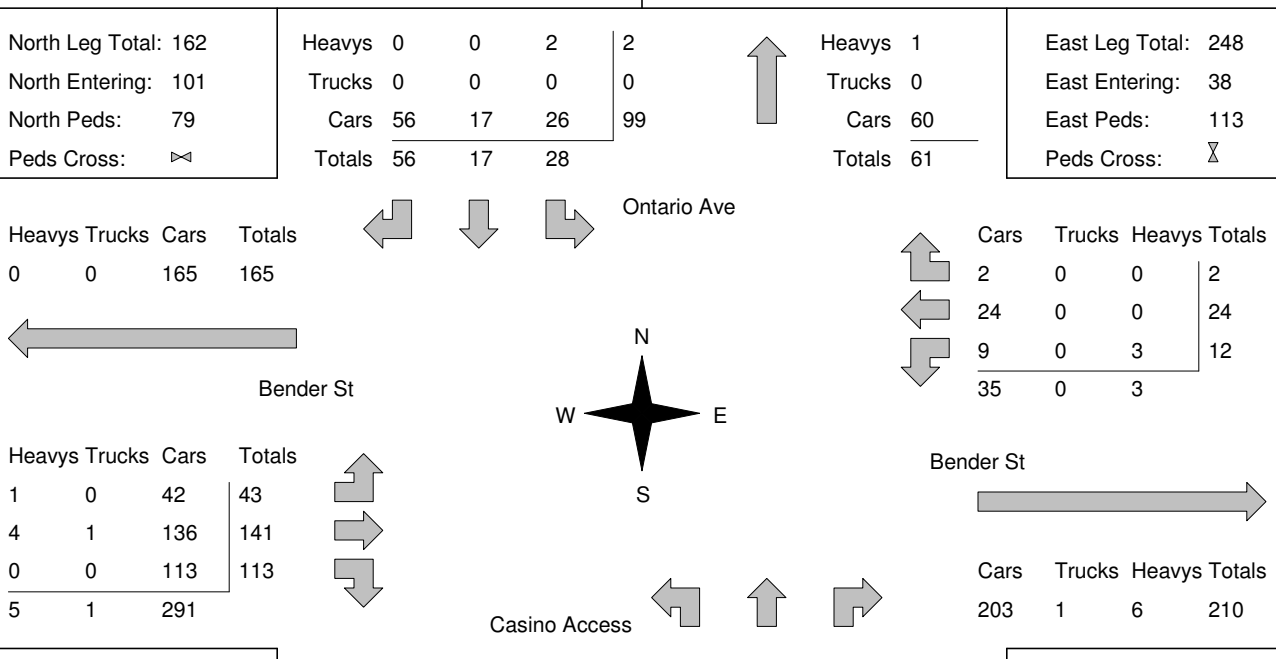
Municipality: Niagara Falls
Site #: 0000000006
Intersection: Bender St & Ontario Ave
TFR File #: 6
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Bender St runs W/E



Comments

Bender St @ Ontario Ave

Total Count Diagram

Municipality: Niagara Falls
Site #: 0000000006
Intersection: Bender St & Ontario Ave
TFR File #: 6
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Bender St runs W/E

North Leg Total:	891			
North Entering:	531			
North Peds:	462			
Peds Cross:	⋈			
Heavys	1	0	8	9
Trucks	3	0	0	3
Cars	319	74	126	519
Totals	323	74	134	
Heavys	5			
Trucks	4			
Cars	351			
Totals	360			
East Leg Total:	1330			
East Entering:	162			
East Peds:	583			
Peds Cross:	⧖			

Ontario Ave

Heavys	Trucks	Cars	Totals
2	4	838	844

	Cars	Trucks	Heavys	Totals
	19	0	0	19
	83	0	1	84
	40	0	19	59
	142	0	20	

Bender St

N
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Heavys	Trucks	Cars	Totals
5	4	259	268
16	8	747	771
6	2	791	799
27	14	1797	

Bender St

Cars	Trucks	Heavys	Totals
1135	8	25	1168

Casino Access

Peds Cross:	⧖			
West Peds:	98			
West Entering:	1838			
West Leg Total:	2682			
Cars	905			
Trucks	2			
Heavys	25			
Totals	932			
Cars	436	73	262	771
Trucks	1	0	0	1
Heavys	0	0	1	1
Totals	437	73	263	
Peds Cross:	⋈			
South Peds:	615			
South Entering:	773			
South Leg Total:	1705			

Comments

Bender St @ Falls Ave

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 8:00:00
To: 9:00:00

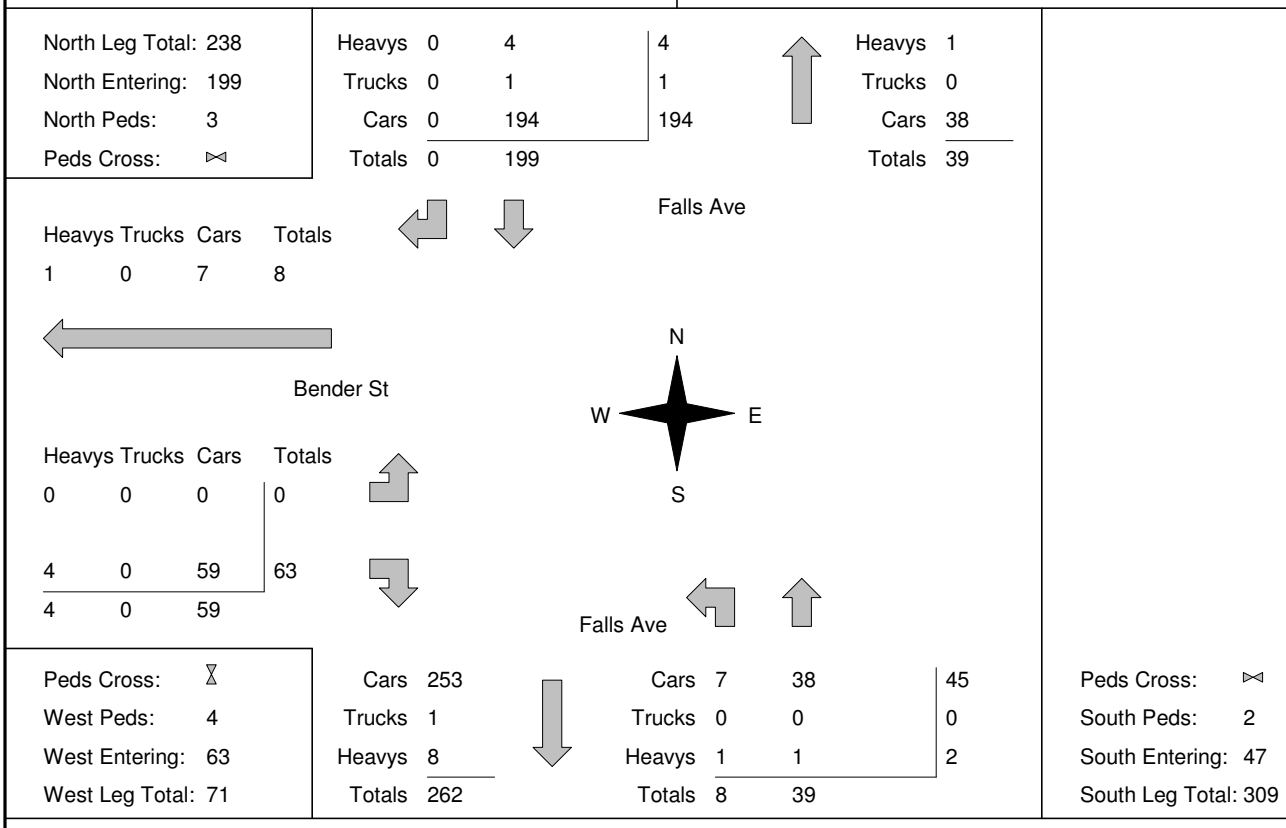
Municipality: Niagara Falls
Site #: 0000000007
Intersection: Falls Ave & Bender St
TFR File #: 7
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Falls Ave runs N/S



Comments

Bender St @ Falls Ave

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 11:00:00
To: 12:00:00

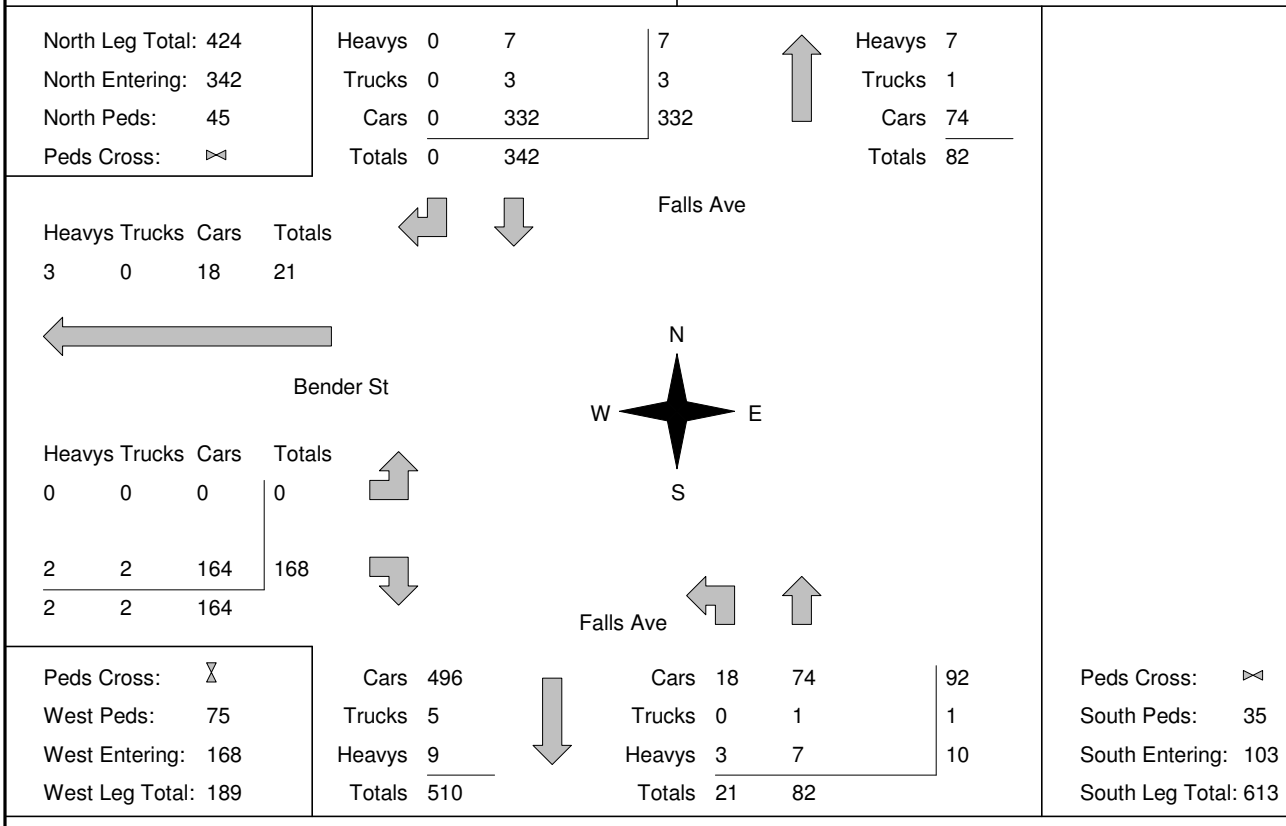
Municipality: Niagara Falls
Site #: 0000000007
Intersection: Falls Ave & Bender St
TFR File #: 7
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Falls Ave runs N/S



Comments

Bender St @ Falls Ave

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

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

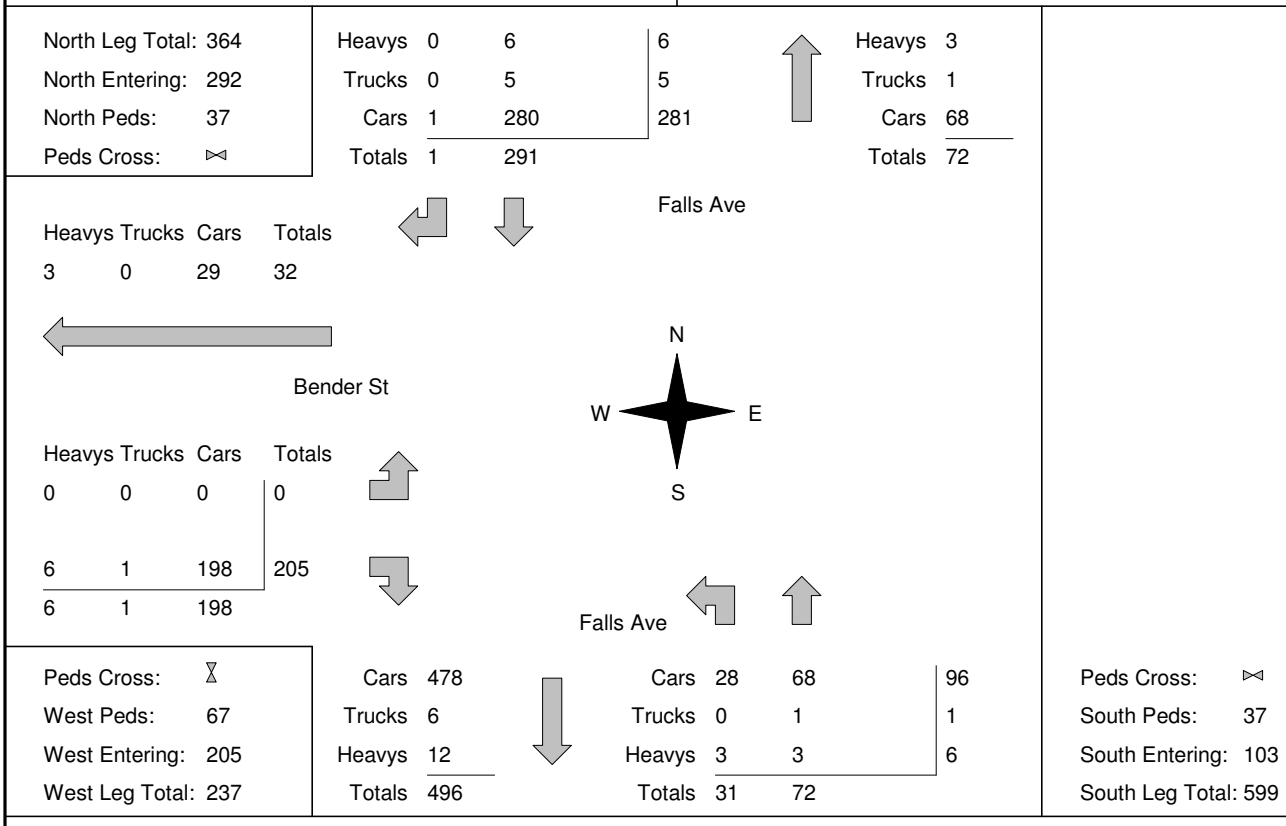
Municipality: Niagara Falls
Site #: 0000000007
Intersection: Falls Ave & Bender St
TFR File #: 7
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Falls Ave runs N/S



Comments

Bender St @ Falls Ave

Total Count Diagram

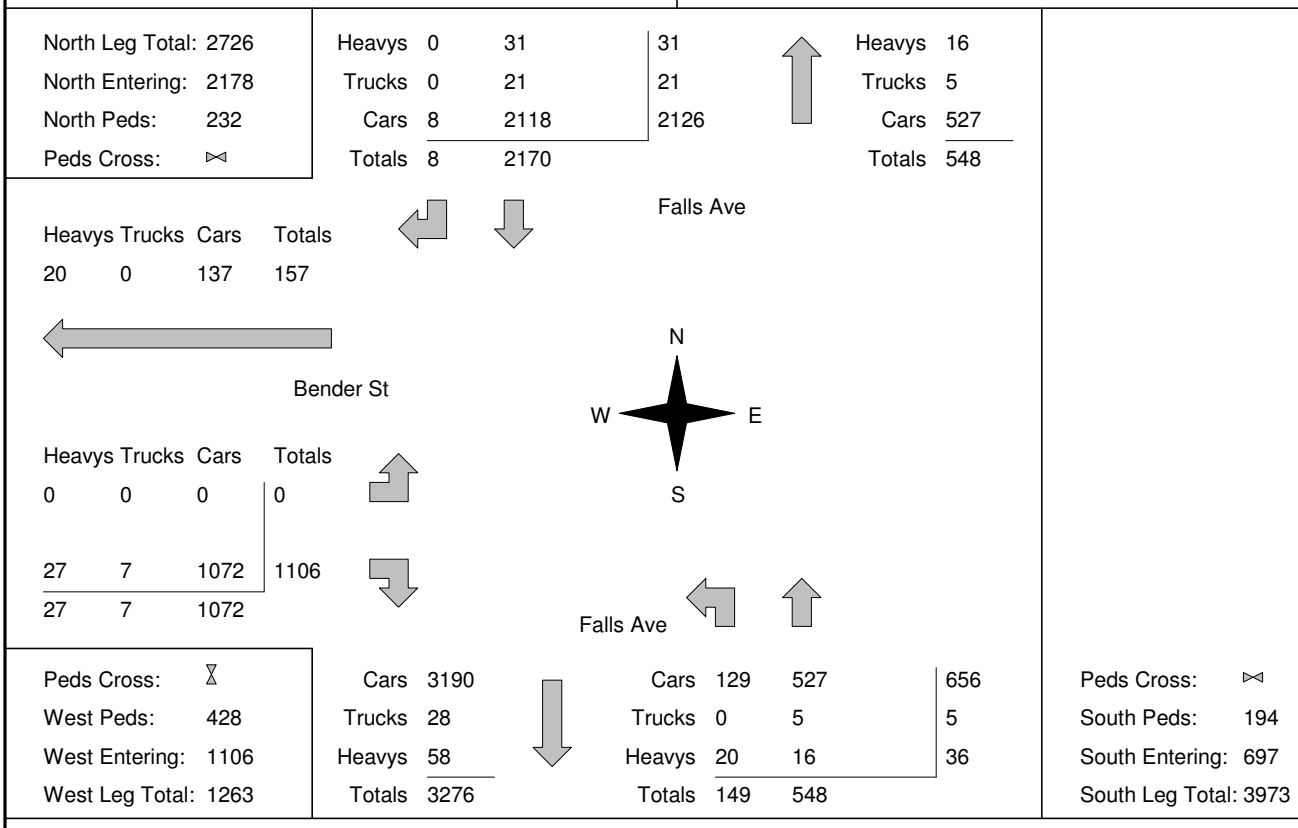
Municipality: Niagara Falls
Site #: 0000000007
Intersection: Falls Ave & Bender St
TFR File #: 7
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Falls Ave runs N/S



Comments

Hiram St @ Blondin Ave

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 8:00:00
To: 9:00:00

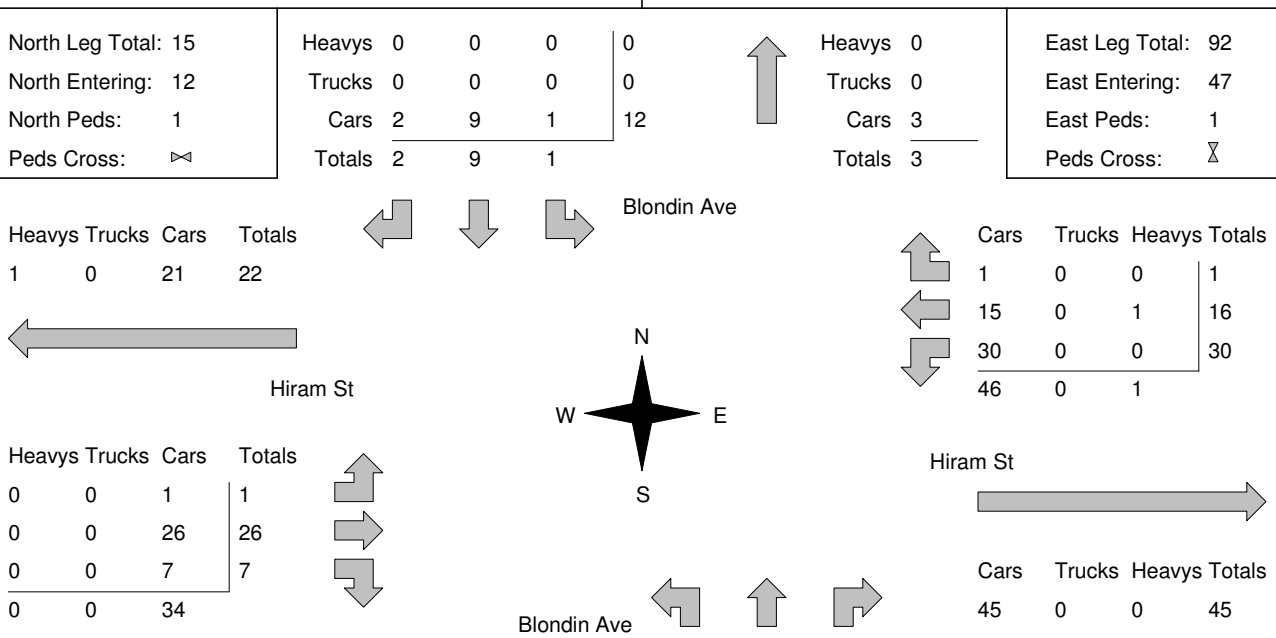
Municipality: Niagara Falls
Site #: 0000000008
Intersection: Hiram St & Blondin Ave
TFR File #: 8
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Hiram St runs W/E



Comments

Hiram St @ Blondin Ave

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 12:45:00
To: 13:45:00

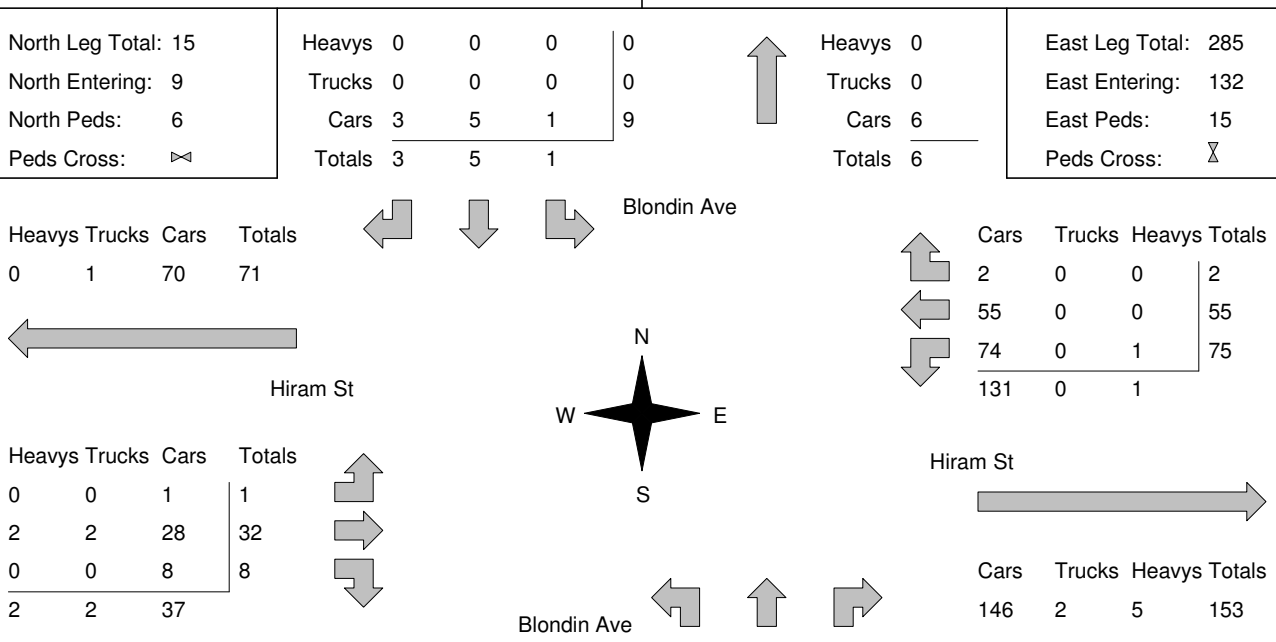
Municipality: Niagara Falls
Site #: 0000000008
Intersection: Hiram St & Blondin Ave
TFR File #: 8
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Hiram St runs W/E



Comments

Hiram St @ Blondin Ave

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

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

Municipality: Niagara Falls
Site #: 0000000008
Intersection: Hiram St & Blondin Ave
TFR File #: 8
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Hiram St runs W/E

North Leg Total:	24			
North Entering:	10			
North Peds:	2			
Peds Cross:	⋈			
Heavys	0	0	0	0
Trucks	0	0	0	0
Cars	2	8	0	10
Totals	2	8	0	
Heavys	0			
Trucks	0			
Cars	14			
Totals	14			
East Leg Total:	281			
East Entering:	147			
East Peds:	5			
Peds Cross:	⧖			

Blondin Ave

Heavys	Trucks	Cars	Totals
4	0	89	93

Cars	Trucks	Heavys	Totals
5	0	0	5
56	0	4	60
82	0	0	82
143	0	4	

Hiram St

N
W E
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Heavys	Trucks	Cars	Totals
0	0	5	5
0	0	30	30
0	0	20	20
0	0	55	

Hiram St

Cars	Trucks	Heavys	Totals
133	0	1	134

Blondin Ave

Peds Cross:	⧖			
West Peds:	3			
West Entering:	55			
West Leg Total:	148			
Cars	110			
Trucks	0			
Heavys	0			
Totals	110			
Cars	31	4	103	138
Trucks	0	0	0	0
Heavys	0	0	1	1
Totals	31	4	104	
Peds Cross:	⋈			
South Peds:	25			
South Entering:	139			
South Leg Total:	249			

Comments

Hiram St @ Blondin Ave

Total Count Diagram

Municipality: Niagara Falls
Site #: 0000000008
Intersection: Hiram St & Blondin Ave
TFR File #: 8
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Hiram St runs W/E

North Leg Total:	137			
North Entering:	74			
North Peds:	32			
Peds Cross:	⋈			

Heavys	0	0	0	0
Trucks	0	0	0	0
Cars	18	50	6	74
Totals	18	50	6	

Heavys	4	
Trucks	0	
Cars	59	
Totals	63	

East Leg Total:	1664
East Entering:	838
East Peds:	61
Peds Cross:	⧖

Blondin Ave

Heavys	Trucks	Cars	Totals
9	2	434	445

Hiram St

Cars	Trucks	Heavys	Totals
15	0	3	18
305	1	8	314
496	2	8	506
816	3	19	

N
W E
S

Heavys	Trucks	Cars	Totals
1	0	17	18
4	3	208	215
0	0	104	104
5	3	329	

Hiram St

Cars	Trucks	Heavys	Totals
799	3	24	826

Blondin Ave

Peds Cross:	⧖		
West Peds:	41		
West Entering:	337		
West Leg Total:	782		

Cars	650			
Trucks	2			
Heavys	8			
Totals	660			

Cars	111	27	585	723
Trucks	1	0	0	1
Heavys	1	0	20	21
Totals	113	27	605	

Peds Cross:	⋈
South Peds:	75
South Entering:	745
South Leg Total:	1405

Comments

Hiram St @ River Rd

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 8:00:00
To: 9:00:00

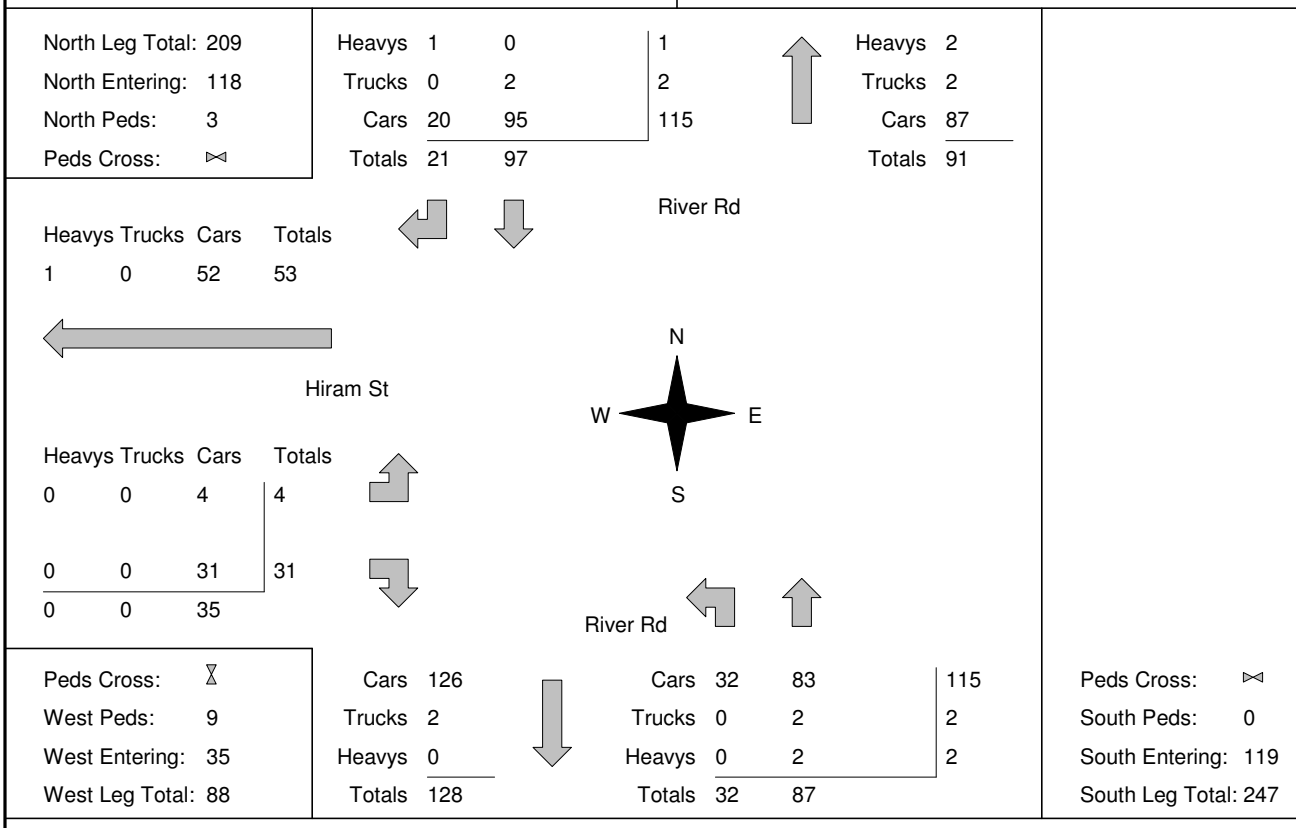
Municipality: Niagara Falls
Site #: 0000000009
Intersection: River Rd & Hiram St
TFR File #: 9
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: River Rd runs N/S



Comments

Hiram St @ River Rd

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 12:30:00
To: 13:30:00

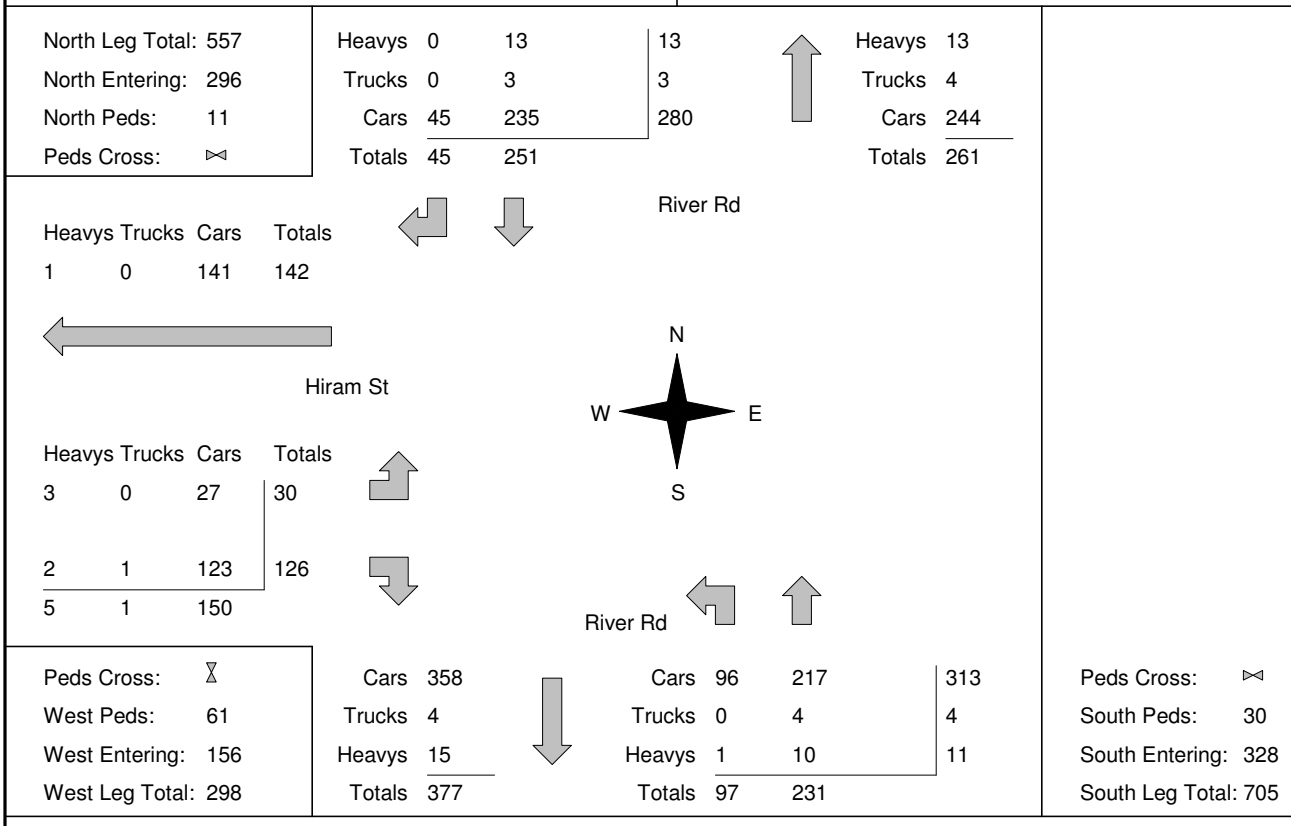
Municipality: Niagara Falls
Site #: 0000000009
Intersection: River Rd & Hiram St
TFR File #: 9
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: River Rd runs N/S



Comments

Hiram St @ River Rd

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 15:30:00
To: 16:30:00

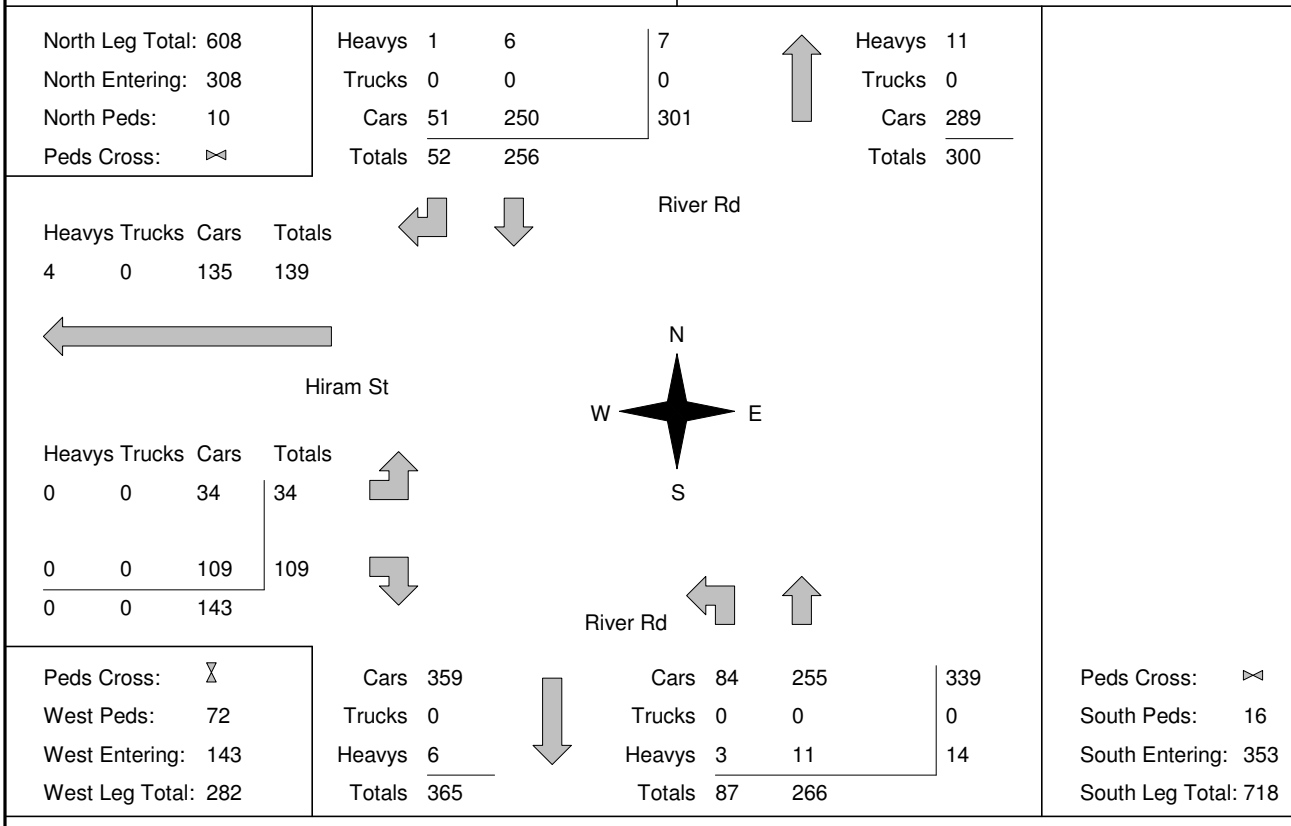
Municipality: Niagara Falls
Site #: 0000000009
Intersection: River Rd & Hiram St
TFR File #: 9
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: River Rd runs N/S



Comments

Hiram St @ River Rd

Total Count Diagram

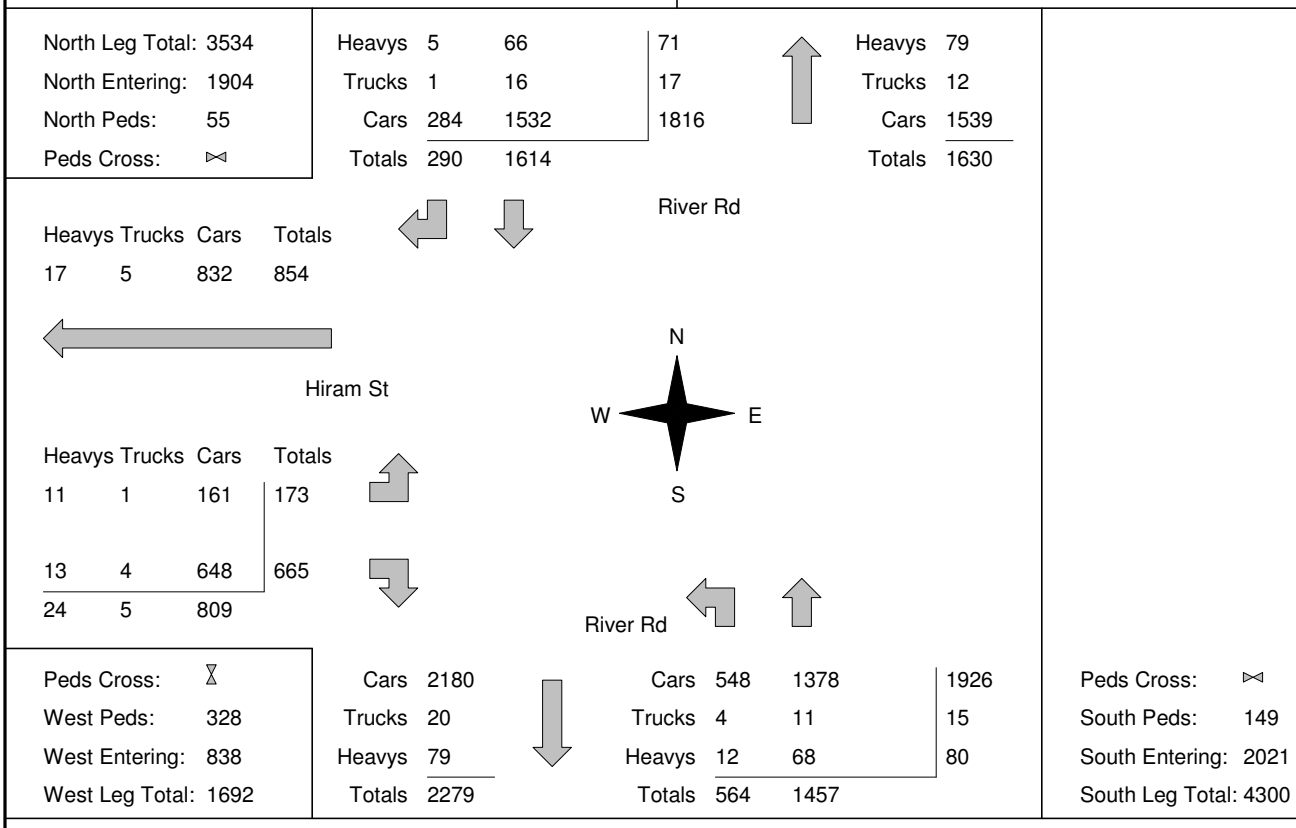
Municipality: Niagara Falls
Site #: 0000000009
Intersection: River Rd & Hiram St
TFR File #: 9
Count date: 10-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: River Rd runs N/S



Comments

Victoria Ave @ North Ramp 1

Afternoon Peak Diagram

Specified Period
From: 11:00:00
To: 19:00:00

One Hour Peak
From: 18:00:00
To: 19:00:00

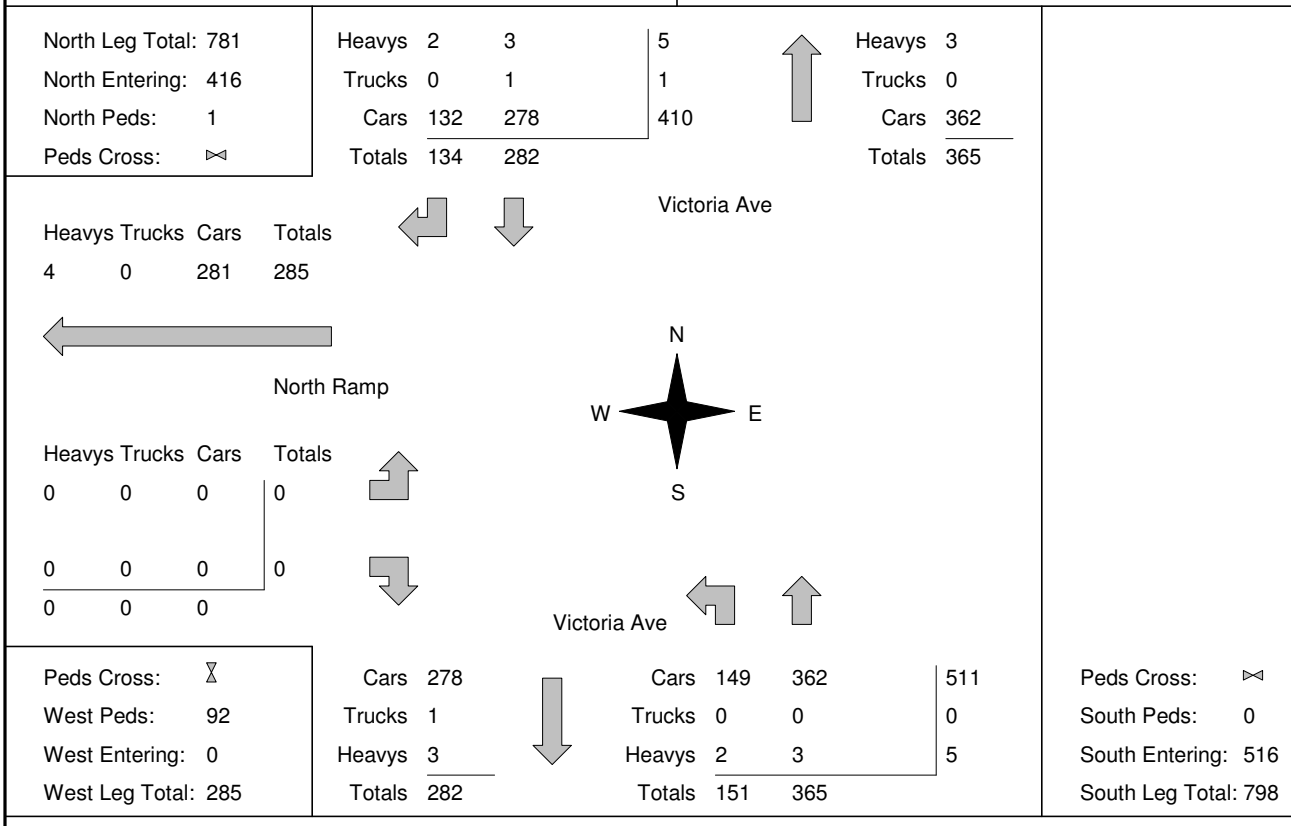
Municipality: Niagara Falls
Site #: 0000000001
Intersection: Victoria Ave & North Ramp
TFR File #: 1
Count date: 12-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

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

Major Road: Victoria Ave runs N/S



Comments

Victoria Ave @ North Ramp 1

Total Count Diagram

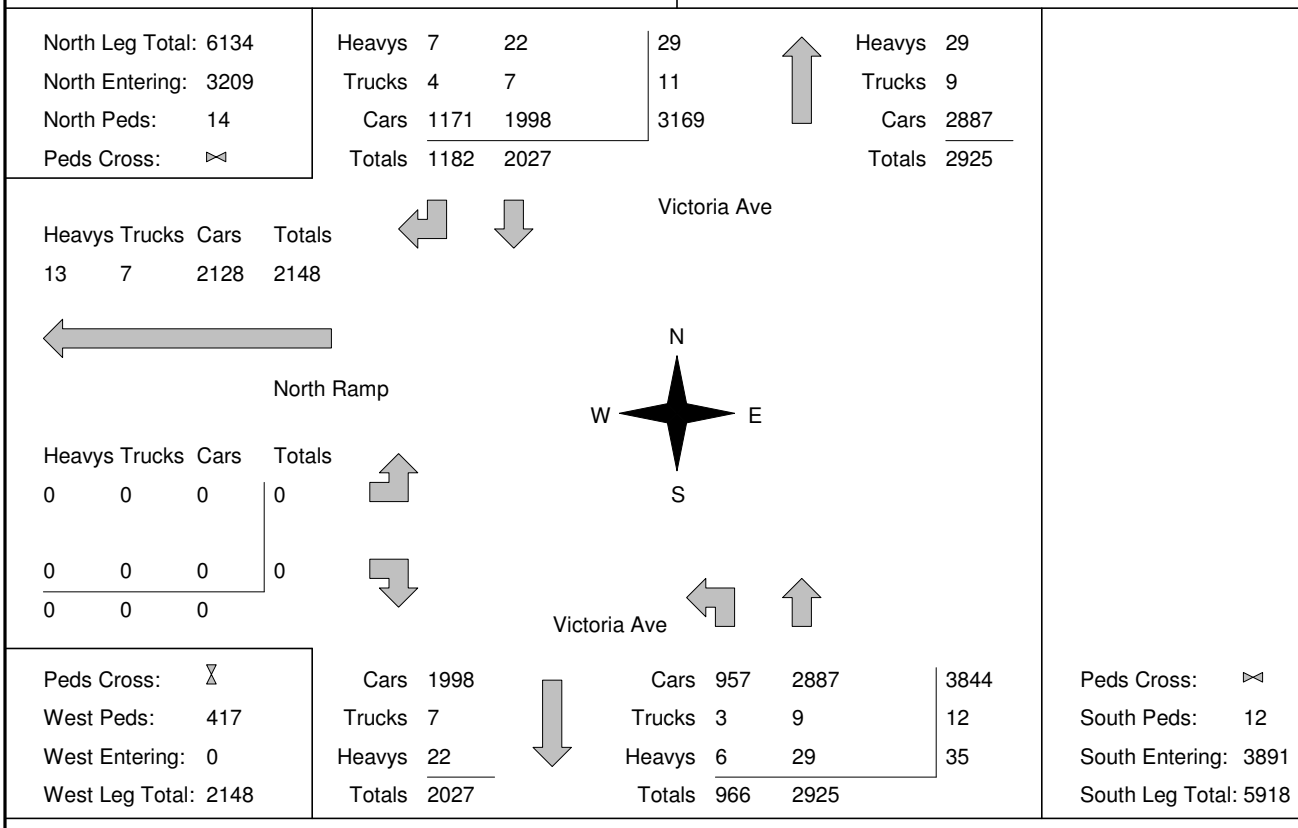
Municipality: Niagara Falls
Site #: 0000000001
Intersection: Victoria Ave & North Ramp
TFR File #: 1
Count date: 12-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

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

Major Road: Victoria Ave runs N/S



Comments

Victoria Ave @ North Ramp 2

Afternoon Peak Diagram

Specified Period
From: 11:00:00
To: 19:00:00

One Hour Peak
From: 18:00:00
To: 19:00:00

Municipality: Niagara Falls
Site #: 0000000002
Intersection: Victoria Ave & North Ramp
TFR File #: 2
Count date: 12-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

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

Major Road: Victoria Ave runs N/S

North Leg Total: 805
North Entering: 283
North Peds: 1
Peds Cross: ⋈

Heavys	3	0	3
Trucks	1	0	1
Cars	279	0	279
Totals	283	0	

Heavys	3
Trucks	2
Cars	517
Totals	522

East Leg Total: 101
East Entering: 101
East Peds: 78
Peds Cross: ⋈

Victoria Ave

	Cars	Trucks	Heavys	Totals
	38	0	0	38
	63	0	0	63
	101	0	0	

N
W E
S

North Ramp

Cars	Trucks	Heavys	Totals
0	0	0	0

Victoria Ave

Cars	342
Trucks	1
Heavys	3
Totals	346

Cars	479	0	479
Trucks	2	0	2
Heavys	3	0	3
Totals	484	0	

Peds Cross: ⋈
South Peds: 0
South Entering: 484
South Leg Total: 830

Comments

Victoria Ave @ North Ramp 2

Total Count Diagram

Municipality: Niagara Falls
Site #: 0000000002
Intersection: Victoria Ave & North Ramp
TFR File #: 2
Count date: 12-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

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

Major Road: Victoria Ave runs N/S

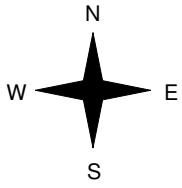
North Leg Total: 5851
North Entering: 1997
North Peds: 1
Peds Cross: ⋈

Heavys	22	0	22
Trucks	7	0	7
Cars	1968	0	1968
Totals	1997	0	

Heavys	30
Trucks	14
Cars	3810
Totals	3854

East Leg Total: 669
East Entering: 669
East Peds: 274
Peds Cross: ⋈

	Cars	Trucks	Heavys	Totals
	280	0	0	280
	385	3	1	389
	665	3	1	



North Ramp

	Cars	Trucks	Heavys	Totals
	0	0	0	0

Cars	2353	Cars	3530	0	3530
Trucks	10	Trucks	14	0	14
Heavys	23	Heavys	30	0	30
Totals	2386	Totals	3574	0	

Peds Cross: ⋈
South Peds: 4
South Entering: 3574
South Leg Total: 5960

Comments

Victoria Ave @ South Ramp

Afternoon Peak Diagram

Specified Period
From: 11:00:00
To: 19:00:00

One Hour Peak
From: 14:30:00
To: 15:30:00

Municipality: Niagara Falls
Site #: 0000000003
Intersection: Victoria Ave & South Ramp
TFR File #: 3
Count date: 12-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

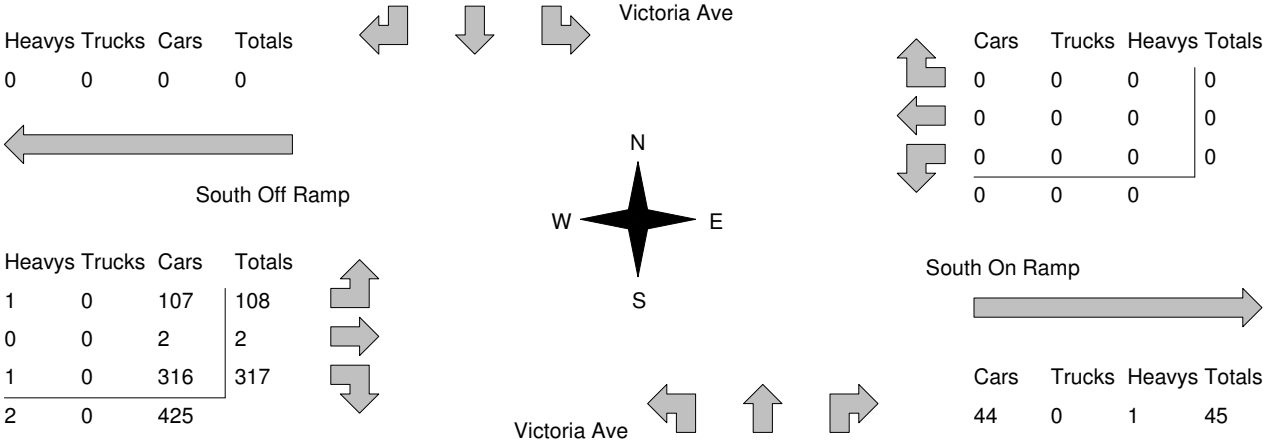
Major Road: Victoria Ave runs N/S

North Leg Total: 791
North Entering: 343
North Peds: 0
Peds Cross: ⋈

Heavys	0	1	0	1
Trucks	0	1	0	1
Cars	0	315	26	341
Totals	0	317	26	

Heavys	4
Trucks	0
Cars	444
Totals	448

East Leg Total: 45
East Entering: 0
East Peds: 33
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 63
West Entering: 427
West Leg Total: 427

Cars	631			
Trucks	1			
Heavys	2			
Totals	634			

Cars	0	337	16	353
Trucks	0	0	0	0
Heavys	0	3	1	4
Totals	0	340	17	

Peds Cross: ⋈
South Peds: 8
South Entering: 357
South Leg Total: 991

Comments

Victoria Ave @ South Ramp

Total Count Diagram

Municipality: Niagara Falls
Site #: 0000000003
Intersection: Victoria Ave & South Ramp
TFR File #: 3
Count date: 12-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

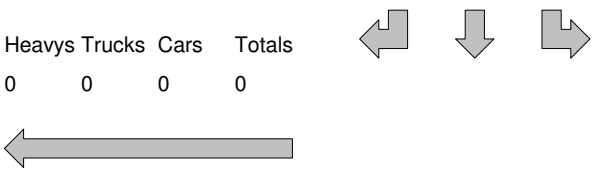
Major Road: Victoria Ave runs N/S

North Leg Total: 5902
North Entering: 2363
North Peds: 1
Peds Cross: ⋈

Heavys	0	22	1	23
Trucks	0	8	0	8
Cars	0	2027	305	2332
Totals	0	2057	306	

Heavys	30
Trucks	14
Cars	3495
Totals	3539

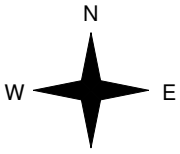
East Leg Total: 473
East Entering: 0
East Peds: 295
Peds Cross: ⧖



Heavys	Trucks	Cars	Totals
0	0	0	0

South Off Ramp

Cars	Trucks	Heavys	Totals
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	



Heavys	Trucks	Cars	Totals
4	5	966	975
1	0	46	47
8	4	1750	1762
13	9	2762	

South On Ramp

Cars	Trucks	Heavys	Totals
470	0	3	473

Peds Cross: ⧖
West Peds: 443
West Entering: 2784
West Leg Total: 2784

Cars	3777
Trucks	12
Heavys	30
Totals	3819

Cars	0	2529	119	2648
Trucks	0	9	0	9
Heavys	0	26	1	27
Totals	0	2564	120	

Peds Cross: ⋈
South Peds: 44
South Entering: 2684
South Leg Total: 6503

Comments

Victoria Ave @ Bender St

Afternoon Peak Diagram

Specified Period
From: 11:00:00
To: 19:00:00

One Hour Peak
From: 14:15:00
To: 15:15:00

Municipality: Niagara Falls
Site #: 0000000004
Intersection: Victoria Ave & Bender St
TFR File #: 4
Count date: 12-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

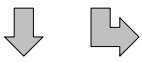
Major Road: Victoria Ave runs N/S

North Leg Total: 949
North Entering: 634
North Peds: 77
Peds Cross: ⋈

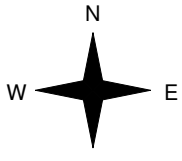
Heavys	1	1	2
Trucks	1	0	1
Cars	288	343	631
Totals	290	344	

Heavys	4
Trucks	0
Cars	311
Totals	315

East Leg Total: 735
East Entering: 219
East Peds: 51
Peds Cross: ⋈



	Cars	Trucks	Heavys	Totals
	126	0	0	126
	92	0	1	93
	218	0	1	



Cars	Trucks	Heavys	Totals
513	0	3	516

Cars	380	Cars	185	170	355
Trucks	1	Trucks	0	0	0
Heavys	2	Heavys	4	2	6
Totals	383	Totals	189	172	

Peds Cross: ⋈
South Peds: 20
South Entering: 361
South Leg Total: 744

Comments

Victoria Ave @ Bender St

Total Count Diagram

Municipality: Niagara Falls
Site #: 0000000004
Intersection: Victoria Ave & Bender St
TFR File #: 4
Count date: 12-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Victoria Ave runs N/S

North Leg Total: 6106
North Entering: 3729
North Peds: 252
Peds Cross: ⋈

Heavys	23	6	29
Trucks	7	4	11
Cars	2073	1616	3689
Totals	2103	1626	

Heavys	31
Trucks	5
Cars	2341
Totals	2377

East Leg Total: 4616
East Entering: 1754
East Peds: 585
Peds Cross: ⋈

Victoria Ave

Cars	Trucks	Heavys	Totals
995	1	5	1001
748	1	4	753
1743	2	9	

N
W E
S

Bender St

Cars	Trucks	Heavys	Totals
2839	4	19	2862

Victoria Ave

Cars	2821		
Trucks	8		
Heavys	27		
Totals	2856		

Cars	1346	1223	2569
Trucks	4	0	4
Heavys	26	13	39
Totals	1376	1236	

Peds Cross: ⋈
South Peds: 321
South Entering: 2612
South Leg Total: 5468

Comments

Bender St @ Palmer Ave

Afternoon Peak Diagram

Specified Period
From: 11:00:00
To: 19:00:00

One Hour Peak
From: 14:15:00
To: 15:15:00

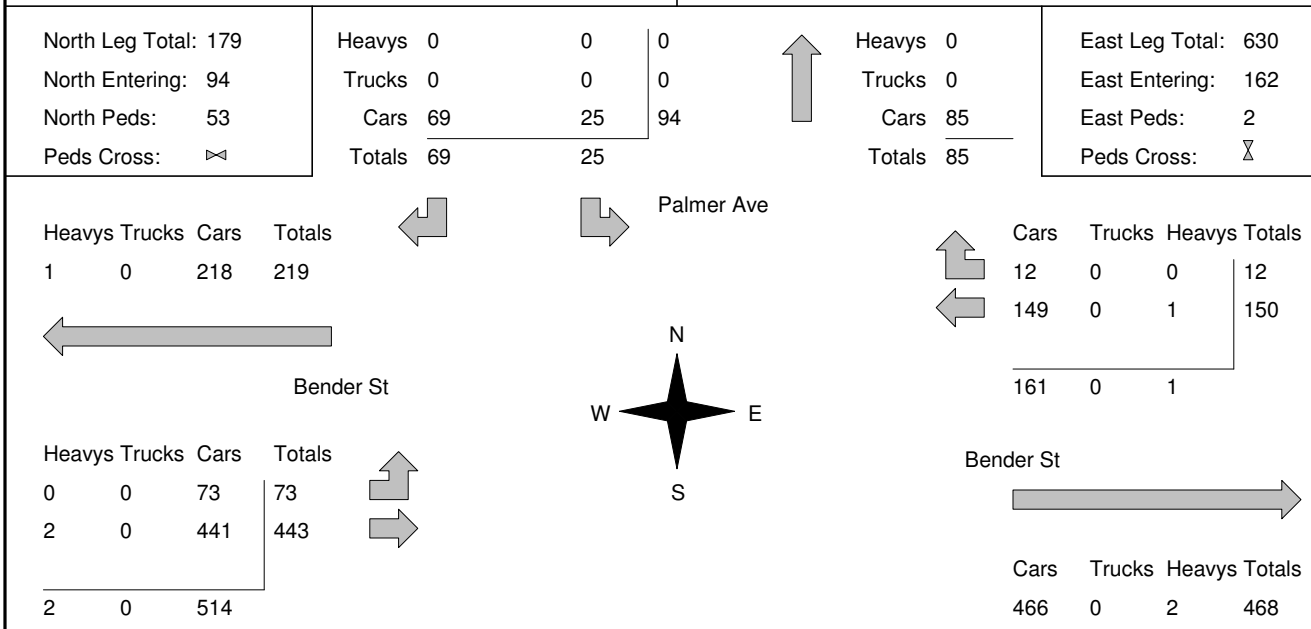
Municipality: Niagara Falls
Site #: 0000000005
Intersection: Bender St & Palmer Ave
TFR File #: 5
Count date: 12-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

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

Major Road: Bender St runs W/E



Comments

Bender St @ Palmer Ave

Total Count Diagram

Municipality: Niagara Falls
Site #: 0000000005
Intersection: Bender St & Palmer Ave
TFR File #: 5
Count date: 12-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

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

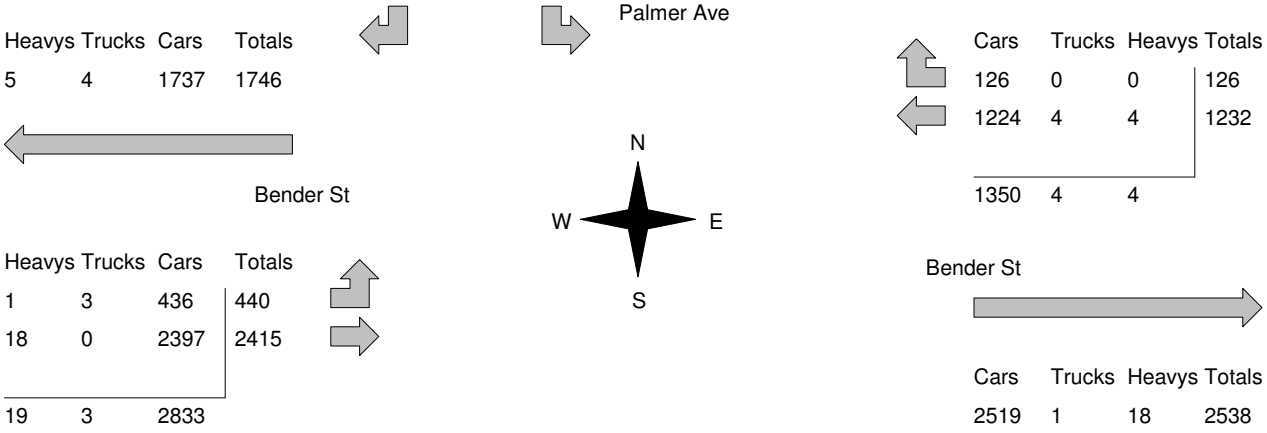
Major Road: Bender St runs W/E

North Leg Total: 1203
North Entering: 637
North Peds: 501
Peds Cross: ⋈

Heavys	1	0	1
Trucks	0	1	1
Cars	513	122	635
Totals	514	123	

Heavys	1
Trucks	3
Cars	562
Totals	566

East Leg Total: 3896
East Entering: 1358
East Peds: 113
Peds Cross: ⧖



Heavys	Trucks	Cars	Totals
5	4	1737	1746

Cars	Trucks	Heavys	Totals
126	0	0	126
1224	4	4	1232
1350	4	4	

Heavys	Trucks	Cars	Totals
1	3	436	440
18	0	2397	2415
19	3	2833	

Cars	Trucks	Heavys	Totals
2519	1	18	2538

Peds Cross: ⧖
West Peds: 77
West Entering: 2855
West Leg Total: 4601

Comments

Bender St @ Ontario Ave

Afternoon Peak Diagram

Specified Period
From: 11:00:00
To: 19:00:00

One Hour Peak
From: 14:15:00
To: 15:15:00

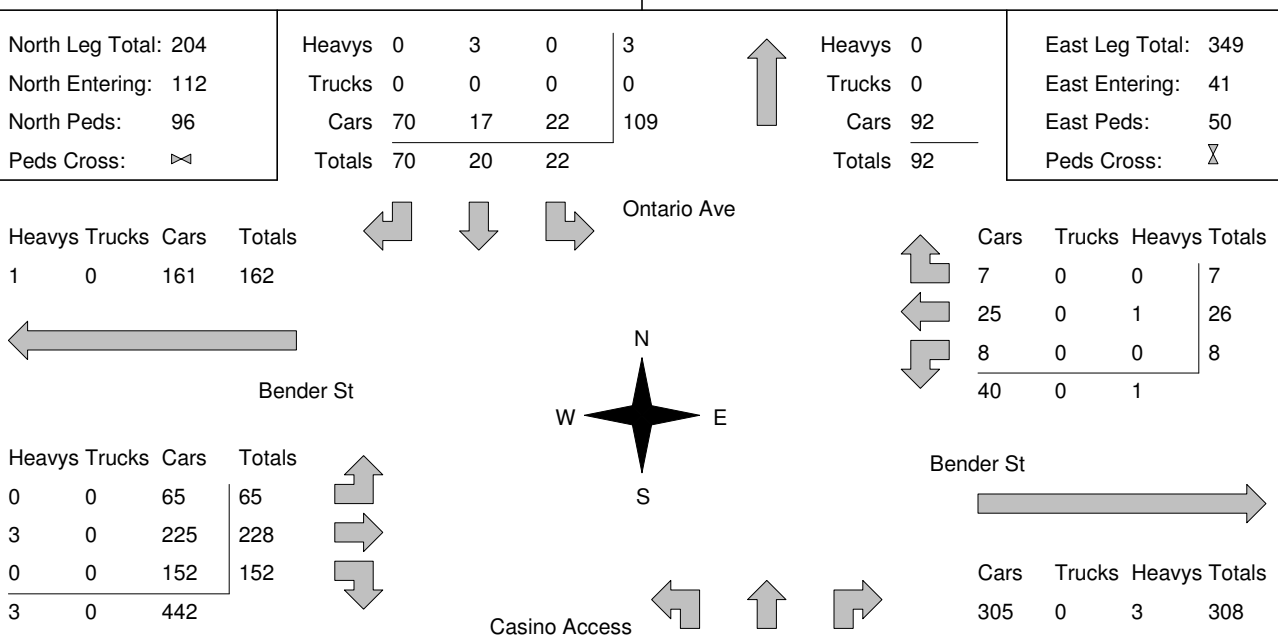
Municipality: Niagara Falls
Site #: 0000000006
Intersection: Bender St & Ontario Ave
TFR File #: 6
Count date: 12-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Bender St runs W/E



Comments

Bender St @ Ontario Ave

Total Count Diagram

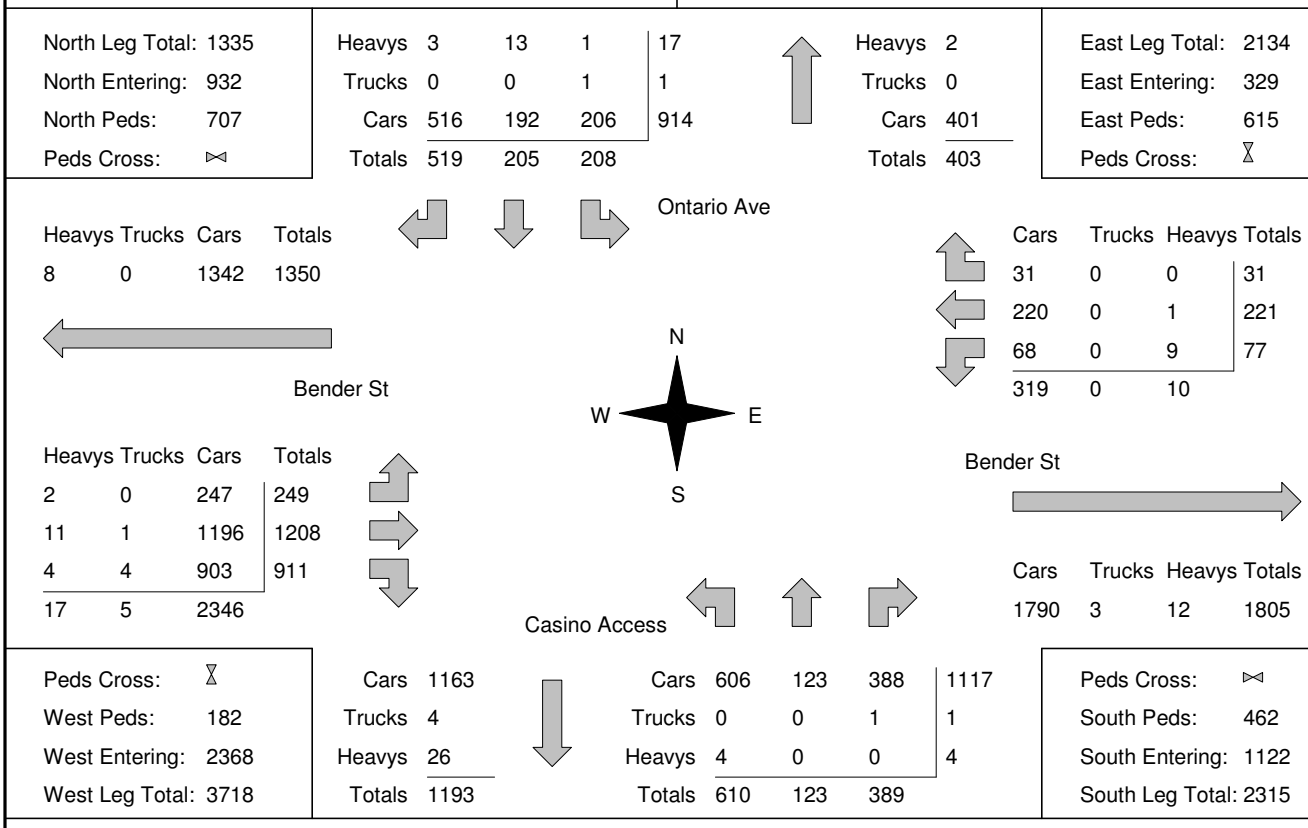
Municipality: Niagara Falls
Site #: 0000000006
Intersection: Bender St & Ontario Ave
TFR File #: 6
Count date: 12-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Bender St runs W/E



Comments

Bender St @ Falls Ave

Afternoon Peak Diagram

Specified Period
From: 11:00:00
To: 19:00:00

One Hour Peak
From: 15:30:00
To: 16:30:00

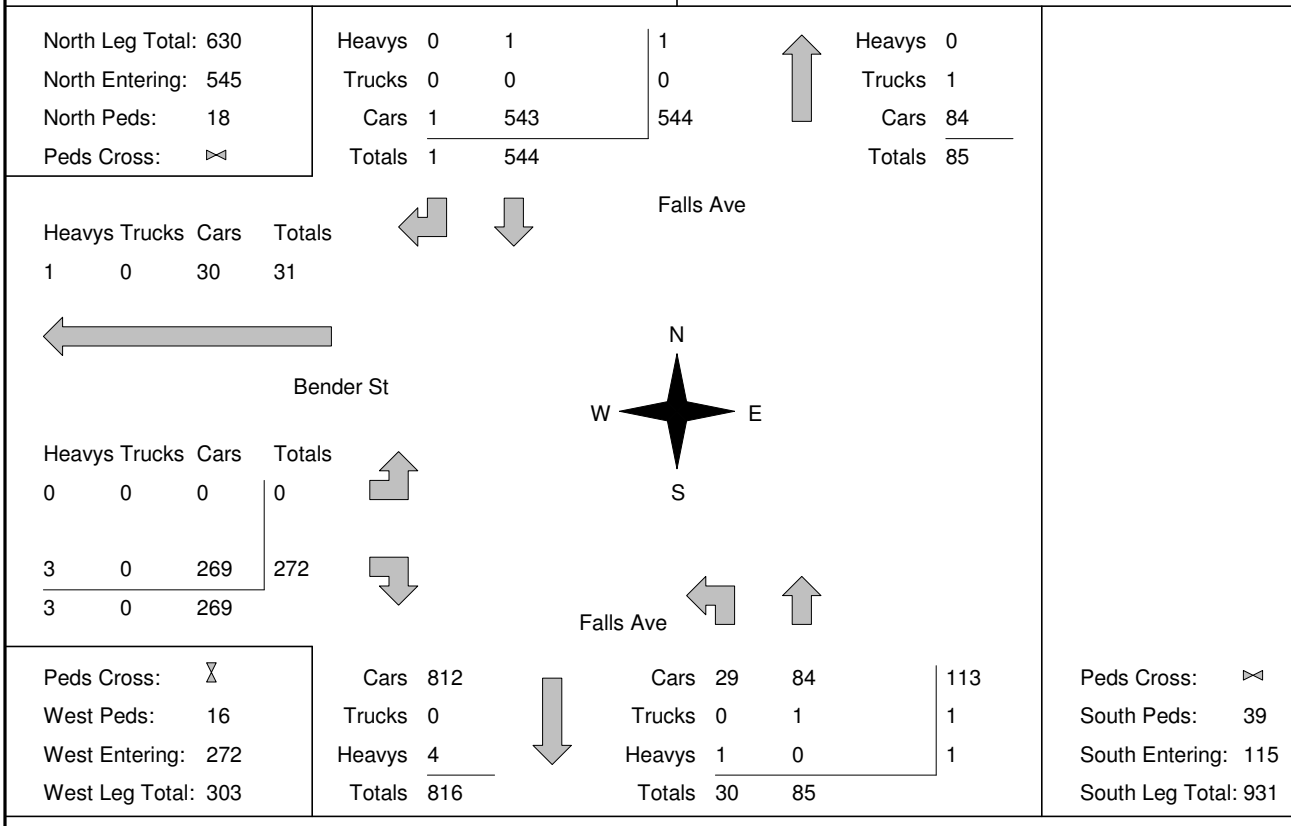
Municipality: Niagara Falls
Site #: 0000000007
Intersection: Falls Ave & Bender St
TFR File #: 7
Count date: 12-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Falls Ave runs N/S



Comments

Bender St @ Falls Ave

Total Count Diagram

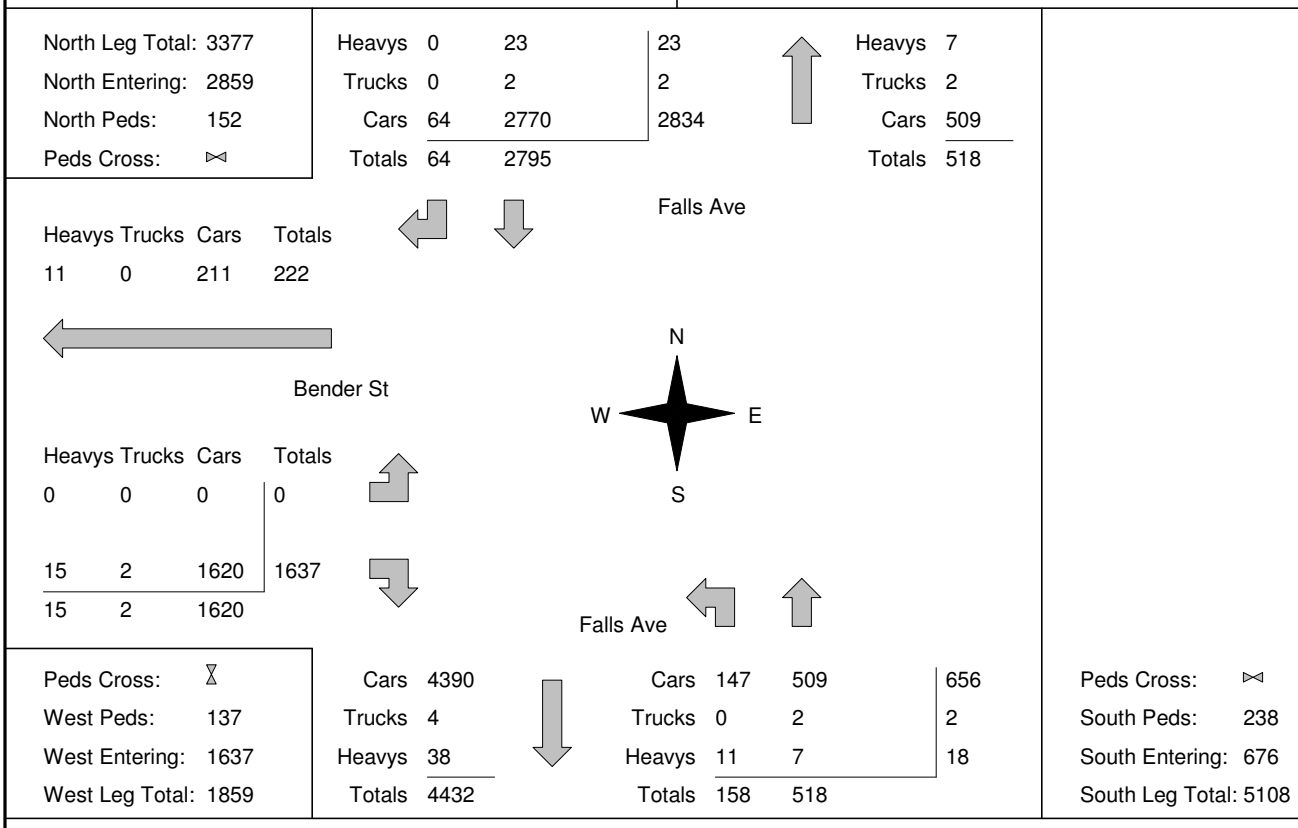
Municipality: Niagara Falls
Site #: 0000000007
Intersection: Falls Ave & Bender St
TFR File #: 7
Count date: 12-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Falls Ave runs N/S



Comments

Hiram St @ Blondin Ave

Afternoon Peak Diagram

Specified Period
From: 11:00:00
To: 19:00:00

One Hour Peak
From: 14:30:00
To: 15:30:00

Municipality: Niagara Falls
Site #: 0000000008
Intersection: Hiram St & Blondin Ave
TFR File #: 8
Count date: 12-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Hiram St runs W/E

North Leg Total:	26			
North Entering:	9			
North Peds:	16			
Peds Cross:	⋈			

Heavys	0	0	0	0
Trucks	0	0	0	0
Cars	1	7	1	9
Totals	1	7	1	

Heavys	1
Trucks	0
Cars	16
Totals	17

East Leg Total:	343
East Entering:	180
East Peds:	14
Peds Cross:	⧖

Blondin Ave

Heavys	Trucks	Cars	Totals
2	1	104	107

Cars	Trucks	Heavys	Totals
8	0	1	9
82	1	2	85
82	1	3	86
172	2	6	

Hiram St

N
W E
S

Heavys	Trucks	Cars	Totals
0	0	5	5
0	0	58	58
0	0	22	22
0	0	85	

Hiram St

Cars	Trucks	Heavys	Totals
161	1	1	163

Blondin Ave

Peds Cross:	⧖			
West Peds:	4			
West Entering:	85			
West Leg Total:	192			

Cars	111			
Trucks	1			
Heavys	3			
Totals	115			

Cars	21	3	102	126
Trucks	0	0	1	1
Heavys	0	0	1	1
Totals	21	3	104	

Peds Cross:	⋈
South Peds:	9
South Entering:	128
South Leg Total:	243

Comments

Hiram St @ Blondin Ave

Total Count Diagram

Municipality: Niagara Falls
Site #: 0000000008
Intersection: Hiram St & Blondin Ave
TFR File #: 8
Count date: 12-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Hiram St runs W/E

North Leg Total:	199			
North Entering:	103			
North Peds:	90			
Peds Cross:	⋈			

Heavys	0	0	0	0
Trucks	0	1	0	1
Cars	28	58	16	102
Totals	28	59	16	

Heavys	2			
Trucks	0			
Cars	94			
Totals	96			

East Leg Total:	2539			
East Entering:	1439			
East Peds:	72			
Peds Cross:	⧖			

Blondin Ave

Heavys	Trucks	Cars	Totals
16	2	775	793

Cars	Trucks	Heavys	Totals
38	0	2	40
592	2	16	610
781	1	7	789
1411	3	25	

Hiram St

N
W E
S

Heavys	Trucks	Cars	Totals
0	0	24	24
2	0	282	284
0	0	102	102
2	0	408	

Hiram St

Cars	Trucks	Heavys	Totals
1087	3	10	1100

Blondin Ave

Peds Cross:	⧖			
West Peds:	61			
West Entering:	410			
West Leg Total:	1203			

Cars	941			
Trucks	2			
Heavys	7			
Totals	950			

Cars	155	32	789	976
Trucks	0	0	3	3
Heavys	0	0	8	8
Totals	155	32	800	

Peds Cross:	⋈			
South Peds:	73			
South Entering:	987			
South Leg Total:	1937			

Comments

Hiram St @ River Rd

Afternoon Peak Diagram

Specified Period
From: 11:00:00
To: 19:00:00

One Hour Peak
From: 11:30:00
To: 12:30:00

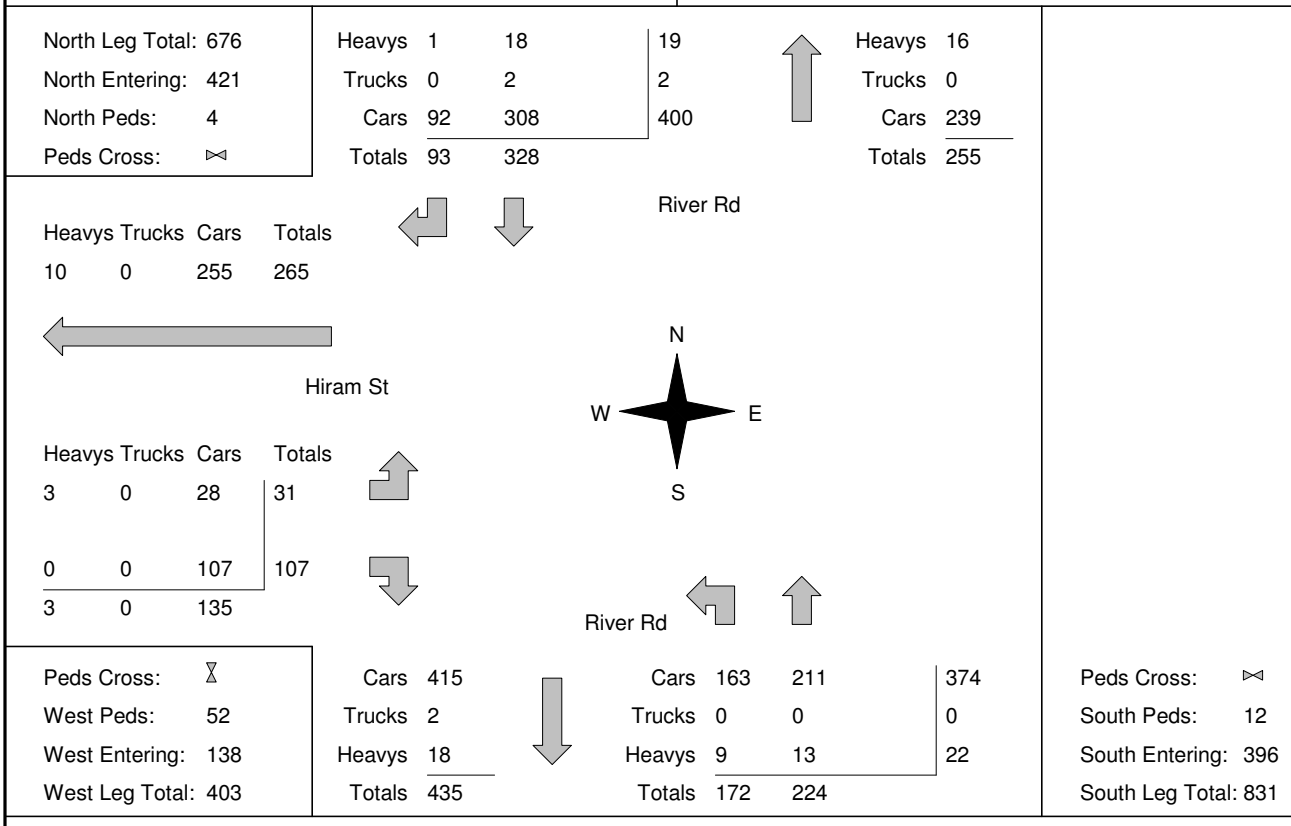
Municipality: Niagara Falls
Site #: 0000000009
Intersection: River Rd & Hiram St
TFR File #: 9
Count date: 12-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: River Rd runs N/S



Comments

Hiram St @ River Rd

Total Count Diagram

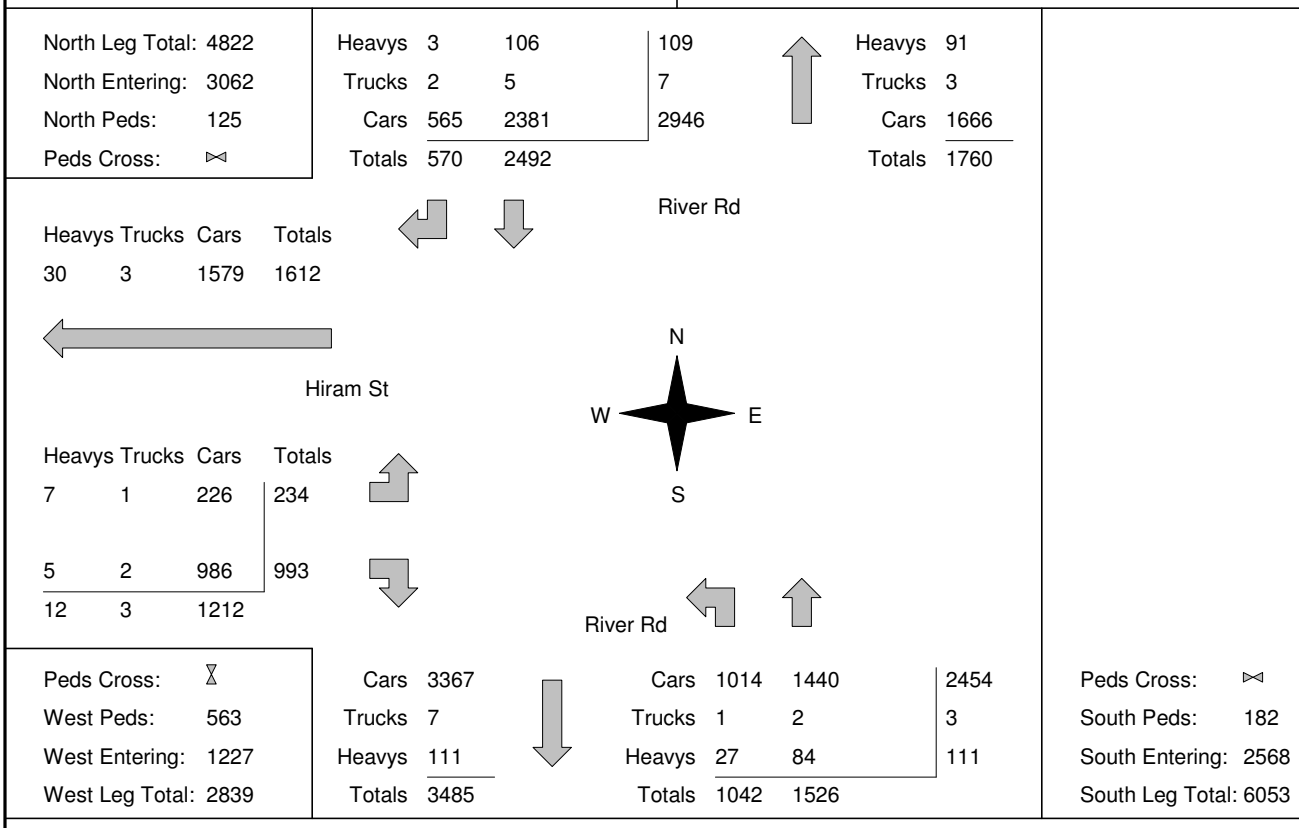
Municipality: Niagara Falls
Site #: 0000000009
Intersection: River Rd & Hiram St
TFR File #: 9
Count date: 12-Aug-2023

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: River Rd runs N/S



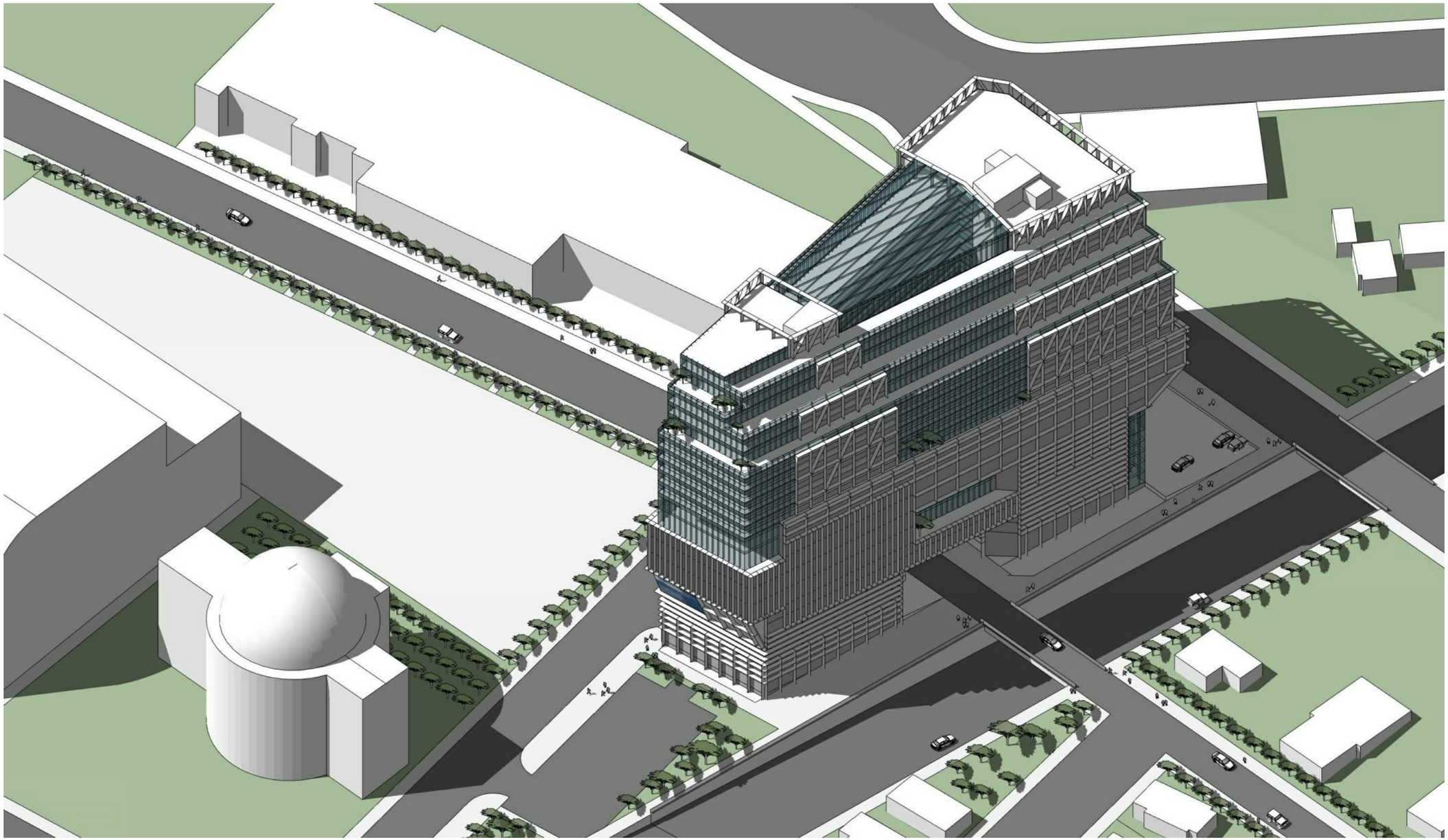
Comments

APPENDIX C

PARKING LOT DRAWING SET

ICE SCULPTURE CENTRE

2023.01



TAES Architects Inc.
98 SCARSDALE ROAD,
TORONTO, ONTARIO, M3B 2R7
T: 416 800 3284
F:416-800-3485

PROJECT T2019025
DATE 02/18/22

ICE SCULPTURE CENTRE
BENDER STREET, NIAGARA FALLS

COVER PAGE

SCALE

A-000

SITE STATISTICS

SITE AREA:		3,779 M²	BUILDING HEIGHT:	74.40M (17 LEVELS)
BUILDING AREA:		4,097 M²		
COVERAGE:		108%		
FSI:		16.38		
GFA:		61,904 M²		
	17TH F: HOTEL + TROPICAL ATRIUM	2,466 M²		
	16TH F: HOTEL + TROPICAL ATRIUM	2,517 M²	24 SUITES	
	15TH F: HOTEL + TROPICAL ATRIUM	3,063 M²	33 SUITES	
	14TH F: HOTEL + TROPICAL ATRIUM	3,132 M²	34 SUITES	
	13TH F: HOTEL + TROPICAL ATRIUM	3,628 M²	38 SUITES	
	12TH F: HOTEL + TROPICAL ATRIUM	3,628 M²	38 SUITES	
	11TH -7TH: HOTEL + TROPICAL ATRIUM	4,097 M² X 5 = 20,485 M²	47 X 5 = 235 SUITES	
	6TH F: TROPICAL ATRIUM	4,097 M²		
	5TH F: ICE GALLERY	4,008 M²		
	4TH F: ICE GALLERY	4,008 M²		
	3RD F: GARAGE	3,948 M²		GARAGE, WITH 2 MEZZANINE FLOORS CONTAINING 291 PARKING SPACES (8 ACESSIBLE PARKING SPACES INCLUDED)
	2ND F: GARAGE	3,948 M²		
	G F: HOTEL M. FLOOR	2,950 M²		
TOTAL AREA UNDER GROUND:		3,037 M²		
	UG P1: HOTEL LOBBY + RETAIL + LOADING AREA + EXHIBITION	1,910 M²		29 SPACES
	UG P2: LOADING AREA + RETAIL	1,127 M²	2 RETAILS	
TOTAL PARKING SPACES:				320 SPACES
TOTAL HOTEL SUITES:			402 SUITES	0.8 SP/RM.
TOTAL RETAILS:			2 RETAILS	

TAES Architects Inc.
98 SCARSDALE ROAD,
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T: 416 800 3284
F:416-800-3485

PROJECT T2019025
DATE 09/02/22

ICE SCULPTURE CENTRE
BENDER STREET, NIAGARA FALLS

SITE STATISTICS

SCALE 1 : 1

A-001b

PROPERTY LINE

PALMER AVENUE

ONTARIO AVENUE

HIGHWAY 420

BENDER STREET

BENDER STREET

STORAGE AND SUPPORTING AREA

LOADING AREA

RETAIL

RETAIL

LOAD ENTRANCE

34.88 m

25.37 m

38.10 m

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F:416-800-3485

PROJECT T2019025
DATE 09/02/22

ICE SCULPTURE CENTRE
BENDER STREET, NIAGARA FALLS

UGD LVL 2 PLAN

Department Legend
- Mall Circulation
- Service

SCALE 1 : 350

A-100

PROPERTY LINE

HIGHWAY 420

PALMER AVENUE

ONTARIO AVENUE

MEP.

STORAGE AND SUPPORTING AREA

LOADING AREA

RAMP

STORAGE AND SUPPORTING AREA

ENTRANCE ICE EXHIBITION

LOBBY

RAMP

MEP.

10000

10000

20000 ROW

34.88 m

6.25 m

25.37 m

3.50 m

0.30 m

7.00 m

7.00 m

30.41 m

6.54 m

7.00 m

7.00 m

0.30 m

1.61 m

36.00 m

DAYLIGHT TRIANGLE

BENDER STREET

BENDER STREET

11500

23000 ROW

11500

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PROJECT T2019025
DATE 09/02/22

ICE SCULPTURE CENTRE
BENDER STREET, NIAGARA FALLS

UGD LVL 1 PLAN
29 PARKING SPACES

Department Legend
- Hotel
- Ice Gallery
- Service
- Retail

SCALE 1 : 350

A-101

PALMER AVENUE

HIGHWAY 420

ONTARIO AVENUE

BENDER STREET

BENDER STREET

PROPERTY LINE

57.32 m

38.56 m

54.16 m

10000

10000

20000
ROW

EXHIBITION HALL
ENTRANCE

DN

UP

OPEN TO BELOW

UP

DN

STORAGE AND
SUPPORTING AREA

EXHIBITION
HALL (LEVEL 1)

58.37 m

41.56 m

26.48 m

11500

23000
ROW

11500

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PROJECT T2019025
DATE 09/02/22

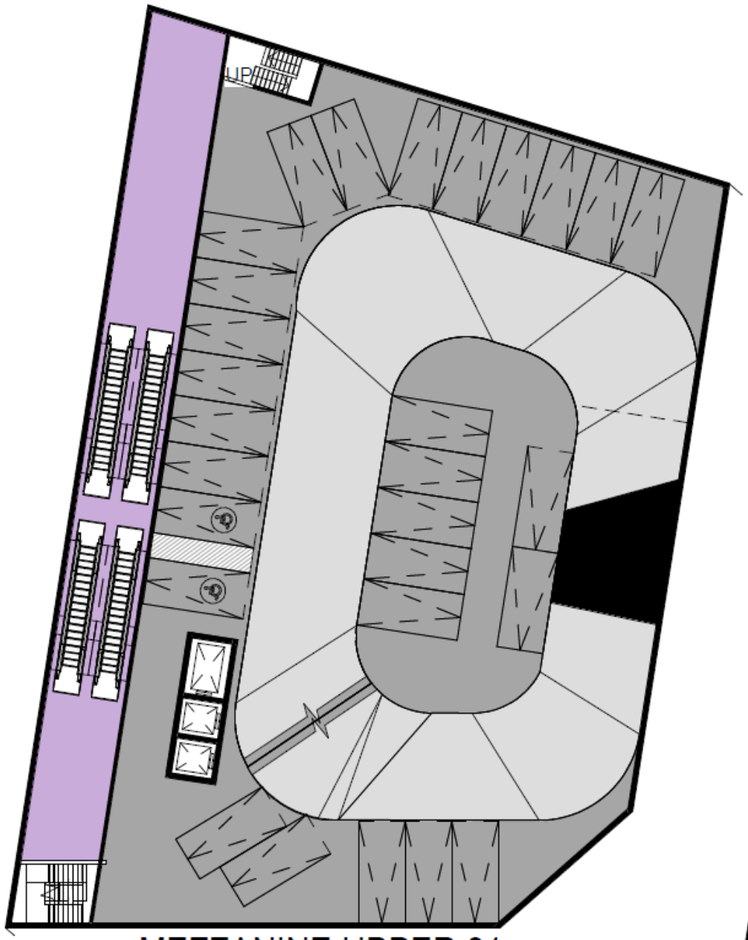
ICE SCULPTURE CENTRE
BENDER STREET, NIAGARA FALLS

GROUND FLOOR PLAN
39 PARKING SPACES

Department Legend
Ice Gallery
Service
Parking

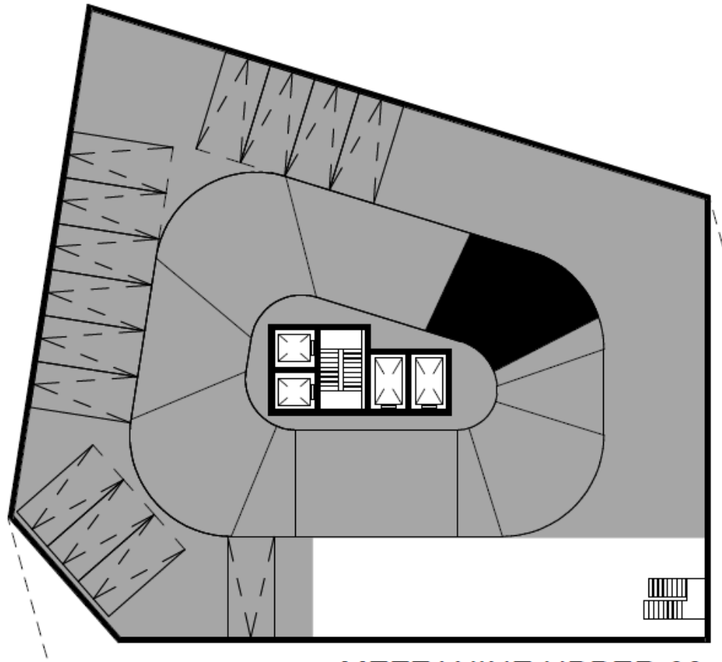
SCALE 1 : 350

A-102



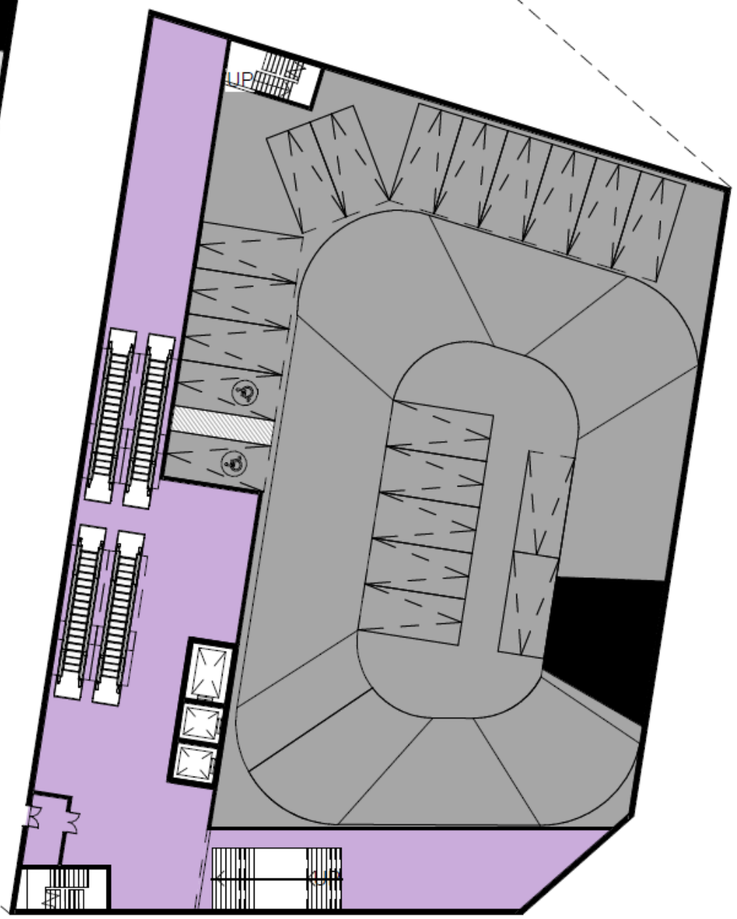
MEZZANINE UPPER 01

PARKING SPACE NUMBER: 28



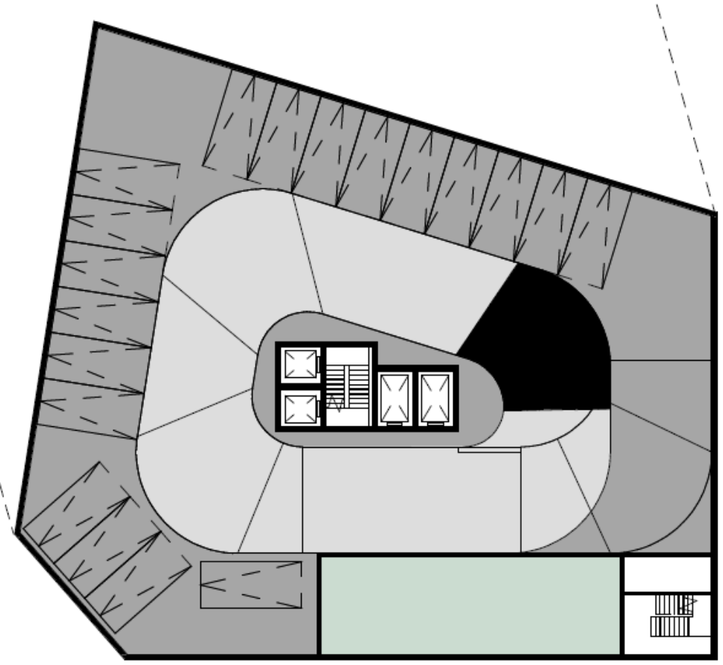
MEZZANINE UPPER 02

PARKING SPACE NUMBER: 14



MEZZANINE LOWER

PARKING SPACE NUMBER: 20



PARKING SPACE NUMBER: 19

TAES Architects Inc.

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F:416-800-3485

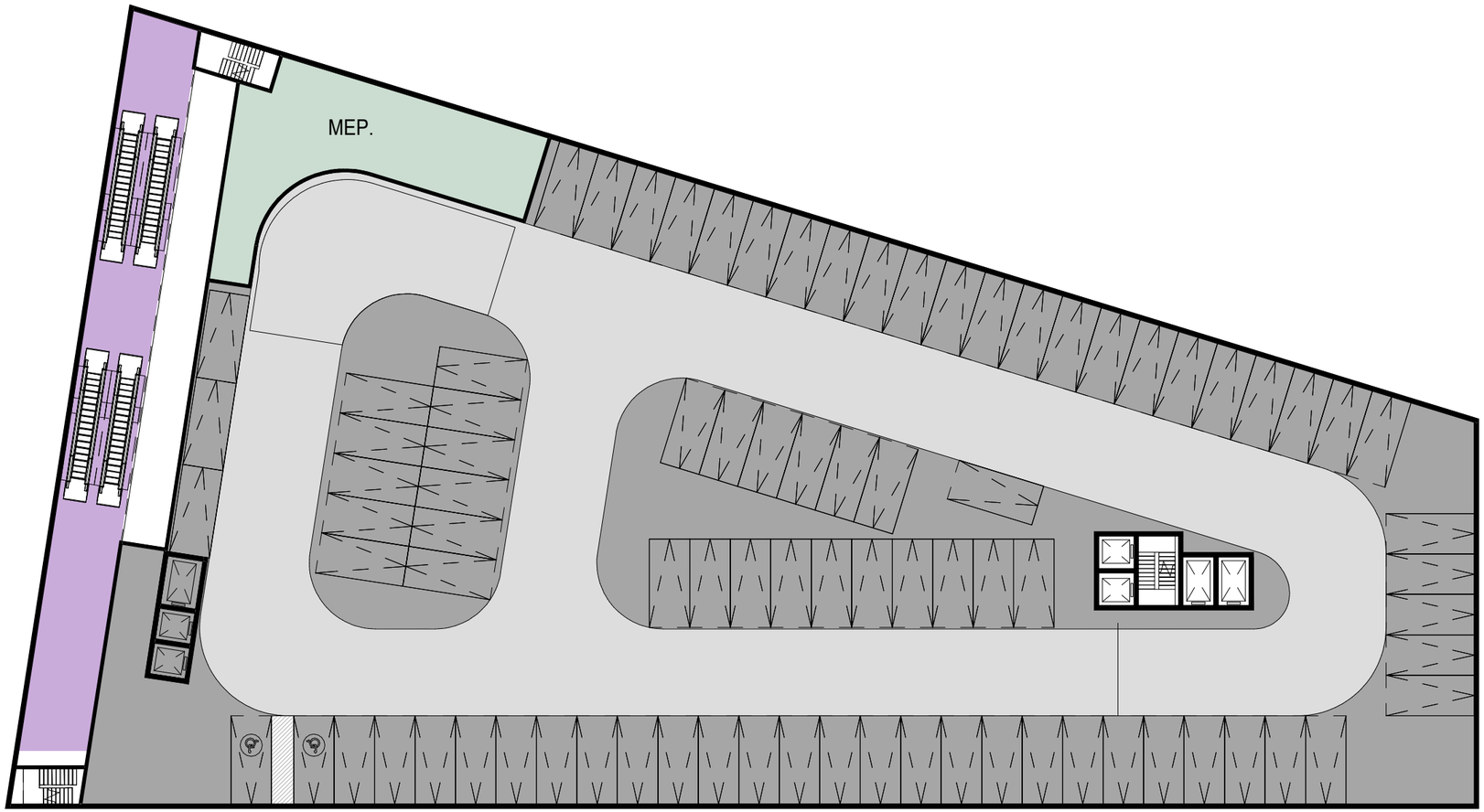
PROJECT T2019025
DATE 10/17/23

ICE SCULPTURE CENTRE
BENDER STREET, NIAGARA FALLS

MEZZANINE FLOORS

42+39 PARKING SPACES

SCALE 1 : 35



LEVEL 2

TAES Architects Inc.
98 SCARSDALE ROAD,
TORONTO, ONTARIO, M3B 2R7
T: 416 800 3284
F:416-800-3485

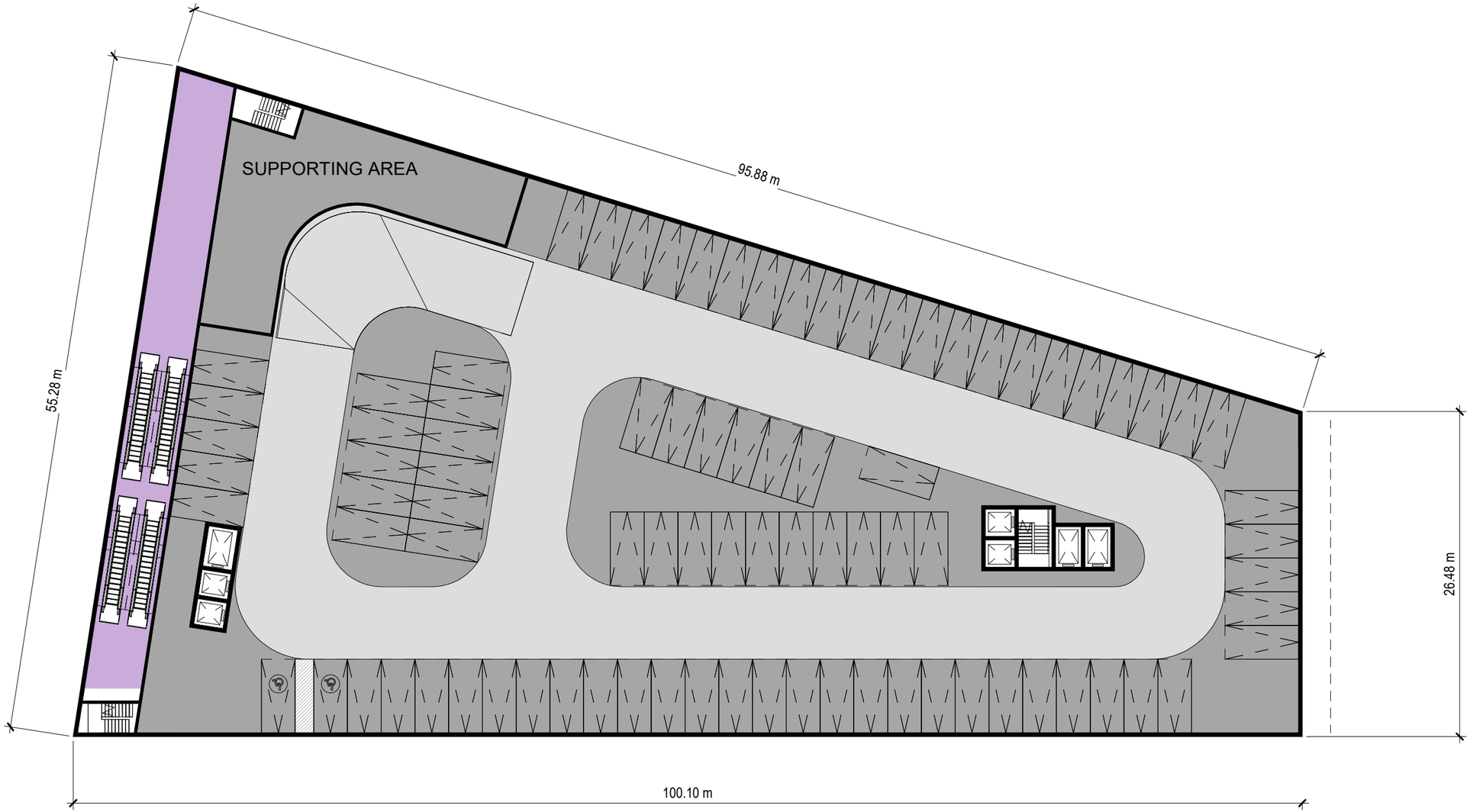
PROJECT T2019025
DATE 09/02/22

ICE SCULPTURE CENTRE
BENDER STREET, NIAGARA FALLS

2ND FLOOR PLAN
85 PARKING SPACES

SCALE 1 : 350

A-103



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TORONTO, ONTARIO, M3B 2R7
T: 416 800 3284
F:416-800-3485

PROJECT T2019025
DATE 09/02/22

ICE SCULPTURE CENTRE
BENDER STREET, NIAGARA FALLS

3RD FLOOR PLAN
86 PARKING SPACES

Department Legend
- Ice Gallery
- Parking

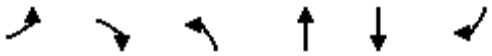
SCALE 1 : 350

A-104

APPENDIX D

SYNCHRO OPERATIONAL ANALYSIS RESULTS

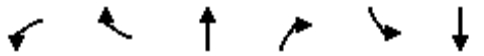
2023 Existing AM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	42	317	154	137
Future Volume (Veh/h)	0	0	42	317	154	137
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	46	345	167	149
Pedestrians	37			5		
Lane Width (m)	0.0			3.7		
Walking Speed (m/s)	1.1			1.1		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				118		
pX, platoon unblocked	0.93					
vC, conflicting volume	716	284	353			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	658	284	353			
tC, single (s)	6.4	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	100	100	96			
cM capacity (veh/h)	387	757	1163			

Direction, Lane #	NB 1	NB 2	SB 1
Volume Total	46	345	316
Volume Left	46	0	0
Volume Right	0	0	149
cSH	1163	1700	1700
Volume to Capacity	0.04	0.20	0.19
Queue Length 95th (m)	0.9	0.0	0.0
Control Delay (s)	8.2	0.0	0.0
Lane LOS	A		
Approach Delay (s)	1.0		0.0
Approach LOS			

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	37.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	8	16	342	0	0	153
Future Volume (Veh/h)	8	16	342	0	0	153
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)	9	17	372	0	0	166
Pedestrians	10					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	1					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			53			
pX, platoon unblocked	0.87	0.87			0.87	
vC, conflicting volume	548	382			382	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	400	208			208	
tC, single (s)	6.4	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.2	
p0 queue free %	98	98			100	
cM capacity (veh/h)	523	705			1179	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	26	372	166
Volume Left	9	0	0
Volume Right	17	0	0
cSH	629	1700	1700
Volume to Capacity	0.04	0.22	0.10
Queue Length 95th (m)	1.0	0.0	0.0
Control Delay (s)	11.0	0.0	0.0
Lane LOS	B		
Approach Delay (s)	11.0	0.0	0.0
Approach LOS	B		

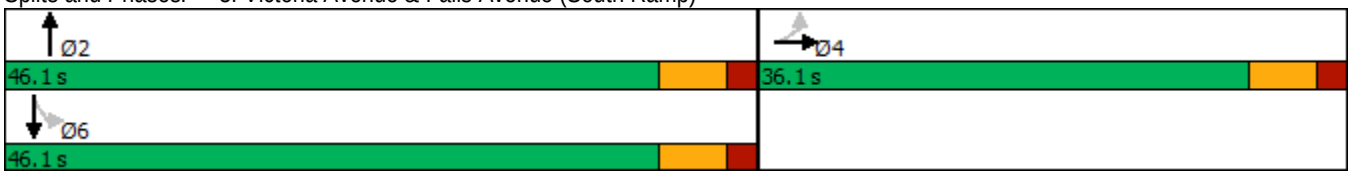
Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	49.3%	ICU Level of Service	A
Analysis Period (min)	15		

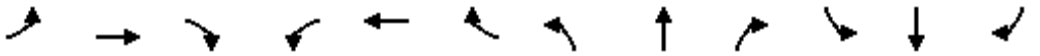
Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	177	0	166	11	149
Future Volume (vph)	177	0	166	11	149
Lane Group Flow (vph)	192	190	189	12	162
Turn Type	Perm	NA	NA	Perm	NA
Protected Phases		4	2		6
Permitted Phases	4			6	
Detector Phase	4	4	2	6	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	28.1	28.1	24.1	24.1	24.1
Total Split (s)	36.1	36.1	46.1	46.1	46.1
Total Split (%)	43.9%	43.9%	56.1%	56.1%	56.1%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	Max	Max	Max
v/c Ratio	0.64	0.25	0.18	0.02	0.16
Control Delay	33.9	0.8	6.5	6.3	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.9	0.8	6.5	6.3	6.5
Queue Length 50th (m)	21.4	0.0	8.1	0.5	7.0
Queue Length 95th (m)	39.0	0.0	20.2	2.7	17.9
Internal Link Dist (m)		82.5	171.2		29.4
Turn Bay Length (m)				10.0	
Base Capacity (vph)	728	996	1046	691	1027
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.26	0.19	0.18	0.02	0.16

Intersection Summary

Cycle Length: 82.2
Actuated Cycle Length: 65.4
Natural Cycle: 55
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Victoria Avenue & Falls Avenue (South Ramp)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	177	0	175	0	0	0	0	166	8	11	149	0
Future Volume (vph)	177	0	175	0	0	0	0	166	8	11	149	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.1	6.1						6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00						1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00						1.00		0.99	1.00	
Frt	1.00	0.85						0.99		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1583	1475						1681		1660	1654	
Flt Permitted	0.95	1.00						1.00		0.64	1.00	
Satd. Flow (perm)	1583	1475						1681		1116	1654	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	192	0	190	0	0	0	0	180	9	12	162	0
RTOR Reduction (vph)	0	154	0	0	0	0	0	2	0	0	0	0
Lane Group Flow (vph)	192	36	0	0	0	0	0	187	0	12	162	0
Confl. Peds. (#/hr)	1					1	36		9	9		36
Heavy Vehicles (%)	6%	0%	2%	0%	0%	0%	0%	4%	13%	0%	7%	0%
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	12.5	12.5						40.6		40.6	40.6	
Effective Green, g (s)	12.5	12.5						40.6		40.6	40.6	
Actuated g/C Ratio	0.19	0.19						0.62		0.62	0.62	
Clearance Time (s)	6.1	6.1						6.1		6.1	6.1	
Vehicle Extension (s)	2.1	2.1						2.1		2.1	2.1	
Lane Grp Cap (vph)	303	282						1045		693	1028	
v/s Ratio Prot		0.02						c0.11			0.10	
v/s Ratio Perm	c0.12									0.01		
v/c Ratio	0.63	0.13						0.18		0.02	0.16	
Uniform Delay, d1	24.3	21.9						5.3		4.7	5.2	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	3.3	0.1						0.4		0.0	0.3	
Delay (s)	27.6	22.0						5.6		4.8	5.5	
Level of Service	C	C						A		A	A	
Approach Delay (s)		24.8			0.0			5.6			5.5	
Approach LOS		C			A			A			A	

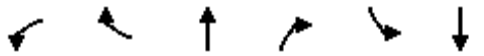
Intersection Summary			
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	65.3	Sum of lost time (s)	12.2
Intersection Capacity Utilization	49.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	26	28	135	80	178	131
Future Volume (vph)	26	28	135	80	178	131
Lane Group Flow (vph)	28	30	147	87	193	142
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	6.0	8.0
Minimum Split (s)	26.3	26.3	30.3	30.3	9.0	30.3
Total Split (s)	36.3	36.3	41.3	41.3	28.0	69.3
Total Split (%)	34.4%	34.4%	39.1%	39.1%	26.5%	65.6%
Yellow Time (s)	4.1	4.1	4.1	4.1	3.0	4.1
All-Red Time (s)	2.2	2.2	2.2	2.2	0.0	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	Max	Max	None	Max
v/c Ratio	0.18	0.18	0.13	0.09	0.21	0.10
Control Delay	37.4	16.3	6.3	2.0	2.2	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	16.3	6.3	2.0	2.2	2.5
Queue Length 50th (m)	4.2	0.0	8.7	0.0	5.3	4.8
Queue Length 95th (m)	11.9	7.6	17.1	5.1	9.6	9.0
Internal Link Dist (m)	12.9		86.7			171.2
Turn Bay Length (m)	30.0			25.0	15.0	
Base Capacity (vph)	582	528	1168	935	1043	1477
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.06	0.13	0.09	0.19	0.10

Intersection Summary
Cycle Length: 105.6
Actuated Cycle Length: 80.9
Natural Cycle: 70
Control Type: Actuated-Uncoordinated

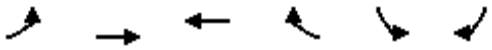
Splits and Phases: 4: Victoria Avenue & Bender Street



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	26	28	135	80	178	131
Future Volume (vph)	26	28	135	80	178	131
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.97	1.00	0.97	1.00	1.00
Flpb, ped/bikes	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1572	1369	1701	1326	1549	1735
Flt Permitted	0.95	1.00	1.00	1.00	0.63	1.00
Satd. Flow (perm)	1572	1369	1701	1326	1026	1735
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	30	147	87	193	142
RTOR Reduction (vph)	0	28	0	29	0	0
Lane Group Flow (vph)	28	2	147	58	193	142
Confl. Peds. (#/hr)	13	3		6	6	
Heavy Vehicles (%)	4%	7%	4%	10%	8%	2%
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Actuated Green, G (s)	4.7	4.7	55.6	55.6	66.2	66.2
Effective Green, g (s)	4.7	4.7	55.6	55.6	66.2	66.2
Actuated g/C Ratio	0.06	0.06	0.67	0.67	0.79	0.79
Clearance Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Vehicle Extension (s)	2.5	2.5	3.5	3.5	3.0	3.5
Lane Grp Cap (vph)	88	77	1132	882	861	1375
v/s Ratio Prot			0.09		c0.02	0.08
v/s Ratio Perm	c0.02	0.00		0.04	c0.16	
v/c Ratio	0.32	0.02	0.13	0.07	0.22	0.10
Uniform Delay, d1	37.9	37.2	5.1	4.9	2.1	2.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.5	0.1	0.2	0.1	0.1	0.2
Delay (s)	39.4	37.3	5.3	5.0	2.2	2.1
Level of Service	D	D	A	A	A	A
Approach Delay (s)	38.3		5.2			2.2
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	6.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	83.5	Sum of lost time (s)	15.6
Intersection Capacity Utilization	52.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	95	161	25	3	11	29
Future Volume (Veh/h)	95	161	25	3	11	29
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)	103	175	27	3	12	32
Pedestrians			2		5	
Lane Width (m)			3.7		3.7	
Walking Speed (m/s)			1.1		1.1	
Percent Blockage			0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		37	79			
pX, platoon unblocked						
vC, conflicting volume	35				416	34
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	35				416	34
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				98	97
cM capacity (veh/h)	1562				554	1032

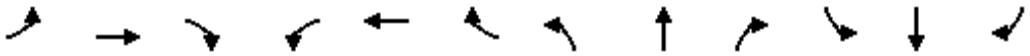
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	103	175	30	44
Volume Left	103	0	0	12
Volume Right	0	0	3	32
cSH	1562	1700	1700	835
Volume to Capacity	0.07	0.10	0.02	0.05
Queue Length 95th (m)	1.6	0.0	0.0	1.3
Control Delay (s)	7.5	0.0	0.0	9.5
Lane LOS	A			A
Approach Delay (s)	2.8		0.0	9.5
Approach LOS				A

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	22.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Configurations								
Traffic Volume (vph)	31	40	101	3	1	3	17	2
Future Volume (vph)	31	40	101	3	1	3	17	2
Lane Group Flow (vph)	0	77	110	0	7	16	18	24
Turn Type	Perm	NA	Over	Perm	NA	NA	Perm	NA
Protected Phases		8	6		8	6		2
Permitted Phases	8			8			6	
Detector Phase	8	8	6	8	8	6	6	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	26.3	42.1	42.1	26.3	26.3	14.3
Total Split (s)	42.1	42.1	41.3	42.1	42.1	41.3	41.3	34.3
Total Split (%)	35.8%	35.8%	35.1%	35.8%	35.8%	35.1%	35.1%	29.1%
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	2.2	3.0	3.0	2.2	2.2	2.2
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		7.1	6.3		7.1	6.3	6.3	6.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	Min	None	None	Min	Min	Min
v/c Ratio		0.23	0.19		0.03	0.05	0.05	0.07
Control Delay		16.8	16.1		12.7	15.9	0.2	11.1
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		16.8	16.1		12.7	15.9	0.2	11.1
Queue Length 50th (m)		5.1	4.0		0.3	1.0	0.0	0.4
Queue Length 95th (m)		13.6	10.0		2.6	4.7	0.0	5.1
Internal Link Dist (m)		54.9			36.6	34.4		24.4
Turn Bay Length (m)			40.0					
Base Capacity (vph)		1228	2224		1021	1382	1265	1139
Starvation Cap Reductn		0	0		0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0
Reduced v/c Ratio		0.06	0.05		0.01	0.01	0.01	0.02

Intersection Summary
Cycle Length: 117.7
Actuated Cycle Length: 38.5
Natural Cycle: 85
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Bender Street & Ontario Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	40	101	3	1	3	12	3	17	5	2	16
Future Volume (vph)	31	40	101	3	1	3	12	3	17	5	2	16
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Lane Util. Factor		1.00	0.88		1.00			1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		0.99			1.00	0.98		0.98	
Flpb, ped/bikes		1.00	1.00		1.00			1.00	1.00		1.00	
Frt		1.00	0.85		0.94			1.00	0.85		0.90	
Flt Protected		0.98	1.00		0.98			0.96	1.00		0.99	
Satd. Flow (prot)		1635	2570		1411			1597	1472		1485	
Flt Permitted		0.85	1.00		0.83			0.96	1.00		0.99	
Satd. Flow (perm)		1428	2570		1190			1597	1472		1485	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	43	110	3	1	3	13	3	18	5	2	17
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	14	0	14	0
Lane Group Flow (vph)	0	77	110	0	4	0	0	16	4	0	10	0
Confl. Peds. (#/hr)	12		12	12		12	5		15	15		5
Heavy Vehicles (%)	0%	10%	3%	33%	0%	0%	8%	0%	0%	0%	0%	6%
Turn Type	Perm	NA	Over	Perm	NA		Split	NA	Perm	Split	NA	
Protected Phases		8	6		8		6	6		2	2	
Permitted Phases	8			8					6			
Actuated Green, G (s)		4.7	8.6		4.7			8.6	8.6		8.4	
Effective Green, g (s)		4.7	8.6		4.7			8.6	8.6		8.4	
Actuated g/C Ratio		0.11	0.21		0.11			0.21	0.21		0.20	
Clearance Time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Vehicle Extension (s)		3.5	3.0		3.5			3.0	3.0		3.0	
Lane Grp Cap (vph)		162	533		135			331	305		301	
v/s Ratio Prot			c0.04					0.01			c0.01	
v/s Ratio Perm		c0.05			0.00				0.00			
v/c Ratio		0.48	0.21		0.03			0.05	0.01		0.03	
Uniform Delay, d1		17.2	13.6		16.3			13.1	13.0		13.2	
Progression Factor		1.00	1.00		1.00			1.00	1.00		1.00	
Incremental Delay, d2		2.6	0.2		0.1			0.1	0.0		0.0	
Delay (s)		19.8	13.8		16.4			13.2	13.0		13.3	
Level of Service		B	B		B			B	B		B	
Approach Delay (s)		16.2			16.4			13.1			13.3	
Approach LOS		B			B			B			B	

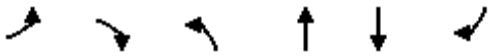
Intersection Summary			
HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.20		
Actuated Cycle Length (s)	41.4	Sum of lost time (s)	19.7
Intersection Capacity Utilization	47.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBR	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	63	8	39	199
Future Volume (vph)	63	8	39	199
Lane Group Flow (vph)	68	9	42	216
Turn Type	Perm	Prot	NA	NA
Protected Phases		5	2	6
Permitted Phases	4			
Detector Phase	4	5	2	6
Switch Phase				
Minimum Initial (s)	1.0	8.0	10.0	10.0
Minimum Split (s)	3.0	13.0	17.0	17.0
Total Split (s)	3.0	25.0	72.0	47.0
Total Split (%)	4.0%	33.3%	96.0%	62.7%
Yellow Time (s)	2.0	3.0	5.0	5.0
All-Red Time (s)	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	2.0	5.0	7.0	7.0
Lead/Lag		Lead		Lag
Lead-Lag Optimize?				
Recall Mode	None	None	Max	Max
v/c Ratio	0.09	0.06	0.03	0.08
Control Delay	0.2	31.2	0.7	1.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	0.2	31.2	0.7	1.7
Queue Length 50th (m)	0.0	1.2	0.4	1.0
Queue Length 95th (m)	0.0	5.2	0.9	7.3
Internal Link Dist (m)			45.6	34.5
Turn Bay Length (m)		20.0		
Base Capacity (vph)	795	385	1534	2802
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.09	0.02	0.03	0.08

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 77.4
Natural Cycle: 40
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Falls Avenue & Bender Street



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	63	8	39	199	0
Future Volume (vph)	0	63	8	39	199	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)		2.0	5.0	7.0	7.0	
Lane Util. Factor		1.00	1.00	1.00	0.95	
Frpb, ped/bikes		0.94	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	
Frt		0.86	1.00	1.00	1.00	
Flt Protected		1.00	0.95	1.00	1.00	
Satd. Flow (prot)		1357	1488	1718	3264	
Flt Permitted		1.00	0.95	1.00	1.00	
Satd. Flow (perm)		1357	1488	1718	3264	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	68	9	42	216	0
RTOR Reduction (vph)	0	67	0	0	0	0
Lane Group Flow (vph)	0	1	9	42	216	0
Confl. Peds. (#/hr)	3	2	4			4
Heavy Vehicles (%)	0%	6%	13%	3%	3%	0%
Turn Type		Perm	Prot	NA	NA	
Protected Phases			5	2	6	
Permitted Phases		4				
Actuated Green, G (s)		0.8	1.7	71.9	65.2	
Effective Green, g (s)		0.8	1.7	71.9	65.2	
Actuated g/C Ratio		0.01	0.02	0.88	0.80	
Clearance Time (s)		2.0	5.0	7.0	7.0	
Vehicle Extension (s)		0.2	2.0	4.5	4.5	
Lane Grp Cap (vph)		13	30	1511	2604	
v/s Ratio Prot			c0.01	0.02	c0.07	
v/s Ratio Perm		c0.00				
v/c Ratio		0.05	0.30	0.03	0.08	
Uniform Delay, d1		40.1	39.4	0.6	1.8	
Progression Factor		1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.6	2.0	0.0	0.1	
Delay (s)		40.7	41.5	0.6	1.8	
Level of Service		D	D	A	A	
Approach Delay (s)	40.7			7.8	1.8	
Approach LOS	D			A	A	

Intersection Summary			
HCM 2000 Control Delay	10.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.09		
Actuated Cycle Length (s)	81.7	Sum of lost time (s)	14.0
Intersection Capacity Utilization	22.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	1	26	30	16	4	1	18	1	9
Future Volume (vph)	1	26	30	16	4	1	18	1	9
Lane Group Flow (vph)	0	37	0	51	4	1	20	0	13
Turn Type	Perm	NA	Perm	NA	Split	NA	Perm	Perm	NA
Protected Phases		4		4	2	2			6
Permitted Phases	4		4				2	6	
Detector Phase	4	4	4	4	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	42.1	42.1	26.3	26.3	26.3	14.3	14.3
Total Split (s)	42.1	42.1	42.1	42.1	41.3	41.3	41.3	34.3	34.3
Total Split (%)	35.8%	35.8%	35.8%	35.8%	35.1%	35.1%	35.1%	29.1%	29.1%
Yellow Time (s)	4.1	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	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		7.1		7.1	6.3	6.3	6.3		6.3
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio		0.20		0.36	0.01	0.00	0.03		0.02
Control Delay		34.3		45.5	18.5	19.0	0.1		21.4
Queue Delay		0.0		0.0	0.0	0.0	0.0		0.0
Total Delay		34.3		45.5	18.5	19.0	0.1		21.4
Queue Length 50th (m)		4.8		8.4	0.4	0.1	0.0		1.4
Queue Length 95th (m)		13.8		19.4	2.5	1.2	0.0		5.7
Internal Link Dist (m)		59.4		95.8		20.6			32.1
Turn Bay Length (m)									
Base Capacity (vph)		673		535	665	700	645		543
Starvation Cap Reductn		0		0	0	0	0		0
Spillback Cap Reductn		0		0	0	0	0		0
Storage Cap Reductn		0		0	0	0	0		0
Reduced v/c Ratio		0.05		0.10	0.01	0.00	0.03		0.02

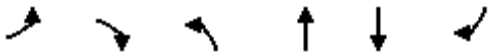
Intersection Summary
Cycle Length: 117.7
Actuated Cycle Length: 88.9
Natural Cycle: 85
Control Type: Semi Act-Uncoord

Splits and Phases: 8: Hiram Street & Blondin Avenue

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	26	7	30	16	1	4	1	18	1	9	2
Future Volume (vph)	1	26	7	30	16	1	4	1	18	1	9	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Lane Util. Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Frpb, ped/bikes		1.00			1.00		1.00	1.00	0.99		1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00	1.00		1.00	
Frt		0.97			1.00		1.00	1.00	0.85		0.98	
Flt Protected		1.00			0.97		0.95	1.00	1.00		1.00	
Satd. Flow (prot)		1708			1674		1681	1769	1484		1720	
Flt Permitted		0.99			0.78		0.95	1.00	1.00		0.99	
Satd. Flow (perm)		1689			1351		1681	1769	1484		1712	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	28	8	33	17	1	4	1	20	1	10	2
RTOR Reduction (vph)	0	7	0	0	1	0	0	0	12	0	1	0
Lane Group Flow (vph)	0	30	0	0	50	0	4	1	8	0	12	0
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Heavy Vehicles (%)	0%	0%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		4			4		2	2			6	
Permitted Phases	4			4					2	6		
Actuated Green, G (s)		7.4			7.4		35.2	35.2	35.2		28.2	
Effective Green, g (s)		7.4			7.4		35.2	35.2	35.2		28.2	
Actuated g/C Ratio		0.08			0.08		0.39	0.39	0.39		0.31	
Clearance Time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)		138			110		653	688	577		533	
v/s Ratio Prot							0.00	0.00				
v/s Ratio Perm		0.02			c0.04				c0.01		c0.01	
v/c Ratio		0.21			0.46		0.01	0.00	0.01		0.02	
Uniform Delay, d1		38.8			39.6		16.9	16.9	17.0		21.6	
Progression Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		0.8			3.0		0.0	0.0	0.0		0.1	
Delay (s)		39.6			42.6		17.0	16.9	17.0		21.7	
Level of Service		D			D		B	B	B		C	
Approach Delay (s)		39.6			42.6			17.0			21.7	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	34.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.06		
Actuated Cycle Length (s)	90.5	Sum of lost time (s)	19.7
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

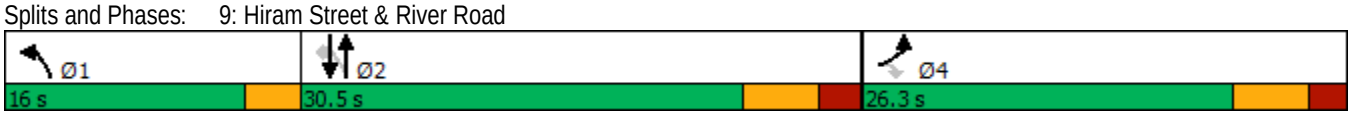
c Critical Lane Group

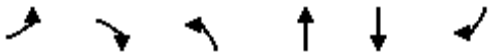


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	31	32	87	97	21
Future Volume (vph)	4	31	32	87	97	21
Lane Group Flow (vph)	4	34	35	95	105	23
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Detector Phase	4	4	1	2	2	2
Switch Phase						
Minimum Initial (s)	8.0	8.0	6.0	10.0	10.0	10.0
Minimum Split (s)	23.3	23.3	9.0	27.5	27.5	27.5
Total Split (s)	26.3	26.3	16.0	30.5	30.5	30.5
Total Split (%)	36.1%	36.1%	22.0%	41.9%	41.9%	41.9%
Yellow Time (s)	4.1	4.1	3.0	4.1	4.1	4.1
All-Red Time (s)	2.2	2.2	0.0	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lead/Lag			Lead	Lag	Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Max	Max	Max
v/c Ratio	0.01	0.12	0.03	0.07	0.08	0.02
Control Delay	19.8	10.0	2.4	6.4	6.4	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	10.0	2.4	6.4	6.4	4.2
Queue Length 50th (m)	0.3	0.0	0.2	0.0	0.0	0.0
Queue Length 95th (m)	2.4	5.9	2.6	11.6	12.6	2.9
Internal Link Dist (m)	95.8			80.7	33.4	
Turn Bay Length (m)						
Base Capacity (vph)	688	636	1131	1319	1358	1087
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.05	0.03	0.07	0.08	0.02

Intersection Summary
Cycle Length: 72.8
Actuated Cycle Length: 49.3
Natural Cycle: 60
Control Type: Actuated-Uncoordinated

Splits and Phases: 9: Hiram Street & River Road



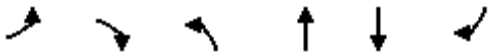


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	31	32	87	97	21
Future Volume (vph)	4	31	32	87	97	21
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1681	1504	1669	1685	1735	1387
Flt Permitted	0.95	1.00	0.69	1.00	1.00	1.00
Satd. Flow (perm)	1681	1504	1211	1685	1735	1387
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	34	35	95	105	23
RTOR Reduction (vph)	0	32	0	0	0	9
Lane Group Flow (vph)	4	2	35	95	105	14
Confl. Peds. (#/hr)	3		9			9
Heavy Vehicles (%)	0%	0%	0%	5%	2%	5%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Actuated Green, G (s)	2.9	2.9	36.5	34.3	34.3	34.3
Effective Green, g (s)	2.9	2.9	36.5	34.3	34.3	34.3
Actuated g/C Ratio	0.05	0.05	0.66	0.62	0.62	0.62
Clearance Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Vehicle Extension (s)	2.2	2.2	2.2	2.2	2.2	2.2
Lane Grp Cap (vph)	88	79	819	1047	1078	861
v/s Ratio Prot	c0.00		c0.00	0.06	c0.06	
v/s Ratio Perm		0.00	0.03			0.01
v/c Ratio	0.05	0.02	0.04	0.09	0.10	0.02
Uniform Delay, d1	24.8	24.8	3.2	4.2	4.2	4.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.1	0.0	0.2	0.2	0.0
Delay (s)	24.9	24.9	3.2	4.4	4.4	4.0
Level of Service	C	C	A	A	A	A
Approach Delay (s)	24.9			4.1	4.3	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	6.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.09		
Actuated Cycle Length (s)	55.2	Sum of lost time (s)	15.8
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

2023 Existing PM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	135	481	269	241
Future Volume (Veh/h)	0	0	135	481	269	241
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	147	523	292	262
Pedestrians					1	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				118		
pX, platoon unblocked	0.87					
vC, conflicting volume	1241	423	554			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1203	423	554			
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	86			
cM capacity (veh/h)	153	635	1026			

Direction, Lane #	NB 1	NB 2	SB 1
Volume Total	147	523	554
Volume Left	147	0	0
Volume Right	0	0	262
cSH	1026	1700	1700
Volume to Capacity	0.14	0.31	0.33
Queue Length 95th (m)	3.8	0.0	0.0
Control Delay (s)	9.1	0.0	0.0
Lane LOS	A		
Approach Delay (s)	2.0		0.0
Approach LOS			

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	46.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	36	40	578	0	0	279
Future Volume (Veh/h)	36	40	578	0	0	279
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)	39	43	628	0	0	303
Pedestrians	40					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	4					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			53			
pX, platoon unblocked	0.77	0.77			0.77	
vC, conflicting volume	971	668			668	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	814	421			421	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	85	91			100	
cM capacity (veh/h)	260	465			853	

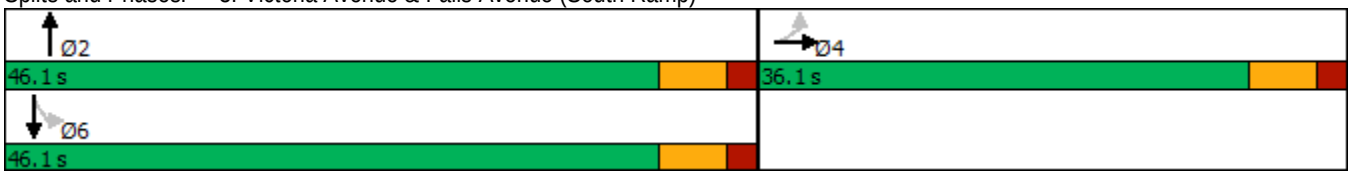
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	82	628	303
Volume Left	39	0	0
Volume Right	43	0	0
cSH	338	1700	1700
Volume to Capacity	0.24	0.37	0.18
Queue Length 95th (m)	7.1	0.0	0.0
Control Delay (s)	19.0	0.0	0.0
Lane LOS	C		
Approach Delay (s)	19.0	0.0	0.0
Approach LOS	C		

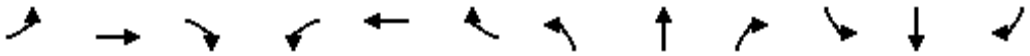
Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	182	2	392	47	261
Future Volume (vph)	182	2	392	47	261
Lane Group Flow (vph)	198	231	437	51	284
Turn Type	Perm	NA	NA	Perm	NA
Protected Phases		4	2		6
Permitted Phases	4			6	
Detector Phase	4	4	2	6	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	28.1	28.1	24.1	24.1	24.1
Total Split (s)	36.1	36.1	46.1	46.1	46.1
Total Split (%)	43.9%	43.9%	56.1%	56.1%	56.1%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	Max	Max	Max
v/c Ratio	0.63	0.50	0.41	0.10	0.26
Control Delay	33.4	7.8	8.5	6.9	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.4	7.8	8.5	6.9	7.2
Queue Length 50th (m)	22.0	0.2	22.6	2.1	13.2
Queue Length 95th (m)	39.9	15.0	50.0	7.6	30.5
Internal Link Dist (m)		82.5	171.2		29.4
Turn Bay Length (m)				10.0	
Base Capacity (vph)	757	784	1068	487	1073
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.26	0.29	0.41	0.10	0.26

Intersection Summary
Cycle Length: 82.2
Actuated Cycle Length: 64.8
Natural Cycle: 55
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Victoria Avenue & Falls Avenue (South Ramp)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	182	2	211	0	0	0	0	392	10	47	261	0
Future Volume (vph)	182	2	211	0	0	0	0	392	10	47	261	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.1	6.1						6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.96						1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00						1.00		0.96	1.00	
Frt	1.00	0.85						1.00		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1632	1434						1725		1546	1735	
Flt Permitted	0.95	1.00						1.00		0.49	1.00	
Satd. Flow (perm)	1632	1434						1725		790	1735	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	198	2	229	0	0	0	0	426	11	51	284	0
RTOR Reduction (vph)	0	185	0	0	0	0	0	1	0	0	0	0
Lane Group Flow (vph)	198	46	0	0	0	0	0	436	0	51	284	0
Confl. Peds. (#/hr)			13	13			69		47	47		69
Heavy Vehicles (%)	3%	0%	1%	0%	0%	0%	0%	2%	0%	4%	2%	0%
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	12.5	12.5						40.1		40.1	40.1	
Effective Green, g (s)	12.5	12.5						40.1		40.1	40.1	
Actuated g/C Ratio	0.19	0.19						0.62		0.62	0.62	
Clearance Time (s)	6.1	6.1						6.1		6.1	6.1	
Vehicle Extension (s)	2.1	2.1						2.1		2.1	2.1	
Lane Grp Cap (vph)	314	276						1067		488	1073	
v/s Ratio Prot		0.03						c0.25			0.16	
v/s Ratio Perm	c0.12									0.06		
v/c Ratio	0.63	0.17						0.41		0.10	0.26	
Uniform Delay, d1	24.0	21.8						6.3		5.0	5.6	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	3.1	0.1						1.2		0.4	0.6	
Delay (s)	27.2	21.9						7.5		5.5	6.2	
Level of Service	C	C						A		A	A	
Approach Delay (s)		24.3			0.0			7.5			6.1	
Approach LOS		C			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	64.8	Sum of lost time (s)	12.2
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	63	150	221	169	211	250
Future Volume (vph)	63	150	221	169	211	250
Lane Group Flow (vph)	68	163	240	184	229	272
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	6.0	8.0
Minimum Split (s)	26.3	26.3	30.3	30.3	9.0	30.3
Total Split (s)	36.3	36.3	41.3	41.3	28.0	69.3
Total Split (%)	34.4%	34.4%	39.1%	39.1%	26.5%	65.6%
Yellow Time (s)	4.1	4.1	4.1	4.1	3.0	4.1
All-Red Time (s)	2.2	2.2	2.2	2.2	0.0	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	Max	Max	None	Max
v/c Ratio	0.42	0.53	0.23	0.23	0.29	0.21
Control Delay	43.5	12.7	9.1	2.7	3.6	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.5	12.7	9.1	2.7	3.6	4.1
Queue Length 50th (m)	10.5	0.0	15.7	0.9	6.8	10.5
Queue Length 95th (m)	22.8	16.5	32.5	9.9	14.9	21.1
Internal Link Dist (m)	12.9		86.7			171.2
Turn Bay Length (m)	30.0			25.0	15.0	
Base Capacity (vph)	511	623	1027	790	930	1296
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.26	0.23	0.23	0.25	0.21

Intersection Summary

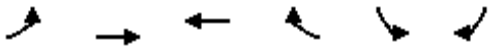
Cycle Length: 105.6
Actuated Cycle Length: 85.1
Natural Cycle: 70
Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Victoria Avenue & Bender Street

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	63	150	221	169	211	250
Future Volume (vph)	63	150	221	169	211	250
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.98	1.00	0.85	1.00	1.00
Flpb, ped/bikes	0.89	1.00	1.00	1.00	0.95	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1495	1471	1701	1243	1583	1752
Flt Permitted	0.95	1.00	1.00	1.00	0.58	1.00
Satd. Flow (perm)	1495	1471	1701	1243	960	1752
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	68	163	240	184	229	272
RTOR Reduction (vph)	0	145	0	66	0	0
Lane Group Flow (vph)	68	18	240	118	229	272
Confl. Peds. (#/hr)	52	1		74	74	
Heavy Vehicles (%)	0%	0%	4%	3%	1%	1%
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Actuated Green, G (s)	9.5	9.5	51.5	51.5	63.1	63.1
Effective Green, g (s)	9.5	9.5	51.5	51.5	63.1	63.1
Actuated g/C Ratio	0.11	0.11	0.60	0.60	0.74	0.74
Clearance Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Vehicle Extension (s)	2.5	2.5	3.5	3.5	3.0	3.5
Lane Grp Cap (vph)	166	164	1028	751	773	1297
v/s Ratio Prot			0.14		c0.03	0.16
v/s Ratio Perm	c0.05	0.01		0.09	c0.19	
v/c Ratio	0.41	0.11	0.23	0.16	0.30	0.21
Uniform Delay, d1	35.2	34.1	7.8	7.4	3.4	3.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	0.2	0.5	0.4	0.2	0.4
Delay (s)	36.4	34.3	8.3	7.8	3.6	3.8
Level of Service	D	C	A	A	A	A
Approach Delay (s)	34.9		8.1			3.7
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	85.2	Sum of lost time (s)	15.6
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	81	296	158	8	16	54
Future Volume (Veh/h)	81	296	158	8	16	54
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)	88	322	172	9	17	59
Pedestrians		14	13		35	
Lane Width (m)		3.7	3.7		3.7	
Walking Speed (m/s)		1.1	1.1		1.1	
Percent Blockage		1	1		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		37	79			
pX, platoon unblocked						
vC, conflicting volume	216				722	226
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	216				722	226
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				95	92
cM capacity (veh/h)	1321				353	782

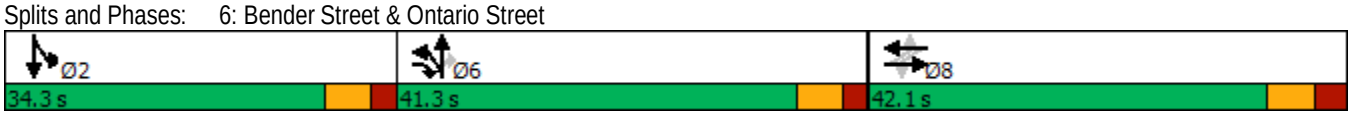
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	88	322	181	76
Volume Left	88	0	0	17
Volume Right	0	0	9	59
cSH	1321	1700	1700	615
Volume to Capacity	0.07	0.19	0.11	0.12
Queue Length 95th (m)	1.6	0.0	0.0	3.2
Control Delay (s)	7.9	0.0	0.0	11.7
Lane LOS	A			B
Approach Delay (s)	1.7		0.0	11.7
Approach LOS				B

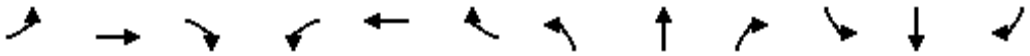
Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	35.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Configurations								
Traffic Volume (vph)	43	141	113	12	24	16	41	17
Future Volume (vph)	43	141	113	12	24	16	41	17
Lane Group Flow (vph)	0	200	123	0	41	109	45	109
Turn Type	Perm	NA	Over	Perm	NA	NA	Perm	NA
Protected Phases		8	6		8	6		2
Permitted Phases	8			8			6	
Detector Phase	8	8	6	8	8	6	6	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	26.3	42.1	42.1	26.3	26.3	14.3
Total Split (s)	42.1	42.1	41.3	42.1	42.1	41.3	41.3	34.3
Total Split (%)	35.8%	35.8%	35.1%	35.8%	35.8%	35.1%	35.1%	29.1%
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	2.2	3.0	3.0	2.2	2.2	2.2
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		7.1	6.3		7.1	6.3	6.3	6.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	Min	None	None	Min	Min	Min
v/c Ratio		0.53	0.25		0.12	0.34	0.15	0.36
Control Delay		23.0	20.5		15.9	22.9	2.2	16.3
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		23.0	20.5		15.9	22.9	2.2	16.3
Queue Length 50th (m)		14.9	5.2		2.6	8.4	0.0	4.5
Queue Length 95th (m)		35.6	13.6		9.4	22.9	1.8	17.6
Internal Link Dist (m)		54.9			36.6	34.4		24.4
Turn Bay Length (m)			40.0					
Base Capacity (vph)		1041	1832		931	1176	854	865
Starvation Cap Reductn		0	0		0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0
Reduced v/c Ratio		0.19	0.07		0.04	0.09	0.05	0.13

Intersection Summary
Cycle Length: 117.7
Actuated Cycle Length: 51.4
Natural Cycle: 85
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Bender Street & Ontario Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	141	113	12	24	2	85	16	41	28	17	56
Future Volume (vph)	43	141	113	12	24	2	85	16	41	28	17	56
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Lane Util. Factor		1.00	0.88		1.00			1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		1.00			1.00	0.90		0.95	
Flpb, ped/bikes		0.99	1.00		0.99			1.00	1.00		1.00	
Frt		1.00	0.85		0.99			1.00	0.85		0.92	
Flt Protected		0.99	1.00		0.98			0.96	1.00		0.99	
Satd. Flow (prot)		1668	2647		1579			1698	1358		1509	
Flt Permitted		0.91	1.00		0.85			0.96	1.00		0.99	
Satd. Flow (perm)		1530	2647		1368			1698	1358		1509	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	47	153	123	13	26	2	92	17	45	30	18	61
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	37	0	42	0
Lane Group Flow (vph)	0	200	123	0	40	0	0	109	8	0	67	0
Confl. Peds. (#/hr)	79		109	109		79	23		113	113		23
Heavy Vehicles (%)	2%	4%	0%	25%	0%	0%	0%	0%	0%	7%	0%	0%
Turn Type	Perm	NA	Over	Perm	NA		Split	NA	Perm	Split	NA	
Protected Phases		8	6		8		6	6		2	2	
Permitted Phases	8			8					6			
Actuated Green, G (s)		12.8	9.6		12.8			9.6	9.6		9.0	
Effective Green, g (s)		12.8	9.6		12.8			9.6	9.6		9.0	
Actuated g/C Ratio		0.25	0.19		0.25			0.19	0.19		0.18	
Clearance Time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Vehicle Extension (s)		3.5	3.0		3.5			3.0	3.0		3.0	
Lane Grp Cap (vph)		383	497		342			318	255		265	
v/s Ratio Prot			0.05					c0.06			c0.04	
v/s Ratio Perm		c0.13			0.03				0.01			
v/c Ratio		0.52	0.25		0.12			0.34	0.03		0.25	
Uniform Delay, d1		16.5	17.7		14.8			18.0	17.0		18.2	
Progression Factor		1.00	1.00		1.00			1.00	1.00		1.00	
Incremental Delay, d2		1.5	0.3		0.2			0.6	0.1		0.5	
Delay (s)		18.0	17.9		15.0			18.7	17.0		18.7	
Level of Service		B	B		B			B	B		B	
Approach Delay (s)		18.0			15.0			18.2			18.7	
Approach LOS		B			B			B			B	

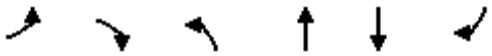
Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	51.1	Sum of lost time (s)	19.7
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBR	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	205	31	72	291
Future Volume (vph)	205	31	72	291
Lane Group Flow (vph)	223	34	78	317
Turn Type	Perm	Prot	NA	NA
Protected Phases		5	2	6
Permitted Phases	4			
Detector Phase	4	5	2	6
Switch Phase				
Minimum Initial (s)	1.0	8.0	10.0	10.0
Minimum Split (s)	3.0	13.0	17.0	17.0
Total Split (s)	3.0	25.0	72.0	47.0
Total Split (%)	4.0%	33.3%	96.0%	62.7%
Yellow Time (s)	2.0	3.0	5.0	5.0
All-Red Time (s)	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	2.0	5.0	7.0	7.0
Lead/Lag		Lead		Lag
Lead-Lag Optimize?				
Recall Mode	None	None	Max	Max
v/c Ratio	0.37	0.21	0.05	0.12
Control Delay	1.7	33.7	0.8	2.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	1.7	33.7	0.8	2.7
Queue Length 50th (m)	0.0	4.5	0.7	1.5
Queue Length 95th (m)	0.0	12.2	1.5	10.6
Internal Link Dist (m)			45.6	34.5
Turn Bay Length (m)		20.0		
Base Capacity (vph)	610	407	1446	2572
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.37	0.08	0.05	0.12

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Natural Cycle: 40
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Falls Avenue & Bender Street



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	205	31	72	291	1
Future Volume (vph)	0	205	31	72	291	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)		2.0	5.0	7.0	7.0	
Lane Util. Factor		1.00	1.00	1.00	0.95	
Frpb, ped/bikes		0.58	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	
Frt		0.86	1.00	1.00	1.00	
Flt Protected		1.00	0.95	1.00	1.00	
Satd. Flow (prot)		858	1528	1669	3231	
Flt Permitted		1.00	0.95	1.00	1.00	
Satd. Flow (perm)		858	1528	1669	3231	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	223	34	78	316	1
RTOR Reduction (vph)	0	220	0	0	0	0
Lane Group Flow (vph)	0	3	34	78	317	0
Confl. Peds. (#/hr)	37	37	67			67
Heavy Vehicles (%)	0%	4%	10%	6%	4%	0%
Turn Type		Perm	Prot	NA	NA	
Protected Phases			5	2	6	
Permitted Phases		4				
Actuated Green, G (s)		1.0	3.3	68.0	59.7	
Effective Green, g (s)		1.0	3.3	68.0	59.7	
Actuated g/C Ratio		0.01	0.04	0.87	0.77	
Clearance Time (s)		2.0	5.0	7.0	7.0	
Vehicle Extension (s)		0.2	2.0	4.5	4.5	
Lane Grp Cap (vph)		11	64	1455	2472	
v/s Ratio Prot			c0.02	0.05	c0.10	
v/s Ratio Perm		c0.00				
v/c Ratio		0.26	0.53	0.05	0.13	
Uniform Delay, d1		38.1	36.6	0.7	2.4	
Progression Factor		1.00	1.00	1.00	1.00	
Incremental Delay, d2		4.5	4.2	0.1	0.1	
Delay (s)		42.7	40.8	0.7	2.5	
Level of Service		D	D	A	A	
Approach Delay (s)	42.7			12.9	2.5	
Approach LOS	D			B	A	

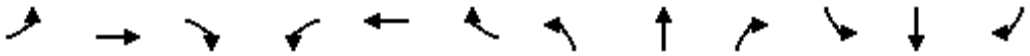
Intersection Summary			
HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.15		
Actuated Cycle Length (s)	78.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	39.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Configurations								
Traffic Volume (vph)	5	30	82	60	31	4	104	8
Future Volume (vph)	5	30	82	60	31	4	104	8
Lane Group Flow (vph)	0	60	0	159	34	4	113	11
Turn Type	Perm	NA	Perm	NA	Split	NA	Perm	NA
Protected Phases		4		4	2	2		6
Permitted Phases	4		4				2	
Detector Phase	4	4	4	4	2	2	2	6
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	42.1	42.1	26.3	26.3	26.3	14.3
Total Split (s)	42.1	42.1	42.1	42.1	41.3	41.3	41.3	34.3
Total Split (%)	35.8%	35.8%	35.8%	35.8%	35.1%	35.1%	35.1%	29.1%
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	2.2	2.2	2.2	2.2
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		7.1		7.1	6.3	6.3	6.3	6.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Max	Max	Max	Max
v/c Ratio		0.21		0.70	0.06	0.01	0.19	0.02
Control Delay		25.8		55.4	23.8	23.5	5.8	26.2
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		25.8		55.4	23.8	23.5	5.8	26.2
Queue Length 50th (m)		6.3		29.0	4.3	0.5	0.0	1.3
Queue Length 95th (m)		17.1		49.9	11.8	3.0	11.9	5.9
Internal Link Dist (m)		59.4		95.8		20.6		32.1
Turn Bay Length (m)								
Base Capacity (vph)		572		466	590	621	585	483
Starvation Cap Reductn		0		0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0
Reduced v/c Ratio		0.10		0.34	0.06	0.01	0.19	0.02

Intersection Summary
Cycle Length: 117.7
Actuated Cycle Length: 99.9
Natural Cycle: 85
Control Type: Semi Act-Uncoord

Splits and Phases: 8: Hiram Street & Blondin Avenue



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	30	20	82	60	5	31	4	104	0	8	2
Future Volume (vph)	5	30	20	82	60	5	31	4	104	0	8	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Lane Util. Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Frpb, ped/bikes		0.98			1.00		1.00	1.00	0.98		1.00	
Flpb, ped/bikes		1.00			0.98		1.00	1.00	1.00		1.00	
Frt		0.95			1.00		1.00	1.00	0.85		0.98	
Flt Protected		1.00			0.97		0.95	1.00	1.00		1.00	
Satd. Flow (prot)		1641			1634		1681	1769	1460		1718	
Flt Permitted		0.97			0.79		0.95	1.00	1.00		1.00	
Satd. Flow (perm)		1595			1332		1681	1769	1460		1718	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	33	22	89	65	5	34	4	113	0	9	2
RTOR Reduction (vph)	0	18	0	0	1	0	0	0	73	0	1	0
Lane Group Flow (vph)	0	42	0	0	158	0	34	4	40	0	10	0
Confl. Peds. (#/hr)	2		25	25		3	3		5	5		3
Heavy Vehicles (%)	0%	0%	0%	0%	7%	0%	0%	0%	1%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm		NA	
Protected Phases		4			4		2	2			6	
Permitted Phases	4			4					2	6		
Actuated Green, G (s)		17.0			17.0		35.1	35.1	35.1		28.1	
Effective Green, g (s)		17.0			17.0		35.1	35.1	35.1		28.1	
Actuated g/C Ratio		0.17			0.17		0.35	0.35	0.35		0.28	
Clearance Time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)		271			226		590	621	512		483	
v/s Ratio Prot							0.02	0.00			c0.01	
v/s Ratio Perm		0.03			c0.12				c0.03			
v/c Ratio		0.15			0.70		0.06	0.01	0.08		0.02	
Uniform Delay, d1		35.3			39.0		21.5	21.1	21.6		25.9	
Progression Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		0.3			9.1		0.2	0.0	0.3		0.1	
Delay (s)		35.6			48.2		21.6	21.1	21.9		26.0	
Level of Service		D			D		C	C	C		C	
Approach Delay (s)		35.6			48.2			21.8			26.0	
Approach LOS		D			D			C			C	

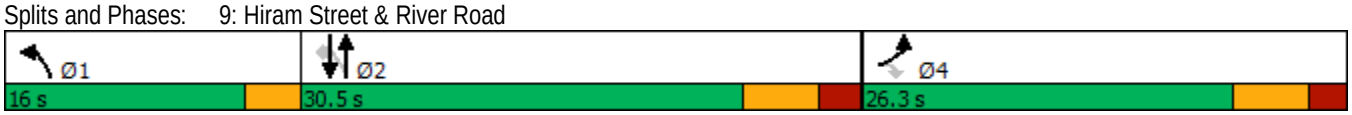
Intersection Summary			
HCM 2000 Control Delay	35.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.19		
Actuated Cycle Length (s)	99.9	Sum of lost time (s)	19.7
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

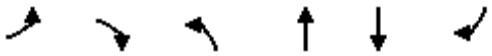
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	34	109	87	266	256	52
Future Volume (vph)	34	109	87	266	256	52
Lane Group Flow (vph)	37	118	95	289	278	57
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Detector Phase	4	4	1	2	2	2
Switch Phase						
Minimum Initial (s)	8.0	8.0	6.0	10.0	10.0	10.0
Minimum Split (s)	23.3	23.3	9.0	27.5	27.5	27.5
Total Split (s)	26.3	26.3	16.0	30.5	30.5	30.5
Total Split (%)	36.1%	36.1%	22.0%	41.9%	41.9%	41.9%
Yellow Time (s)	4.1	4.1	3.0	4.1	4.1	4.1
All-Red Time (s)	2.2	2.2	0.0	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lead/Lag			Lead	Lag	Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Max	Max	Max
v/c Ratio	0.14	0.37	0.13	0.31	0.29	0.08
Control Delay	21.6	9.0	3.6	11.0	10.8	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	9.0	3.6	11.0	10.8	3.6
Queue Length 50th (m)	3.2	0.0	2.4	17.5	16.7	0.0
Queue Length 95th (m)	9.7	11.1	5.9	34.5	32.8	4.9
Internal Link Dist (m)	95.8			80.7	33.4	
Turn Bay Length (m)						
Base Capacity (vph)	642	617	853	941	960	725
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.19	0.11	0.31	0.29	0.08

Intersection Summary
Cycle Length: 72.8
Actuated Cycle Length: 52.5
Natural Cycle: 60
Control Type: Actuated-Uncoordinated

Splits and Phases: 9: Hiram Street & River Road



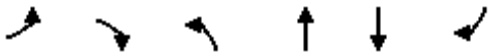


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	34	109	87	266	256	52
Future Volume (vph)	34	109	87	266	256	52
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.95	1.00	1.00	1.00	0.89
Flpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1681	1436	1573	1701	1735	1310
Flt Permitted	0.95	1.00	0.59	1.00	1.00	1.00
Satd. Flow (perm)	1681	1436	975	1701	1735	1310
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	118	95	289	278	57
RTOR Reduction (vph)	0	104	0	0	0	28
Lane Group Flow (vph)	37	14	95	289	278	29
Confl. Peds. (#/hr)	10	16	72			72
Heavy Vehicles (%)	0%	0%	3%	4%	2%	2%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Actuated Green, G (s)	6.3	6.3	32.5	27.6	27.6	27.6
Effective Green, g (s)	6.3	6.3	32.5	27.6	27.6	27.6
Actuated g/C Ratio	0.12	0.12	0.60	0.51	0.51	0.51
Clearance Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Vehicle Extension (s)	2.2	2.2	2.2	2.2	2.2	2.2
Lane Grp Cap (vph)	193	165	634	859	877	662
v/s Ratio Prot	c0.02		c0.01	c0.17	0.16	
v/s Ratio Perm		0.01	0.08			0.02
v/c Ratio	0.19	0.08	0.15	0.34	0.32	0.04
Uniform Delay, d1	21.8	21.6	4.8	8.0	7.9	6.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.1	0.1	1.1	0.9	0.1
Delay (s)	22.1	21.7	4.8	9.1	8.9	6.9
Level of Service	C	C	A	A	A	A
Approach Delay (s)	21.8			8.0	8.6	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	54.6	Sum of lost time (s)	15.8
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

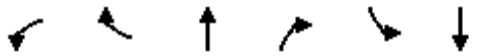
2023 Existing SAT



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	151	365	282	134
Future Volume (Veh/h)	0	0	151	365	282	134
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	164	397	307	146
Pedestrians	92				1	
Lane Width (m)	0.0				3.7	
Walking Speed (m/s)	1.1				1.1	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				118		
pX, platoon unblocked	0.99					
vC, conflicting volume	1198	472	545			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1194	472	545			
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	84			
cM capacity (veh/h)	173	596	1029			

Direction, Lane #	NB 1	NB 2	SB 1
Volume Total	164	397	453
Volume Left	164	0	0
Volume Right	0	0	146
cSH	1029	1700	1700
Volume to Capacity	0.16	0.23	0.27
Queue Length 95th (m)	4.3	0.0	0.0
Control Delay (s)	9.2	0.0	0.0
Lane LOS	A		
Approach Delay (s)	2.7		0.0
Approach LOS			

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	42.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	63	38	484	0	0	283
Future Volume (Veh/h)	63	38	484	0	0	283
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)	68	41	526	0	0	308
Pedestrians	78					1
Lane Width (m)	3.7					3.7
Walking Speed (m/s)	1.1					1.1
Percent Blockage	7					0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			53			
pX, platoon unblocked	0.85	0.85			0.85	
vC, conflicting volume	912	605			604	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	808	447			446	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	76	92			100	
cM capacity (veh/h)	278	485			887	

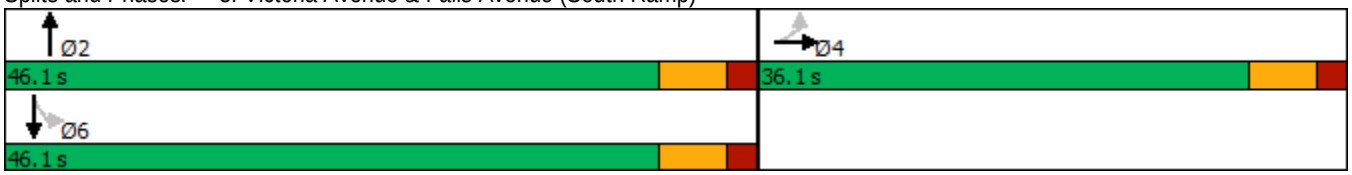
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	109	526	308
Volume Left	68	0	0
Volume Right	41	0	0
cSH	331	1700	1700
Volume to Capacity	0.33	0.31	0.18
Queue Length 95th (m)	10.6	0.0	0.0
Control Delay (s)	21.1	0.0	0.0
Lane LOS	C		
Approach Delay (s)	21.1	0.0	0.0
Approach LOS	C		

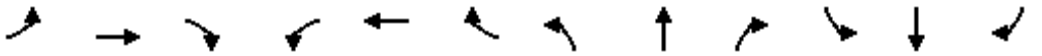
Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	108	2	340	26	317
Future Volume (vph)	108	2	340	26	317
Lane Group Flow (vph)	117	347	388	28	345
Turn Type	Perm	NA	NA	Perm	NA
Protected Phases		4	2		6
Permitted Phases	4			6	
Detector Phase	4	4	2	6	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	28.1	28.1	24.1	24.1	24.1
Total Split (s)	36.1	36.1	46.1	46.1	46.1
Total Split (%)	43.9%	43.9%	56.1%	56.1%	56.1%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	Max	Max	Max
v/c Ratio	0.43	0.70	0.35	0.05	0.30
Control Delay	28.5	12.9	6.8	5.4	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	28.5	12.9	6.8	5.4	6.4
Queue Length 50th (m)	12.3	3.6	15.5	0.9	13.5
Queue Length 95th (m)	24.8	24.0	39.7	4.4	34.5
Internal Link Dist (m)		82.5	171.2		29.4
Turn Bay Length (m)				10.0	
Base Capacity (vph)	800	860	1111	580	1134
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.15	0.40	0.35	0.05	0.30

Intersection Summary
Cycle Length: 82.2
Actuated Cycle Length: 62.5
Natural Cycle: 55
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Victoria Avenue & Falls Avenue (South Ramp)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	2	317	0	0	0	0	340	17	26	317	0
Future Volume (vph)	108	2	317	0	0	0	0	340	17	26	317	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.1	6.1						6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97						1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00						1.00		0.97	1.00	
Frt	1.00	0.85						0.99		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1664	1459						1731		1625	1769	
Flt Permitted	0.95	1.00						1.00		0.53	1.00	
Satd. Flow (perm)	1664	1459						1731		909	1769	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	117	2	345	0	0	0	0	370	18	28	345	0
RTOR Reduction (vph)	0	260	0	0	0	0	0	1	0	0	0	0
Lane Group Flow (vph)	117	87	0	0	0	0	0	387	0	28	345	0
Confl. Peds. (#/hr)			8	8			63		33	33		63
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	0%	1%	6%	0%	0%	0%
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	10.2	10.2						40.1		40.1	40.1	
Effective Green, g (s)	10.2	10.2						40.1		40.1	40.1	
Actuated g/C Ratio	0.16	0.16						0.64		0.64	0.64	
Clearance Time (s)	6.1	6.1						6.1		6.1	6.1	
Vehicle Extension (s)	2.1	2.1						2.1		2.1	2.1	
Lane Grp Cap (vph)	271	238						1110		583	1134	
v/s Ratio Prot		0.06						c0.22			0.19	
v/s Ratio Perm	c0.07									0.03		
v/c Ratio	0.43	0.36						0.35		0.05	0.30	
Uniform Delay, d1	23.5	23.3						5.2		4.1	5.0	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.4						0.9		0.2	0.7	
Delay (s)	24.0	23.7						6.0		4.3	5.7	
Level of Service	C	C						A		A	A	
Approach Delay (s)		23.8			0.0			6.0			5.6	
Approach LOS		C			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	62.5	Sum of lost time (s)	12.2
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	93	126	189	172	344	290
Future Volume (vph)	93	126	189	172	344	290
Lane Group Flow (vph)	101	137	205	187	374	315
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	6.0	8.0
Minimum Split (s)	26.3	26.3	30.3	30.3	9.0	30.3
Total Split (s)	36.3	36.3	41.3	41.3	28.0	69.3
Total Split (%)	34.4%	34.4%	39.1%	39.1%	26.5%	65.6%
Yellow Time (s)	4.1	4.1	4.1	4.1	3.0	4.1
All-Red Time (s)	2.2	2.2	2.2	2.2	0.0	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	Max	Max	None	Max
v/c Ratio	0.52	0.52	0.21	0.23	0.45	0.24
Control Delay	45.1	13.8	11.3	2.7	5.1	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.1	13.8	11.3	2.7	5.1	4.7
Queue Length 50th (m)	15.9	0.0	15.2	0.0	13.9	13.7
Queue Length 95th (m)	30.8	15.5	33.5	10.2	28.7	27.3
Internal Link Dist (m)	12.9		86.7			171.2
Turn Bay Length (m)	30.0			25.0	15.0	
Base Capacity (vph)	548	497	974	810	951	1291
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.28	0.21	0.23	0.39	0.24

Intersection Summary

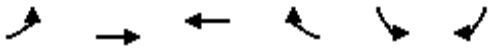
Cycle Length: 105.6
Actuated Cycle Length: 86.4
Natural Cycle: 70
Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Victoria Avenue & Bender Street

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	93	126	189	172	344	290
Future Volume (vph)	93	126	189	172	344	290
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.82	1.00	0.89	1.00	1.00
Flpb, ped/bikes	0.96	1.00	1.00	1.00	0.96	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1592	1229	1735	1325	1619	1769
Flt Permitted	0.95	1.00	1.00	1.00	0.59	1.00
Satd. Flow (perm)	1592	1229	1735	1325	1010	1769
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	101	137	205	187	374	315
RTOR Reduction (vph)	0	120	0	82	0	0
Lane Group Flow (vph)	101	17	205	105	374	315
Confl. Peds. (#/hr)	20	77		51	51	
Heavy Vehicles (%)	1%	0%	2%	1%	0%	0%
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Actuated Green, G (s)	10.7	10.7	48.6	48.6	63.1	63.1
Effective Green, g (s)	10.7	10.7	48.6	48.6	63.1	63.1
Actuated g/C Ratio	0.12	0.12	0.56	0.56	0.73	0.73
Clearance Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Vehicle Extension (s)	2.5	2.5	3.5	3.5	3.0	3.5
Lane Grp Cap (vph)	197	152	975	745	818	1291
v/s Ratio Prot			0.12		c0.06	0.18
v/s Ratio Perm	c0.06	0.01		0.08	c0.27	
v/c Ratio	0.51	0.11	0.21	0.14	0.46	0.24
Uniform Delay, d1	35.4	33.6	9.4	9.0	4.2	3.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.7	0.2	0.5	0.4	0.4	0.4
Delay (s)	37.1	33.9	9.9	9.4	4.6	4.3
Level of Service	D	C	A	A	A	A
Approach Delay (s)	35.2		9.6			4.4
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	86.4	Sum of lost time (s)	15.6
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	73	443	150	12	25	69
Future Volume (Veh/h)	73	443	150	12	25	69
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)	79	482	163	13	27	75
Pedestrians		2	2		53	
Lane Width (m)		3.7	3.7		3.7	
Walking Speed (m/s)		1.1	1.1		1.1	
Percent Blockage		0	0		5	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		37	79			
pX, platoon unblocked						
vC, conflicting volume	229				864	224
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	229				864	224
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				91	90
cM capacity (veh/h)	1284				291	778

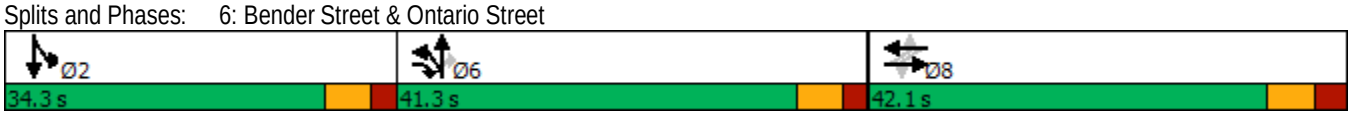
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	79	482	176	102
Volume Left	79	0	0	27
Volume Right	0	0	13	75
cSH	1284	1700	1700	539
Volume to Capacity	0.06	0.28	0.10	0.19
Queue Length 95th (m)	1.5	0.0	0.0	5.3
Control Delay (s)	8.0	0.0	0.0	13.2
Lane LOS	A			B
Approach Delay (s)	1.1		0.0	13.2
Approach LOS				B

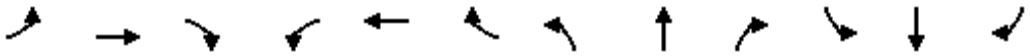
Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Configurations								
Traffic Volume (vph)	65	228	152	8	26	20	58	20
Future Volume (vph)	65	228	152	8	26	20	58	20
Lane Group Flow (vph)	0	319	165	0	45	94	63	122
Turn Type	Perm	NA	Over	Perm	NA	NA	Perm	NA
Protected Phases		8	6		8	6		2
Permitted Phases	8			8			6	
Detector Phase	8	8	6	8	8	6	6	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	26.3	42.1	42.1	26.3	26.3	14.3
Total Split (s)	42.1	42.1	41.3	42.1	42.1	41.3	41.3	34.3
Total Split (%)	35.8%	35.8%	35.1%	35.8%	35.8%	35.1%	35.1%	29.1%
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	2.2	3.0	3.0	2.2	2.2	2.2
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		7.1	6.3		7.1	6.3	6.3	6.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	Min	None	None	Min	Min	Min
v/c Ratio		0.67	0.36		0.10	0.32	0.20	0.41
Control Delay		25.1	25.0		13.0	26.0	4.5	17.6
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		25.1	25.0		13.0	26.0	4.5	17.6
Queue Length 50th (m)		26.4	8.1		2.5	8.2	0.0	4.9
Queue Length 95th (m)		57.4	20.3		9.3	23.5	5.2	20.3
Internal Link Dist (m)		54.9			36.6	34.4		24.4
Turn Bay Length (m)			40.0					
Base Capacity (vph)		970	1663		922	1071	887	785
Starvation Cap Reductn		0	0		0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0
Reduced v/c Ratio		0.33	0.10		0.05	0.09	0.07	0.16

Intersection Summary
Cycle Length: 117.7
Actuated Cycle Length: 57
Natural Cycle: 85
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Bender Street & Ontario Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	228	152	8	26	7	66	20	58	22	20	70
Future Volume (vph)	65	228	152	8	26	7	66	20	58	22	20	70
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Lane Util. Factor		1.00	0.88		1.00			1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		0.98			1.00	0.95		0.94	
Flpb, ped/bikes		0.98	1.00		1.00			1.00	1.00		1.00	
Frt		1.00	0.85		0.98			1.00	0.85		0.92	
Flt Protected		0.99	1.00		0.99			0.96	1.00		0.99	
Satd. Flow (prot)		1708	2647		1634			1704	1424		1476	
Flt Permitted		0.91	1.00		0.90			0.96	1.00		0.99	
Satd. Flow (perm)		1572	2647		1490			1704	1424		1476	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	248	165	9	28	8	72	22	63	24	22	76
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	52	0	55	0
Lane Group Flow (vph)	0	319	165	0	39	0	0	94	11	0	67	0
Confl. Peds. (#/hr)	96		60	60		96	23		50	50		23
Heavy Vehicles (%)	0%	1%	0%	0%	4%	0%	0%	0%	0%	0%	15%	0%
Turn Type	Perm	NA	Over	Perm	NA		Split	NA	Perm	Split	NA	
Protected Phases		8	6		8		6	6		2	2	
Permitted Phases	8			8					6			
Actuated Green, G (s)		17.6	9.9		17.6			9.9	9.9		9.3	
Effective Green, g (s)		17.6	9.9		17.6			9.9	9.9		9.3	
Actuated g/C Ratio		0.31	0.18		0.31			0.18	0.18		0.16	
Clearance Time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Vehicle Extension (s)		3.5	3.0		3.5			3.0	3.0		3.0	
Lane Grp Cap (vph)		489	463		464			298	249		242	
v/s Ratio Prot			c0.06					0.06			c0.05	
v/s Ratio Perm		c0.20			0.03				0.01			
v/c Ratio		0.65	0.36		0.09			0.32	0.04		0.28	
Uniform Delay, d1		16.8	20.5		13.8			20.3	19.4		20.7	
Progression Factor		1.00	1.00		1.00			1.00	1.00		1.00	
Incremental Delay, d2		3.2	0.5		0.1			0.6	0.1		0.6	
Delay (s)		20.1	21.0		13.8			21.0	19.4		21.3	
Level of Service		C	C		B			C	B		C	
Approach Delay (s)		20.4			13.8			20.3			21.3	
Approach LOS		C			B			C			C	

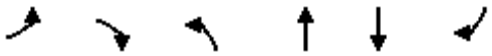
Intersection Summary			
HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	56.5	Sum of lost time (s)	19.7
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBR	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	272	30	85	544
Future Volume (vph)	272	30	85	544
Lane Group Flow (vph)	296	33	92	592
Turn Type	Perm	Prot	NA	NA
Protected Phases		5	2	6
Permitted Phases	4			
Detector Phase	4	5	2	6
Switch Phase				
Minimum Initial (s)	1.0	8.0	10.0	10.0
Minimum Split (s)	3.0	13.0	17.0	17.0
Total Split (s)	3.0	25.0	72.0	47.0
Total Split (%)	4.0%	33.3%	96.0%	62.7%
Yellow Time (s)	2.0	3.0	5.0	5.0
All-Red Time (s)	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	2.0	5.0	7.0	7.0
Lead/Lag		Lead		Lag
Lead-Lag Optimize?				
Recall Mode	None	None	Max	Max
v/c Ratio	0.56	0.19	0.06	0.22
Control Delay	4.3	33.4	0.8	2.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	4.3	33.4	0.8	2.9
Queue Length 50th (m)	0.0	4.4	0.8	3.2
Queue Length 95th (m)	0.0	12.0	1.7	19.5
Internal Link Dist (m)			45.6	34.5
Turn Bay Length (m)		20.0		
Base Capacity (vph)	526	435	1518	2678
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.56	0.08	0.06	0.22

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Natural Cycle: 40
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Falls Avenue & Bender Street



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	272	30	85	544	1
Future Volume (vph)	0	272	30	85	544	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)		2.0	5.0	7.0	7.0	
Lane Util. Factor		1.00	1.00	1.00	0.95	
Frpb, ped/bikes		0.57	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	
Frt		0.86	1.00	1.00	1.00	
Flt Protected		1.00	0.95	1.00	1.00	
Satd. Flow (prot)		870	1632	1752	3361	
Flt Permitted		1.00	0.95	1.00	1.00	
Satd. Flow (perm)		870	1632	1752	3361	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	296	33	92	591	1
RTOR Reduction (vph)	0	292	0	0	0	0
Lane Group Flow (vph)	0	4	33	92	592	0
Confl. Peds. (#/hr)	18	39	16			16
Heavy Vehicles (%)	0%	1%	3%	1%	0%	0%
Turn Type		Perm	Prot	NA	NA	
Protected Phases			5	2	6	
Permitted Phases		4				
Actuated Green, G (s)		1.0	3.2	68.0	59.8	
Effective Green, g (s)		1.0	3.2	68.0	59.8	
Actuated g/C Ratio		0.01	0.04	0.87	0.77	
Clearance Time (s)		2.0	5.0	7.0	7.0	
Vehicle Extension (s)		0.2	2.0	4.5	4.5	
Lane Grp Cap (vph)		11	66	1527	2576	
v/s Ratio Prot			c0.02	0.05	c0.18	
v/s Ratio Perm		c0.00				
v/c Ratio		0.34	0.50	0.06	0.23	
Uniform Delay, d1		38.2	36.6	0.7	2.6	
Progression Factor		1.00	1.00	1.00	1.00	
Incremental Delay, d2		6.7	2.2	0.1	0.2	
Delay (s)		44.9	38.8	0.8	2.8	
Level of Service		D	D	A	A	
Approach Delay (s)	44.9			10.8	2.8	
Approach LOS	D			B	A	

Intersection Summary			
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	78.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	5	58	86	85	21	3	104	1	7
Future Volume (vph)	5	58	86	85	21	3	104	1	7
Lane Group Flow (vph)	0	92	0	195	23	3	113	0	10
Turn Type	Perm	NA	Perm	NA	Split	NA	Perm	Perm	NA
Protected Phases		4		4	2	2			6
Permitted Phases	4		4				2	6	
Detector Phase	4	4	4	4	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	42.1	42.1	26.3	26.3	26.3	14.3	14.3
Total Split (s)	42.1	42.1	42.1	42.1	41.3	41.3	41.3	34.3	34.3
Total Split (%)	35.8%	35.8%	35.8%	35.8%	35.1%	35.1%	35.1%	29.1%	29.1%
Yellow Time (s)	4.1	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	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		7.1		7.1	6.3	6.3	6.3		6.3
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio		0.28		0.74	0.04	0.00	0.20		0.02
Control Delay		30.8		55.0	25.2	25.3	6.1		28.9
Queue Delay		0.0		0.0	0.0	0.0	0.0		0.0
Total Delay		30.8		55.0	25.2	25.3	6.1		28.9
Queue Length 50th (m)		13.1		36.4	3.0	0.4	0.0		1.3
Queue Length 95th (m)		26.6		59.9	9.4	2.6	12.3		5.9
Internal Link Dist (m)		59.4		95.8		20.6			32.1
Turn Bay Length (m)									
Base Capacity (vph)		576		471	575	605	565		470
Starvation Cap Reductn		0		0	0	0	0		0
Spillback Cap Reductn		0		0	0	0	0		0
Storage Cap Reductn		0		0	0	0	0		0
Reduced v/c Ratio		0.16		0.41	0.04	0.00	0.20		0.02

Intersection Summary
Cycle Length: 117.7
Actuated Cycle Length: 102.7
Natural Cycle: 85
Control Type: Semi Act-Uncoord

Splits and Phases: 8: Hiram Street & Blondin Avenue

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	58	22	86	85	9	21	3	104	1	7	1
Future Volume (vph)	5	58	22	86	85	9	21	3	104	1	7	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Lane Util. Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Frpb, ped/bikes		0.99			1.00		1.00	1.00	0.97		1.00	
Flpb, ped/bikes		1.00			0.99		1.00	1.00	1.00		1.00	
Frt		0.96			0.99		1.00	1.00	0.85		0.99	
Flt Protected		1.00			0.98		0.95	1.00	1.00		1.00	
Satd. Flow (prot)		1686			1625		1681	1769	1440		1728	
Flt Permitted		0.98			0.83		0.95	1.00	1.00		0.99	
Satd. Flow (perm)		1655			1378		1681	1769	1440		1717	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	63	24	93	92	10	23	3	113	1	8	1
RTOR Reduction (vph)	0	12	0	0	2	0	0	0	74	0	1	0
Lane Group Flow (vph)	0	80	0	0	193	0	23	3	39	0	9	0
Confl. Peds. (#/hr)	16		9	9		16	4		14	14		4
Heavy Vehicles (%)	0%	0%	0%	5%	4%	11%	0%	0%	1%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		4			4		2	2			6	
Permitted Phases	4			4					2	6		
Actuated Green, G (s)		19.7			19.7		35.1	35.1	35.1		28.1	
Effective Green, g (s)		19.7			19.7		35.1	35.1	35.1		28.1	
Actuated g/C Ratio		0.19			0.19		0.34	0.34	0.34		0.27	
Clearance Time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)		317			264		575	605	492		470	
v/s Ratio Prot							0.01	0.00				
v/s Ratio Perm		0.05			c0.14				c0.03		c0.01	
v/c Ratio		0.25			0.73		0.04	0.00	0.08		0.02	
Uniform Delay, d1		35.2			39.0		22.5	22.2	22.8		27.2	
Progression Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		0.4			10.0		0.1	0.0	0.3		0.1	
Delay (s)		35.6			49.0		22.6	22.3	23.1		27.3	
Level of Service		D			D		C	C	C		C	
Approach Delay (s)		35.6			49.0			23.0			27.3	
Approach LOS		D			D			C			C	

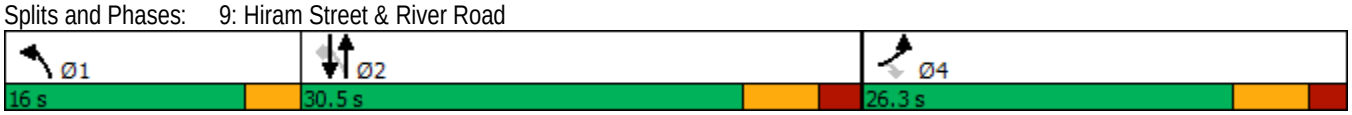
Intersection Summary			
HCM 2000 Control Delay	37.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	102.6	Sum of lost time (s)	19.7
Intersection Capacity Utilization	52.2%	ICU Level of Service	A
Analysis Period (min)	15		

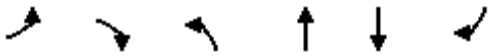
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	31	107	172	224	328	93
Future Volume (vph)	31	107	172	224	328	93
Lane Group Flow (vph)	34	116	187	243	357	101
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Detector Phase	4	4	1	2	2	2
Switch Phase						
Minimum Initial (s)	8.0	8.0	6.0	10.0	10.0	10.0
Minimum Split (s)	23.3	23.3	9.0	27.5	27.5	27.5
Total Split (s)	26.3	26.3	16.0	30.5	30.5	30.5
Total Split (%)	36.1%	36.1%	22.0%	41.9%	41.9%	41.9%
Yellow Time (s)	4.1	4.1	3.0	4.1	4.1	4.1
All-Red Time (s)	2.2	2.2	0.0	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lead/Lag			Lead	Lag	Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Max	Max	Max
v/c Ratio	0.15	0.37	0.28	0.30	0.44	0.14
Control Delay	22.7	9.3	4.3	11.6	13.2	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.7	9.3	4.3	11.6	13.2	3.4
Queue Length 50th (m)	3.0	0.0	5.0	14.9	23.7	0.0
Queue Length 95th (m)	9.6	11.2	10.7	30.9	47.1	6.9
Internal Link Dist (m)	95.8			80.7	33.4	
Turn Bay Length (m)						
Base Capacity (vph)	552	593	803	816	816	701
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.20	0.23	0.30	0.44	0.14

Intersection Summary
Cycle Length: 72.8
Actuated Cycle Length: 55.3
Natural Cycle: 60
Control Type: Actuated-Uncoordinated

Splits and Phases: 9: Hiram Street & River Road



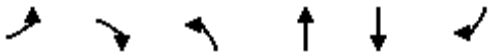


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	31	107	172	224	328	93
Future Volume (vph)	31	107	172	224	328	93
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.96	1.00	1.00	1.00	0.91
Flpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1528	1444	1567	1669	1669	1357
Flt Permitted	0.95	1.00	0.53	1.00	1.00	1.00
Satd. Flow (perm)	1528	1444	876	1669	1669	1357
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	116	187	243	357	101
RTOR Reduction (vph)	0	102	0	0	0	53
Lane Group Flow (vph)	34	14	187	243	357	48
Confl. Peds. (#/hr)	4	12	52			52
Heavy Vehicles (%)	10%	0%	5%	6%	6%	1%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Actuated Green, G (s)	6.6	6.6	34.3	27.1	27.1	27.1
Effective Green, g (s)	6.6	6.6	34.3	27.1	27.1	27.1
Actuated g/C Ratio	0.12	0.12	0.60	0.48	0.48	0.48
Clearance Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Vehicle Extension (s)	2.2	2.2	2.2	2.2	2.2	2.2
Lane Grp Cap (vph)	177	168	617	797	797	648
v/s Ratio Prot	c0.02		c0.04	0.15	c0.21	
v/s Ratio Perm		0.01	0.14			0.04
v/c Ratio	0.19	0.08	0.30	0.30	0.45	0.07
Uniform Delay, d1	22.6	22.3	5.0	9.0	9.8	8.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.1	0.1	1.0	1.8	0.2
Delay (s)	22.9	22.4	5.2	10.0	11.7	8.2
Level of Service	C	C	A	B	B	A
Approach Delay (s)	22.6			7.9	10.9	
Approach LOS	C			A	B	

Intersection Summary			
HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	56.7	Sum of lost time (s)	15.8
Intersection Capacity Utilization	52.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

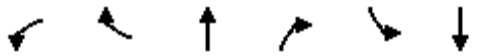
2025 Future Background AM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	224	330	160	143
Future Volume (Veh/h)	0	0	224	330	160	143
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	243	359	174	155
Pedestrians	37			5		
Lane Width (m)	0.0			3.7		
Walking Speed (m/s)	1.1			1.1		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				118		
pX, platoon unblocked						
vC, conflicting volume	1134	294	366			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1134	294	366			
tC, single (s)	6.4	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	100	100	79			
cM capacity (veh/h)	178	747	1150			

Direction, Lane #	NB 1	NB 2	SB 1
Volume Total	243	359	329
Volume Left	243	0	0
Volume Right	0	0	155
cSH	1150	1700	1700
Volume to Capacity	0.21	0.21	0.19
Queue Length 95th (m)	6.1	0.0	0.0
Control Delay (s)	9.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	3.6		0.0
Approach LOS			

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	35	17	536	0	0	159
Future Volume (Veh/h)	35	17	536	0	0	159
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)	38	18	583	0	0	173
Pedestrians	10					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	1					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			53			
pX, platoon unblocked	0.78	0.78			0.78	
vC, conflicting volume	766	593			593	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	563	343			343	
tC, single (s)	6.4	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.2	
p0 queue free %	90	97			100	
cM capacity (veh/h)	381	536			953	

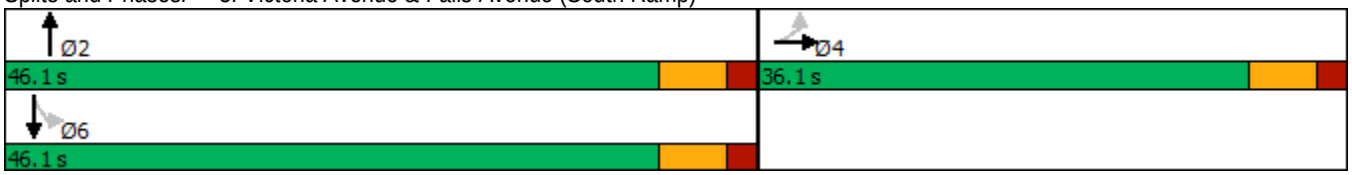
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	56	583	173
Volume Left	38	0	0
Volume Right	18	0	0
cSH	420	1700	1700
Volume to Capacity	0.13	0.34	0.10
Queue Length 95th (m)	3.5	0.0	0.0
Control Delay (s)	14.9	0.0	0.0
Lane LOS	B		
Approach Delay (s)	14.9	0.0	0.0
Approach LOS	B		

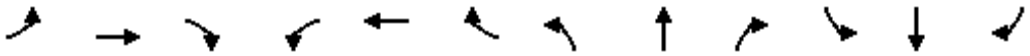
Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	184	0	353	11	182
Future Volume (vph)	184	0	353	11	182
Lane Group Flow (vph)	200	316	393	12	198
Turn Type	Perm	NA	NA	Perm	NA
Protected Phases		4	2		6
Permitted Phases	4			6	
Detector Phase	4	4	2	6	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	28.1	28.1	24.1	24.1	24.1
Total Split (s)	36.1	36.1	46.1	46.1	46.1
Total Split (%)	43.9%	43.9%	56.1%	56.1%	56.1%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	Max	Max	Max
v/c Ratio	0.64	0.44	0.38	0.02	0.20
Control Delay	33.4	1.9	8.5	6.5	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.4	1.9	8.5	6.5	7.0
Queue Length 50th (m)	22.3	0.0	20.1	0.5	8.9
Queue Length 95th (m)	40.5	0.0	45.4	2.7	22.0
Internal Link Dist (m)		82.5	171.2		29.4
Turn Bay Length (m)				10.0	
Base Capacity (vph)	728	967	1038	556	1015
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.27	0.33	0.38	0.02	0.20

Intersection Summary
Cycle Length: 82.2
Actuated Cycle Length: 65.4
Natural Cycle: 55
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Victoria Avenue & Falls Avenue (South Ramp)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	184	0	291	0	0	0	0	353	8	11	182	0
Future Volume (vph)	184	0	291	0	0	0	0	353	8	11	182	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.1	6.1						6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00						1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00						1.00		0.99	1.00	
Frt	1.00	0.85						1.00		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1583	1475						1691		1665	1654	
Flt Permitted	0.95	1.00						1.00		0.52	1.00	
Satd. Flow (perm)	1583	1475						1691		907	1654	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	200	0	316	0	0	0	0	384	9	12	198	0
RTOR Reduction (vph)	0	253	0	0	0	0	0	1	0	0	0	0
Lane Group Flow (vph)	200	63	0	0	0	0	0	392	0	12	198	0
Confl. Peds. (#/hr)	1					1	36		9	9		36
Heavy Vehicles (%)	6%	0%	2%	0%	0%	0%	0%	4%	13%	0%	7%	0%
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	13.0	13.0						40.2		40.2	40.2	
Effective Green, g (s)	13.0	13.0						40.2		40.2	40.2	
Actuated g/C Ratio	0.20	0.20						0.61		0.61	0.61	
Clearance Time (s)	6.1	6.1						6.1		6.1	6.1	
Vehicle Extension (s)	2.1	2.1						2.1		2.1	2.1	
Lane Grp Cap (vph)	314	293						1039		557	1016	
v/s Ratio Prot		0.04						c0.23			0.12	
v/s Ratio Perm	c0.13									0.01		
v/c Ratio	0.64	0.21						0.38		0.02	0.19	
Uniform Delay, d1	24.0	21.9						6.3		4.9	5.5	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	3.2	0.2						1.0		0.1	0.4	
Delay (s)	27.3	22.1						7.4		5.0	5.9	
Level of Service	C	C						A		A	A	
Approach Delay (s)		24.1			0.0			7.4			5.9	
Approach LOS		C			A			A			A	

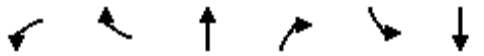
Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	65.4	Sum of lost time (s)	12.2
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	57	94	255	101	227	230
Future Volume (vph)	57	94	255	101	227	230
Lane Group Flow (vph)	62	102	277	110	247	250
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	6.0	8.0
Minimum Split (s)	26.3	26.3	30.3	30.3	9.0	30.3
Total Split (s)	36.3	36.3	41.3	41.3	28.0	69.3
Total Split (%)	34.4%	34.4%	39.1%	39.1%	26.5%	65.6%
Yellow Time (s)	4.1	4.1	4.1	4.1	3.0	4.1
All-Red Time (s)	2.2	2.2	2.2	2.2	0.0	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	Max	Max	None	Max
v/c Ratio	0.36	0.42	0.26	0.13	0.31	0.18
Control Delay	41.4	13.6	9.0	3.3	3.4	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.4	13.6	9.0	3.3	3.4	3.5
Queue Length 50th (m)	9.5	0.0	18.6	1.3	7.2	9.2
Queue Length 95th (m)	21.0	13.5	37.3	8.5	15.3	18.3
Internal Link Dist (m)	12.9		86.7			171.2
Turn Bay Length (m)	30.0			25.0	15.0	
Base Capacity (vph)	574	567	1074	867	938	1377
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.18	0.26	0.13	0.26	0.18

Intersection Summary
Cycle Length: 105.6
Actuated Cycle Length: 82
Natural Cycle: 70
Control Type: Actuated-Uncoordinated

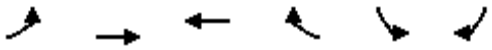
Splits and Phases: 4: Victoria Avenue & Bender Street



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	57	94	255	101	227	230
Future Volume (vph)	57	94	255	101	227	230
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.97	1.00	0.97	1.00	1.00
Flpb, ped/bikes	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1573	1369	1701	1326	1551	1735
Flt Permitted	0.95	1.00	1.00	1.00	0.56	1.00
Satd. Flow (perm)	1573	1369	1701	1326	909	1735
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	62	102	277	110	247	250
RTOR Reduction (vph)	0	93	0	33	0	0
Lane Group Flow (vph)	62	9	277	77	247	250
Confl. Peds. (#/hr)	13	3		6	6	
Heavy Vehicles (%)	4%	7%	4%	10%	8%	2%
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Actuated Green, G (s)	7.2	7.2	51.8	51.8	63.6	63.6
Effective Green, g (s)	7.2	7.2	51.8	51.8	63.6	63.6
Actuated g/C Ratio	0.09	0.09	0.62	0.62	0.76	0.76
Clearance Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Vehicle Extension (s)	2.5	2.5	3.5	3.5	3.0	3.5
Lane Grp Cap (vph)	135	118	1056	823	760	1323
v/s Ratio Prot			0.16		c0.03	0.14
v/s Ratio Perm	c0.04	0.01		0.06	c0.21	
v/c Ratio	0.46	0.07	0.26	0.09	0.33	0.19
Uniform Delay, d1	36.2	35.0	7.2	6.4	2.9	2.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	0.2	0.6	0.2	0.3	0.3
Delay (s)	38.0	35.2	7.8	6.6	3.1	3.1
Level of Service	D	D	A	A	A	A
Approach Delay (s)	36.3		7.4			3.1
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	83.4	Sum of lost time (s)	15.6
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	159	168	26	3	11	125
Future Volume (Veh/h)	159	168	26	3	11	125
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)	173	183	28	3	12	136
Pedestrians			2		5	
Lane Width (m)			3.7		3.7	
Walking Speed (m/s)			1.1		1.1	
Percent Blockage			0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		37	79			
pX, platoon unblocked						
vC, conflicting volume	36				566	34
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	36				566	34
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	89				97	87
cM capacity (veh/h)	1561				432	1031

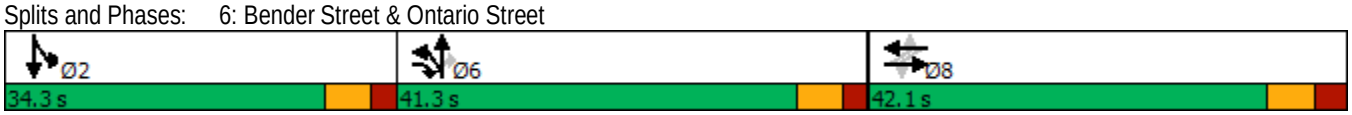
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	173	183	31	148
Volume Left	173	0	0	12
Volume Right	0	0	3	136
cSH	1561	1700	1700	927
Volume to Capacity	0.11	0.11	0.02	0.16
Queue Length 95th (m)	2.8	0.0	0.0	4.3
Control Delay (s)	7.6	0.0	0.0	9.6
Lane LOS	A			A
Approach Delay (s)	3.7		0.0	9.6
Approach LOS				A

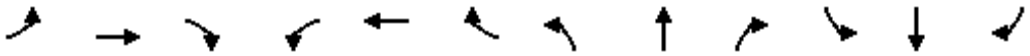
Intersection Summary			
Average Delay	5.1		
Intersection Capacity Utilization	31.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Configurations								
Traffic Volume (vph)	32	42	105	3	1	3	18	2
Future Volume (vph)	32	42	105	3	1	3	18	2
Lane Group Flow (vph)	0	81	114	0	7	16	20	25
Turn Type	Perm	NA	Over	Perm	NA	NA	Perm	NA
Protected Phases		8	6		8	6		2
Permitted Phases	8			8			6	
Detector Phase	8	8	6	8	8	6	6	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	26.3	42.1	42.1	26.3	26.3	14.3
Total Split (s)	42.1	42.1	41.3	42.1	42.1	41.3	41.3	34.3
Total Split (%)	35.8%	35.8%	35.1%	35.8%	35.8%	35.1%	35.1%	29.1%
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	2.2	3.0	3.0	2.2	2.2	2.2
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		7.1	6.3		7.1	6.3	6.3	6.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	Min	None	None	Min	Min	Min
v/c Ratio		0.24	0.20		0.03	0.05	0.05	0.07
Control Delay		16.9	16.2		12.7	15.9	0.2	11.1
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		16.9	16.2		12.7	15.9	0.2	11.1
Queue Length 50th (m)		5.4	4.2		0.3	1.0	0.0	0.5
Queue Length 95th (m)		14.2	10.2		2.6	4.7	0.0	5.1
Internal Link Dist (m)		54.9			36.6	34.4		24.4
Turn Bay Length (m)			40.0					
Base Capacity (vph)		1227	2217		1015	1377	1261	1134
Starvation Cap Reductn		0	0		0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0
Reduced v/c Ratio		0.07	0.05		0.01	0.01	0.02	0.02

Intersection Summary
Cycle Length: 117.7
Actuated Cycle Length: 38.7
Natural Cycle: 85
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Bender Street & Ontario Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	42	105	3	1	3	12	3	18	5	2	17
Future Volume (vph)	32	42	105	3	1	3	12	3	18	5	2	17
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Lane Util. Factor		1.00	0.88		1.00			1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		0.99			1.00	0.98		0.98	
Flpb, ped/bikes		1.00	1.00		1.00			1.00	1.00		1.00	
Frt		1.00	0.85		0.94			1.00	0.85		0.90	
Flt Protected		0.98	1.00		0.98			0.96	1.00		0.99	
Satd. Flow (prot)		1634	2570		1411			1597	1472		1481	
Flt Permitted		0.86	1.00		0.82			0.96	1.00		0.99	
Satd. Flow (perm)		1431	2570		1187			1597	1472		1481	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	46	114	3	1	3	13	3	20	5	2	18
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	16	0	14	0
Lane Group Flow (vph)	0	81	114	0	4	0	0	16	4	0	11	0
Confl. Peds. (#/hr)	12		12	12		12	5		15	15		5
Heavy Vehicles (%)	0%	10%	3%	33%	0%	0%	8%	0%	0%	0%	0%	6%
Turn Type	Perm	NA	Over	Perm	NA		Split	NA	Perm	Split	NA	
Protected Phases		8	6		8		6	6		2	2	
Permitted Phases	8			8					6			
Actuated Green, G (s)		4.8	8.6		4.8			8.6	8.6		8.4	
Effective Green, g (s)		4.8	8.6		4.8			8.6	8.6		8.4	
Actuated g/C Ratio		0.12	0.21		0.12			0.21	0.21		0.20	
Clearance Time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Vehicle Extension (s)		3.5	3.0		3.5			3.0	3.0		3.0	
Lane Grp Cap (vph)		165	532		137			330	305		299	
v/s Ratio Prot			c0.04					0.01			c0.01	
v/s Ratio Perm		c0.06			0.00				0.00			
v/c Ratio		0.49	0.21		0.03			0.05	0.01		0.04	
Uniform Delay, d1		17.2	13.6		16.3			13.2	13.1		13.3	
Progression Factor		1.00	1.00		1.00			1.00	1.00		1.00	
Incremental Delay, d2		2.7	0.2		0.1			0.1	0.0		0.0	
Delay (s)		19.9	13.8		16.4			13.2	13.1		13.3	
Level of Service		B	B		B			B	B		B	
Approach Delay (s)		16.4			16.4			13.2			13.3	
Approach LOS		B			B			B			B	

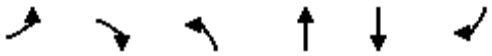
Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	41.5	Sum of lost time (s)	19.7
Intersection Capacity Utilization	47.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBR	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	66	8	41	207
Future Volume (vph)	66	8	41	207
Lane Group Flow (vph)	72	9	45	225
Turn Type	Perm	Prot	NA	NA
Protected Phases		5	2	6
Permitted Phases	4			
Detector Phase	4	5	2	6
Switch Phase				
Minimum Initial (s)	1.0	8.0	10.0	10.0
Minimum Split (s)	3.0	13.0	17.0	17.0
Total Split (s)	3.0	25.0	72.0	47.0
Total Split (%)	4.0%	33.3%	96.0%	62.7%
Yellow Time (s)	2.0	3.0	5.0	5.0
All-Red Time (s)	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	2.0	5.0	7.0	7.0
Lead/Lag		Lead		Lag
Lead-Lag Optimize?				
Recall Mode	None	None	Max	Max
v/c Ratio	0.09	0.06	0.03	0.08
Control Delay	0.2	31.2	0.7	1.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	0.2	31.2	0.7	1.7
Queue Length 50th (m)	0.0	1.2	0.4	1.1
Queue Length 95th (m)	0.0	5.2	1.0	7.5
Internal Link Dist (m)			45.6	34.5
Turn Bay Length (m)		20.0		
Base Capacity (vph)	786	385	1534	2802
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.09	0.02	0.03	0.08

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 77.4
Natural Cycle: 40
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Falls Avenue & Bender Street



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	66	8	41	207	0
Future Volume (vph)	0	66	8	41	207	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)		2.0	5.0	7.0	7.0	
Lane Util. Factor		1.00	1.00	1.00	0.95	
Frpb, ped/bikes		0.94	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	
Frt		0.86	1.00	1.00	1.00	
Flt Protected		1.00	0.95	1.00	1.00	
Satd. Flow (prot)		1357	1488	1718	3264	
Flt Permitted		1.00	0.95	1.00	1.00	
Satd. Flow (perm)		1357	1488	1718	3264	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	72	9	45	225	0
RTOR Reduction (vph)	0	71	0	0	0	0
Lane Group Flow (vph)	0	1	9	45	225	0
Confl. Peds. (#/hr)	3	2	4			4
Heavy Vehicles (%)	0%	6%	13%	3%	3%	0%
Turn Type		Perm	Prot	NA	NA	
Protected Phases			5	2	6	
Permitted Phases		4				
Actuated Green, G (s)		0.8	1.7	71.9	65.2	
Effective Green, g (s)		0.8	1.7	71.9	65.2	
Actuated g/C Ratio		0.01	0.02	0.88	0.80	
Clearance Time (s)		2.0	5.0	7.0	7.0	
Vehicle Extension (s)		0.2	2.0	4.5	4.5	
Lane Grp Cap (vph)		13	30	1511	2604	
v/s Ratio Prot			c0.01	0.03	c0.07	
v/s Ratio Perm		c0.00				
v/c Ratio		0.05	0.30	0.03	0.09	
Uniform Delay, d1		40.1	39.4	0.6	1.8	
Progression Factor		1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.6	2.0	0.0	0.1	
Delay (s)		40.7	41.5	0.6	1.9	
Level of Service		D	D	A	A	
Approach Delay (s)	40.7			7.4	1.9	
Approach LOS	D			A	A	

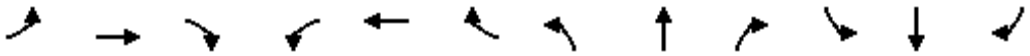
Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.09		
Actuated Cycle Length (s)	81.7	Sum of lost time (s)	14.0
Intersection Capacity Utilization	22.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	1	27	31	17	4	1	19	1	9
Future Volume (vph)	1	27	31	17	4	1	19	1	9
Lane Group Flow (vph)	0	38	0	53	4	1	21	0	13
Turn Type	Perm	NA	Perm	NA	Split	NA	Perm	Perm	NA
Protected Phases		4		4	2	2			6
Permitted Phases	4		4				2	6	
Detector Phase	4	4	4	4	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	42.1	42.1	26.3	26.3	26.3	14.3	14.3
Total Split (s)	42.1	42.1	42.1	42.1	41.3	41.3	41.3	34.3	34.3
Total Split (%)	35.8%	35.8%	35.8%	35.8%	35.1%	35.1%	35.1%	29.1%	29.1%
Yellow Time (s)	4.1	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	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		7.1		7.1	6.3	6.3	6.3		6.3
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio		0.21		0.37	0.01	0.00	0.03		0.02
Control Delay		34.4		45.7	18.8	19.0	0.1		21.4
Queue Delay		0.0		0.0	0.0	0.0	0.0		0.0
Total Delay		34.4		45.7	18.8	19.0	0.1		21.4
Queue Length 50th (m)		5.0		8.8	0.4	0.1	0.0		1.4
Queue Length 95th (m)		14.0		20.0	2.5	1.2	0.0		5.7
Internal Link Dist (m)		59.4		95.8		20.6			32.1
Turn Bay Length (m)									
Base Capacity (vph)		673		535	664	699	644		542
Starvation Cap Reductn		0		0	0	0	0		0
Spillback Cap Reductn		0		0	0	0	0		0
Storage Cap Reductn		0		0	0	0	0		0
Reduced v/c Ratio		0.06		0.10	0.01	0.00	0.03		0.02

Intersection Summary
Cycle Length: 117.7
Actuated Cycle Length: 89.1
Natural Cycle: 85
Control Type: Semi Act-Uncoord

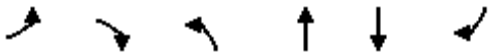
Splits and Phases: 8: Hiram Street & Blondin Avenue



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	27	7	31	17	1	4	1	19	1	9	2
Future Volume (vph)	1	27	7	31	17	1	4	1	19	1	9	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Lane Util. Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Frpb, ped/bikes		1.00			1.00		1.00	1.00	0.99		1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00	1.00		1.00	
Frt		0.97			1.00		1.00	1.00	0.85		0.98	
Flt Protected		1.00			0.97		0.95	1.00	1.00		1.00	
Satd. Flow (prot)		1709			1674		1681	1769	1484		1720	
Flt Permitted		0.99			0.78		0.95	1.00	1.00		0.99	
Satd. Flow (perm)		1691			1353		1681	1769	1484		1712	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	29	8	34	18	1	4	1	21	1	10	2
RTOR Reduction (vph)	0	7	0	0	1	0	0	0	13	0	1	0
Lane Group Flow (vph)	0	31	0	0	52	0	4	1	8	0	12	0
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Heavy Vehicles (%)	0%	0%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		4			4		2	2			6	
Permitted Phases	4			4					2	6		
Actuated Green, G (s)		7.5			7.5		35.2	35.2	35.2		28.2	
Effective Green, g (s)		7.5			7.5		35.2	35.2	35.2		28.2	
Actuated g/C Ratio		0.08			0.08		0.39	0.39	0.39		0.31	
Clearance Time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)		139			112		653	687	576		532	
v/s Ratio Prot							0.00	0.00				
v/s Ratio Perm		0.02			c0.04				c0.01		c0.01	
v/c Ratio		0.22			0.47		0.01	0.00	0.01		0.02	
Uniform Delay, d1		38.8			39.6		17.0	16.9	17.0		21.6	
Progression Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		0.8			3.0		0.0	0.0	0.0		0.1	
Delay (s)		39.6			42.7		17.0	17.0	17.1		21.7	
Level of Service		D			D		B	B	B		C	
Approach Delay (s)		39.6			42.7			17.1			21.7	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	34.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.06		
Actuated Cycle Length (s)	90.6	Sum of lost time (s)	19.7
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

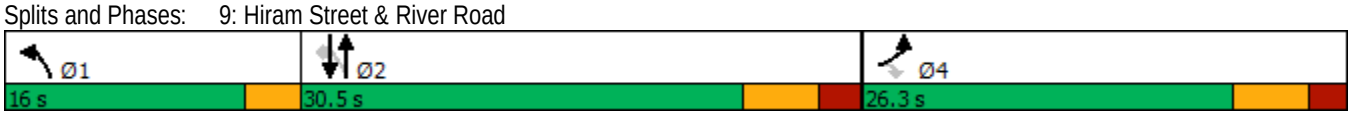
c Critical Lane Group

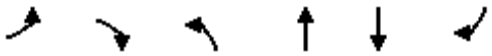


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	32	33	91	101	22
Future Volume (vph)	4	32	33	91	101	22
Lane Group Flow (vph)	4	35	36	99	110	24
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Detector Phase	4	4	1	2	2	2
Switch Phase						
Minimum Initial (s)	8.0	8.0	6.0	10.0	10.0	10.0
Minimum Split (s)	23.3	23.3	9.0	27.5	27.5	27.5
Total Split (s)	26.3	26.3	16.0	30.5	30.5	30.5
Total Split (%)	36.1%	36.1%	22.0%	41.9%	41.9%	41.9%
Yellow Time (s)	4.1	4.1	3.0	4.1	4.1	4.1
All-Red Time (s)	2.2	2.2	0.0	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lead/Lag			Lead	Lag	Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Max	Max	Max
v/c Ratio	0.01	0.13	0.03	0.08	0.08	0.02
Control Delay	19.8	9.9	2.4	6.4	6.4	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	9.9	2.4	6.4	6.4	4.2
Queue Length 50th (m)	0.3	0.0	0.2	0.0	0.0	0.0
Queue Length 95th (m)	2.4	6.1	2.7	12.1	13.1	3.0
Internal Link Dist (m)	95.8			80.7	33.4	
Turn Bay Length (m)						
Base Capacity (vph)	688	637	1128	1318	1357	1086
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.05	0.03	0.08	0.08	0.02

Intersection Summary
Cycle Length: 72.8
Actuated Cycle Length: 49.2
Natural Cycle: 60
Control Type: Actuated-Uncoordinated

Splits and Phases: 9: Hiram Street & River Road



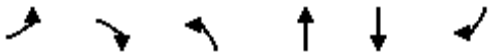


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	32	33	91	101	22
Future Volume (vph)	4	32	33	91	101	22
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1681	1504	1670	1685	1735	1387
Flt Permitted	0.95	1.00	0.69	1.00	1.00	1.00
Satd. Flow (perm)	1681	1504	1206	1685	1735	1387
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	35	36	99	110	24
RTOR Reduction (vph)	0	33	0	0	0	9
Lane Group Flow (vph)	4	2	36	99	110	15
Confl. Peds. (#/hr)	3		9			9
Heavy Vehicles (%)	0%	0%	0%	5%	2%	5%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Actuated Green, G (s)	2.9	2.9	36.5	34.3	34.3	34.3
Effective Green, g (s)	2.9	2.9	36.5	34.3	34.3	34.3
Actuated g/C Ratio	0.05	0.05	0.66	0.62	0.62	0.62
Clearance Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Vehicle Extension (s)	2.2	2.2	2.2	2.2	2.2	2.2
Lane Grp Cap (vph)	88	79	815	1047	1078	861
v/s Ratio Prot	c0.00		c0.00	0.06	c0.06	
v/s Ratio Perm		0.00	0.03			0.01
v/c Ratio	0.05	0.02	0.04	0.09	0.10	0.02
Uniform Delay, d1	24.8	24.8	3.2	4.2	4.2	4.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.1	0.0	0.2	0.2	0.0
Delay (s)	24.9	24.9	3.2	4.4	4.4	4.0
Level of Service	C	C	A	A	A	A
Approach Delay (s)	24.9			4.1	4.3	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	6.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.09		
Actuated Cycle Length (s)	55.2	Sum of lost time (s)	15.8
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

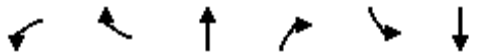
2025 Future Background PM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	303	506	286	251
Future Volume (Veh/h)	0	0	303	506	286	251
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	329	550	311	273
Pedestrians					1	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				118		
pX, platoon unblocked	0.84					
vC, conflicting volume	1656	448	584			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1687	448	584			
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	67			
cM capacity (veh/h)	59	615	1001			

Direction, Lane #	NB 1	NB 2	SB 1
Volume Total	329	550	584
Volume Left	329	0	0
Volume Right	0	0	273
cSH	1001	1700	1700
Volume to Capacity	0.33	0.32	0.34
Queue Length 95th (m)	11.0	0.0	0.0
Control Delay (s)	10.4	0.0	0.0
Lane LOS	B		
Approach Delay (s)	3.9		0.0
Approach LOS			

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	79	42	770	0	0	296
Future Volume (Veh/h)	79	42	770	0	0	296
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)	86	46	837	0	0	322
Pedestrians	40					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	4					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			53			
pX, platoon unblocked	0.62	0.62			0.62	
vC, conflicting volume	1199	877			877	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1015	496			496	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	46	86			100	
cM capacity (veh/h)	159	339			644	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	132	837	322
Volume Left	86	0	0
Volume Right	46	0	0
cSH	195	1700	1700
Volume to Capacity	0.68	0.49	0.19
Queue Length 95th (m)	31.3	0.0	0.0
Control Delay (s)	55.1	0.0	0.0
Lane LOS	F		
Approach Delay (s)	55.1	0.0	0.0
Approach LOS	F		

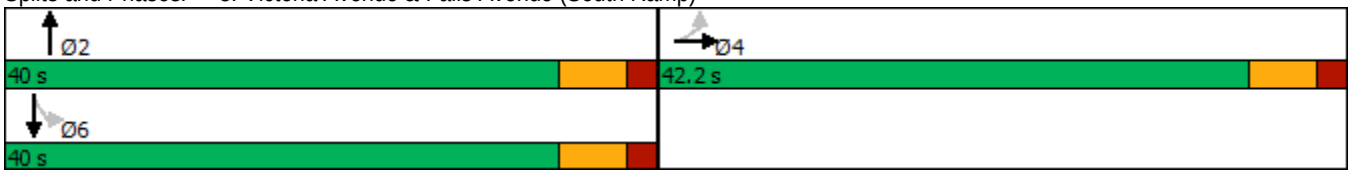
Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	101.7%	ICU Level of Service	G
Analysis Period (min)	15		

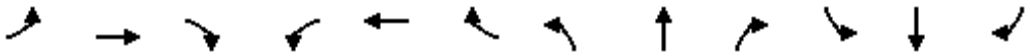
Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	189	2	577	49	320
Future Volume (vph)	189	2	577	49	320
Lane Group Flow (vph)	205	513	638	53	348
Turn Type	Perm	NA	NA	Perm	NA
Protected Phases		4	2		6
Permitted Phases	4			6	
Detector Phase	4	4	2	6	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	28.1	28.1	24.1	24.1	24.1
Total Split (s)	42.2	42.2	40.0	40.0	40.0
Total Split (%)	51.3%	51.3%	48.7%	48.7%	48.7%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	Max	Max	Max
v/c Ratio	0.41	0.86	0.72	0.22	0.39
Control Delay	20.0	26.1	22.2	16.1	14.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	20.0	26.1	22.2	16.1	14.3
Queue Length 50th (m)	19.9	32.2	56.5	3.4	24.4
Queue Length 95th (m)	34.3	67.3	#154.6	14.2	62.0
Internal Link Dist (m)		82.5	171.2		29.4
Turn Bay Length (m)				10.0	
Base Capacity (vph)	889	884	885	242	888
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.23	0.58	0.72	0.22	0.39

Intersection Summary

Cycle Length: 82.2
Actuated Cycle Length: 67.6
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Victoria Avenue & Falls Avenue (South Ramp)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	189	2	470	0	0	0	0	577	10	49	320	0
Future Volume (vph)	189	2	470	0	0	0	0	577	10	49	320	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.1	6.1						6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.96						1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00						1.00		0.98	1.00	
Frt	1.00	0.85						1.00		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1632	1432						1728		1577	1735	
Flt Permitted	0.95	1.00						1.00		0.28	1.00	
Satd. Flow (perm)	1632	1432						1728		461	1735	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	205	2	511	0	0	0	0	627	11	53	348	0
RTOR Reduction (vph)	0	163	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	205	350	0	0	0	0	0	638	0	53	348	0
Confl. Peds. (#/hr)			13	13			69		47	47		69
Heavy Vehicles (%)	3%	0%	1%	0%	0%	0%	0%	2%	0%	4%	2%	0%
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	20.5	20.5						34.6		34.6	34.6	
Effective Green, g (s)	20.5	20.5						34.6		34.6	34.6	
Actuated g/C Ratio	0.30	0.30						0.51		0.51	0.51	
Clearance Time (s)	6.1	6.1						6.1		6.1	6.1	
Vehicle Extension (s)	2.1	2.1						2.1		2.1	2.1	
Lane Grp Cap (vph)	497	436						888		237	891	
v/s Ratio Prot		c0.24						c0.37			0.20	
v/s Ratio Perm	0.13									0.11		
v/c Ratio	0.41	0.80						0.72		0.22	0.39	
Uniform Delay, d1	18.6	21.5						12.6		9.0	9.9	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	0.2	9.7						5.0		2.2	1.3	
Delay (s)	18.9	31.2						17.6		11.2	11.2	
Level of Service	B	C						B		B	B	
Approach Delay (s)		27.7			0.0			17.6			11.2	
Approach LOS		C			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	67.3	Sum of lost time (s)	12.2
Intersection Capacity Utilization	101.7%	ICU Level of Service	G
Analysis Period (min)	15		

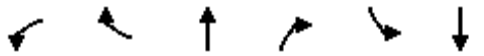
c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	98	218	337	206	373	404
Future Volume (vph)	98	218	337	206	373	404
Lane Group Flow (vph)	107	237	366	224	405	439
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	6.0	8.0
Minimum Split (s)	26.3	26.3	30.3	30.3	9.0	30.3
Total Split (s)	36.3	36.3	41.3	41.3	28.0	69.3
Total Split (%)	34.4%	34.4%	39.1%	39.1%	26.5%	65.6%
Yellow Time (s)	4.1	4.1	4.1	4.1	3.0	4.1
All-Red Time (s)	2.2	2.2	2.2	2.2	0.0	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	Max	Max	None	Max
v/c Ratio	0.56	0.59	0.40	0.31	0.57	0.35
Control Delay	47.0	11.5	14.8	7.0	7.0	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	11.5	14.8	7.0	7.0	5.7
Queue Length 50th (m)	17.0	0.0	32.3	6.7	16.4	22.0
Queue Length 95th (m)	32.7	19.1	68.2	24.8	34.2	43.0
Internal Link Dist (m)	12.9		86.7			171.2
Turn Bay Length (m)	30.0			25.0	15.0	
Base Capacity (vph)	499	661	924	712	840	1267
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.36	0.40	0.31	0.48	0.35

Intersection Summary

Cycle Length: 105.6
Actuated Cycle Length: 87.2
Natural Cycle: 70
Control Type: Actuated-Uncoordinated

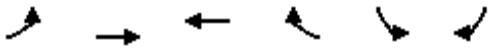
Splits and Phases: 4: Victoria Avenue & Bender Street



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	98	218	337	206	373	404
Future Volume (vph)	98	218	337	206	373	404
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.98	1.00	0.85	1.00	1.00
Flpb, ped/bikes	0.89	1.00	1.00	1.00	0.97	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1490	1471	1701	1239	1613	1752
Flt Permitted	0.95	1.00	1.00	1.00	0.47	1.00
Satd. Flow (perm)	1490	1471	1701	1239	797	1752
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	107	237	366	224	405	439
RTOR Reduction (vph)	0	206	0	61	0	0
Lane Group Flow (vph)	107	31	366	163	405	439
Confl. Peds. (#/hr)	52	1		74	74	
Heavy Vehicles (%)	0%	0%	4%	3%	1%	1%
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Actuated Green, G (s)	11.5	11.5	47.4	47.4	63.1	63.1
Effective Green, g (s)	11.5	11.5	47.4	47.4	63.1	63.1
Actuated g/C Ratio	0.13	0.13	0.54	0.54	0.72	0.72
Clearance Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Vehicle Extension (s)	2.5	2.5	3.5	3.5	3.0	3.5
Lane Grp Cap (vph)	196	193	924	673	695	1267
v/s Ratio Prot			0.22		c0.08	0.25
v/s Ratio Perm	c0.07	0.02		0.13	c0.34	
v/c Ratio	0.55	0.16	0.40	0.24	0.58	0.35
Uniform Delay, d1	35.4	33.6	11.6	10.5	4.9	4.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.4	0.3	1.3	0.9	1.3	0.8
Delay (s)	37.9	33.9	12.8	11.3	6.2	5.2
Level of Service	D	C	B	B	A	A
Approach Delay (s)	35.1		12.3			5.7
Approach LOS	D		B			A

Intersection Summary			
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	87.2	Sum of lost time (s)	15.6
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	197	307	166	18	24	142
Future Volume (Veh/h)	197	307	166	18	24	142
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)	214	334	180	20	26	154
Pedestrians		14	13		35	
Lane Width (m)		3.7	3.7		3.7	
Walking Speed (m/s)		1.1	1.1		1.1	
Percent Blockage		1	1		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		37	79			
pX, platoon unblocked						
vC, conflicting volume	235				1000	239
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	235				1000	239
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	84				88	80
cM capacity (veh/h)	1300				217	768

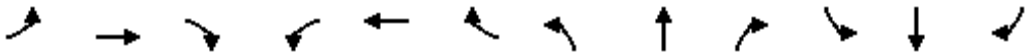
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	214	334	200	180
Volume Left	214	0	0	26
Volume Right	0	0	20	154
cSH	1300	1700	1700	562
Volume to Capacity	0.16	0.20	0.12	0.32
Queue Length 95th (m)	4.5	0.0	0.0	10.4
Control Delay (s)	8.3	0.0	0.0	14.4
Lane LOS	A			B
Approach Delay (s)	3.2		0.0	14.4
Approach LOS				B

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Configurations								
Traffic Volume (vph)	151	147	118	12	25	17	43	18
Future Volume (vph)	151	147	118	12	25	17	43	18
Lane Group Flow (vph)	0	324	128	0	42	114	47	141
Turn Type	Perm	NA	Over	Perm	NA	NA	Perm	NA
Protected Phases		8	6		8	6		2
Permitted Phases	8			8			6	
Detector Phase	8	8	6	8	8	6	6	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	26.3	42.1	42.1	26.3	26.3	14.3
Total Split (s)	42.1	42.1	41.3	42.1	42.1	41.3	41.3	34.3
Total Split (%)	35.8%	35.8%	35.1%	35.8%	35.8%	35.1%	35.1%	29.1%
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	2.2	3.0	3.0	2.2	2.2	2.2
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		7.1	6.3		7.1	6.3	6.3	6.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	Min	None	None	Min	Min	Min
v/c Ratio		0.69	0.29		0.09	0.40	0.17	0.48
Control Delay		26.4	27.7		14.0	31.3	2.4	21.7
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		26.5	27.7		14.0	31.3	2.4	21.7
Queue Length 50th (m)		30.1	7.2		2.9	11.6	0.0	7.4
Queue Length 95th (m)		65.4	18.5		9.7	31.2	1.8	26.5
Internal Link Dist (m)		54.9			36.6	34.4		24.4
Turn Bay Length (m)			40.0					
Base Capacity (vph)		746	1500		782	963	717	722
Starvation Cap Reductn		6	0		0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0
Reduced v/c Ratio		0.44	0.09		0.05	0.12	0.07	0.20

Intersection Summary
Cycle Length: 117.7
Actuated Cycle Length: 63.8
Natural Cycle: 85
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Bender Street & Ontario Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	147	118	12	25	2	88	17	43	29	18	82
Future Volume (vph)	151	147	118	12	25	2	88	17	43	29	18	82
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Lane Util. Factor		1.00	0.88		1.00			1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		1.00			1.00	0.88		0.94	
Flpb, ped/bikes		0.97	1.00		0.99			1.00	1.00		1.00	
Frt		1.00	0.85		0.99			1.00	0.85		0.91	
Flt Protected		0.98	1.00		0.98			0.96	1.00		0.99	
Satd. Flow (prot)		1619	2647		1582			1698	1328		1485	
Flt Permitted		0.82	1.00		0.87			0.96	1.00		0.99	
Satd. Flow (perm)		1358	2647		1392			1698	1328		1485	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	164	160	128	13	27	2	96	18	47	32	20	89
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	39	0	58	0
Lane Group Flow (vph)	0	324	128	0	41	0	0	114	8	0	83	0
Confl. Peds. (#/hr)	79		109	109		79	23		113	113		23
Heavy Vehicles (%)	2%	4%	0%	25%	0%	0%	0%	0%	0%	7%	0%	0%
Turn Type	Perm	NA	Over	Perm	NA		Split	NA	Perm	Split	NA	
Protected Phases		8	6		8		6	6		2	2	
Permitted Phases	8			8					6			
Actuated Green, G (s)		22.8	10.6		22.8			10.6	10.6		10.0	
Effective Green, g (s)		22.8	10.6		22.8			10.6	10.6		10.0	
Actuated g/C Ratio		0.36	0.17		0.36			0.17	0.17		0.16	
Clearance Time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Vehicle Extension (s)		3.5	3.0		3.5			3.0	3.0		3.0	
Lane Grp Cap (vph)		490	444		502			285	223		235	
v/s Ratio Prot			0.05					c0.07			c0.06	
v/s Ratio Perm		c0.24			0.03				0.01			
v/c Ratio		0.66	0.29		0.08			0.40	0.04		0.35	
Uniform Delay, d1		16.9	23.0		13.3			23.4	22.0		23.7	
Progression Factor		1.00	1.00		1.00			1.00	1.00		1.00	
Incremental Delay, d2		3.5	0.4		0.1			0.9	0.1		0.9	
Delay (s)		20.4	23.3		13.3			24.3	22.0		24.6	
Level of Service		C	C		B			C	C		C	
Approach Delay (s)		21.2			13.3			23.7			24.6	
Approach LOS		C			B			C			C	

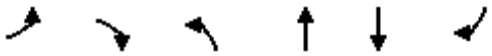
Intersection Summary			
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	63.1	Sum of lost time (s)	19.7
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBR	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	213	32	75	466
Future Volume (vph)	213	32	75	466
Lane Group Flow (vph)	232	35	82	508
Turn Type	Perm	Prot	NA	NA
Protected Phases		5	2	6
Permitted Phases	4			
Detector Phase	4	5	2	6
Switch Phase				
Minimum Initial (s)	1.0	8.0	10.0	10.0
Minimum Split (s)	3.0	13.0	17.0	17.0
Total Split (s)	3.0	25.0	72.0	47.0
Total Split (%)	4.0%	33.3%	96.0%	62.7%
Yellow Time (s)	2.0	3.0	5.0	5.0
All-Red Time (s)	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	2.0	5.0	7.0	7.0
Lead/Lag		Lead		Lag
Lead-Lag Optimize?				
Recall Mode	None	None	Max	Max
v/c Ratio	0.45	0.21	0.06	0.20
Control Delay	2.8	33.8	0.8	2.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	2.8	33.8	0.8	2.9
Queue Length 50th (m)	0.0	4.6	0.7	2.6
Queue Length 95th (m)	0.0	12.5	1.6	17.2
Internal Link Dist (m)			45.6	34.5
Turn Bay Length (m)		20.0		
Base Capacity (vph)	519	407	1446	2571
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.45	0.09	0.06	0.20

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Natural Cycle: 40
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Falls Avenue & Bender Street



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	213	32	75	466	1
Future Volume (vph)	0	213	32	75	466	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)		2.0	5.0	7.0	7.0	
Lane Util. Factor		1.00	1.00	1.00	0.95	
Frpb, ped/bikes		0.58	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	
Frt		0.86	1.00	1.00	1.00	
Flt Protected		1.00	0.95	1.00	1.00	
Satd. Flow (prot)		858	1528	1669	3232	
Flt Permitted		1.00	0.95	1.00	1.00	
Satd. Flow (perm)		858	1528	1669	3232	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	232	35	82	507	1
RTOR Reduction (vph)	0	229	0	0	0	0
Lane Group Flow (vph)	0	3	35	82	508	0
Confl. Peds. (#/hr)	37	37	67			67
Heavy Vehicles (%)	0%	4%	10%	6%	4%	0%
Turn Type		Perm	Prot	NA	NA	
Protected Phases			5	2	6	
Permitted Phases		4				
Actuated Green, G (s)		1.0	3.3	68.0	59.7	
Effective Green, g (s)		1.0	3.3	68.0	59.7	
Actuated g/C Ratio		0.01	0.04	0.87	0.77	
Clearance Time (s)		2.0	5.0	7.0	7.0	
Vehicle Extension (s)		0.2	2.0	4.5	4.5	
Lane Grp Cap (vph)		11	64	1455	2473	
v/s Ratio Prot			c0.02	0.05	c0.16	
v/s Ratio Perm		c0.00				
v/c Ratio		0.27	0.55	0.06	0.21	
Uniform Delay, d1		38.1	36.6	0.7	2.5	
Progression Factor		1.00	1.00	1.00	1.00	
Incremental Delay, d2		4.8	5.0	0.1	0.2	
Delay (s)		42.9	41.7	0.7	2.7	
Level of Service		D	D	A	A	
Approach Delay (s)	42.9			13.0	2.7	
Approach LOS	D			B	A	

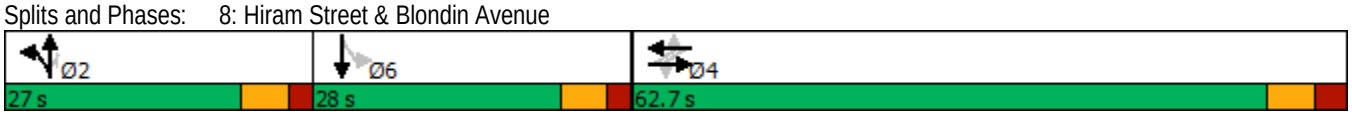
Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	78.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	5	137	85	62	32	4	139	1	224
Future Volume (vph)	5	137	85	62	32	4	139	1	224
Lane Group Flow (vph)	0	177	0	164	35	4	151	0	272
Turn Type	Perm	NA	Perm	NA	Split	NA	Perm	Perm	NA
Protected Phases		4		4	2	2			6
Permitted Phases	4		4				2	6	
Detector Phase	4	4	4	4	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	42.1	42.1	26.3	26.3	26.3	14.3	14.3
Total Split (s)	62.7	62.7	62.7	62.7	27.0	27.0	27.0	28.0	28.0
Total Split (%)	53.3%	53.3%	53.3%	53.3%	22.9%	22.9%	22.9%	23.8%	23.8%
Yellow Time (s)	4.1	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	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		7.1		7.1	6.3	6.3	6.3		6.3
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio		0.52		0.69	0.08	0.01	0.30		0.55
Control Delay		31.8		44.2	23.6	23.0	6.4		29.5
Queue Delay		0.0		0.0	0.0	0.0	0.0		0.0
Total Delay		31.8		44.2	23.6	23.0	6.4		29.5
Queue Length 50th (m)		22.1		22.2	3.8	0.4	0.0		33.2
Queue Length 95th (m)		39.7		41.3	11.4	2.8	13.6		62.1
Internal Link Dist (m)		59.4		95.8		20.6			32.1
Turn Bay Length (m)									
Base Capacity (vph)		1229		867	450	474	501		491
Starvation Cap Reductn		0		0	0	0	0		0
Spillback Cap Reductn		0		0	0	0	0		0
Storage Cap Reductn		0		0	0	0	0		0
Reduced v/c Ratio		0.14		0.19	0.08	0.01	0.30		0.55

Intersection Summary
Cycle Length: 117.7
Actuated Cycle Length: 77.4
Natural Cycle: 85
Control Type: Semi Act-Uncoord

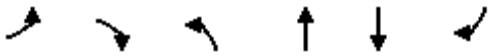
Splits and Phases: 8: Hiram Street & Blondin Avenue



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	137	21	85	62	5	32	4	139	1	224	26
Future Volume (vph)	5	137	21	85	62	5	32	4	139	1	224	26
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Lane Util. Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Frpb, ped/bikes		0.99			1.00		1.00	1.00	0.98		1.00	
Flpb, ped/bikes		1.00			0.99		1.00	1.00	1.00		1.00	
Frt		0.98			1.00		1.00	1.00	0.85		0.99	
Flt Protected		1.00			0.97		0.95	1.00	1.00		1.00	
Satd. Flow (prot)		1725			1646		1681	1769	1463		1740	
Flt Permitted		0.99			0.72		0.95	1.00	1.00		1.00	
Satd. Flow (perm)		1708			1212		1681	1769	1463		1739	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	149	23	92	67	5	35	4	151	1	243	28
RTOR Reduction (vph)	0	7	0	0	2	0	0	0	110	0	3	0
Lane Group Flow (vph)	0	170	0	0	162	0	35	4	41	0	269	0
Confl. Peds. (#/hr)	2		25	25		3	3		5	5		3
Heavy Vehicles (%)	0%	0%	0%	0%	7%	0%	0%	0%	1%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		4			4		2	2			6	
Permitted Phases	4			4					2	6		
Actuated Green, G (s)		15.1			15.1		20.8	20.8	20.8		21.8	
Effective Green, g (s)		15.1			15.1		20.8	20.8	20.8		21.8	
Actuated g/C Ratio		0.20			0.20		0.27	0.27	0.27		0.28	
Clearance Time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)		333			236		451	475	393		489	
v/s Ratio Prot							0.02	0.00				
v/s Ratio Perm		0.10			c0.13				c0.03		c0.15	
v/c Ratio		0.51			0.69		0.08	0.01	0.10		0.55	
Uniform Delay, d1		27.8			29.0		21.1	20.7	21.3		23.6	
Progression Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		1.2			8.1		0.3	0.0	0.5		4.4	
Delay (s)		29.1			37.0		21.5	20.8	21.8		28.0	
Level of Service		C			D		C	C	C		C	
Approach Delay (s)		29.1			37.0			21.7			28.0	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	77.4	Sum of lost time (s)	19.7
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		

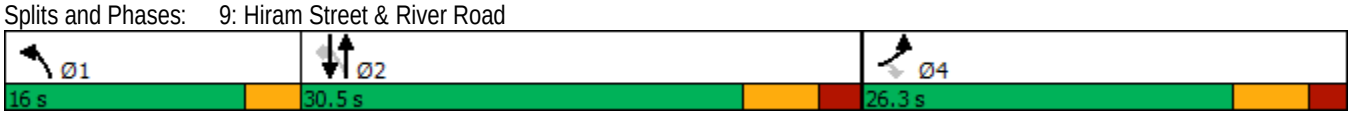
c Critical Lane Group

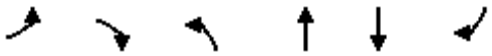


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	141	113	256	346	266	57
Future Volume (vph)	141	113	256	346	266	57
Lane Group Flow (vph)	153	123	278	376	289	62
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Detector Phase	4	4	1	2	2	2
Switch Phase						
Minimum Initial (s)	8.0	8.0	6.0	10.0	10.0	10.0
Minimum Split (s)	23.3	23.3	9.0	27.5	27.5	27.5
Total Split (s)	26.3	26.3	16.0	30.5	30.5	30.5
Total Split (%)	36.1%	36.1%	22.0%	41.9%	41.9%	41.9%
Yellow Time (s)	4.1	4.1	3.0	4.1	4.1	4.1
All-Red Time (s)	2.2	2.2	0.0	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lead/Lag			Lead	Lag	Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Max	Max	Max
v/c Ratio	0.52	0.35	0.41	0.54	0.41	0.11
Control Delay	29.4	8.1	6.5	18.5	16.2	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.4	8.1	6.5	18.5	16.2	5.1
Queue Length 50th (m)	15.1	0.0	9.4	29.0	20.8	0.0
Queue Length 95th (m)	32.0	11.4	22.6	64.4	47.7	6.7
Internal Link Dist (m)	95.8			80.7	33.4	
Turn Bay Length (m)						
Base Capacity (vph)	568	562	758	690	704	550
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.22	0.37	0.54	0.41	0.11

Intersection Summary
Cycle Length: 72.8
Actuated Cycle Length: 59.5
Natural Cycle: 60
Control Type: Actuated-Uncoordinated

Splits and Phases: 9: Hiram Street & River Road



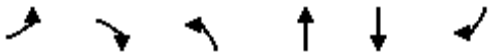


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	141	113	256	346	266	57
Future Volume (vph)	141	113	256	346	266	57
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.95	1.00	1.00	1.00	0.88
Flpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1681	1433	1571	1701	1735	1298
Flt Permitted	0.95	1.00	0.58	1.00	1.00	1.00
Satd. Flow (perm)	1681	1433	954	1701	1735	1298
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	153	123	278	376	289	62
RTOR Reduction (vph)	0	101	0	0	0	37
Lane Group Flow (vph)	153	22	278	376	289	25
Confl. Peds. (#/hr)	10	16	72			72
Heavy Vehicles (%)	0%	0%	3%	4%	2%	2%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Actuated Green, G (s)	10.5	10.5	33.2	24.2	24.2	24.2
Effective Green, g (s)	10.5	10.5	33.2	24.2	24.2	24.2
Actuated g/C Ratio	0.18	0.18	0.56	0.41	0.41	0.41
Clearance Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Vehicle Extension (s)	2.2	2.2	2.2	2.2	2.2	2.2
Lane Grp Cap (vph)	296	252	625	691	705	527
v/s Ratio Prot	c0.09		c0.07	c0.22	0.17	
v/s Ratio Perm		0.02	0.18			0.02
v/c Ratio	0.52	0.09	0.44	0.54	0.41	0.05
Uniform Delay, d1	22.2	20.5	7.1	13.4	12.6	10.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.1	0.3	3.1	1.8	0.2
Delay (s)	23.0	20.6	7.3	16.5	14.3	10.9
Level of Service	C	C	A	B	B	B
Approach Delay (s)	21.9			12.6	13.7	
Approach LOS	C			B	B	

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	59.5	Sum of lost time (s)	15.8
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

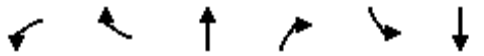
2025 Future Background SAT



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	343	386	300	139
Future Volume (Veh/h)	0	0	343	386	300	139
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	373	420	326	151
Pedestrians	92				1	
Lane Width (m)	0.0				3.7	
Walking Speed (m/s)	1.1				1.1	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				118		
pX, platoon unblocked						
vC, conflicting volume	1660	494	569			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1660	494	569			
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	63			
cM capacity (veh/h)	68	580	1008			

Direction, Lane #	NB 1	NB 2	SB 1
Volume Total	373	420	477
Volume Left	373	0	0
Volume Right	0	0	151
cSH	1008	1700	1700
Volume to Capacity	0.37	0.25	0.28
Queue Length 95th (m)	13.1	0.0	0.0
Control Delay (s)	10.7	0.0	0.0
Lane LOS	B		
Approach Delay (s)	5.0		0.0
Approach LOS			

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	114	40	696	0	0	301
Future Volume (Veh/h)	114	40	696	0	0	301
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)	124	43	757	0	0	327
Pedestrians	78					1
Lane Width (m)	3.7					3.7
Walking Speed (m/s)	1.1					1.1
Percent Blockage	7					0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			53			
pX, platoon unblocked	0.65	0.65			0.65	
vC, conflicting volume	1162	836			835	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	977	473			472	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	26	88			100	
cM capacity (veh/h)	168	356			660	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	167	757	327
Volume Left	124	0	0
Volume Right	43	0	0
cSH	195	1700	1700
Volume to Capacity	0.86	0.45	0.19
Queue Length 95th (m)	48.4	0.0	0.0
Control Delay (s)	81.9	0.0	0.0
Lane LOS	F		
Approach Delay (s)	81.9	0.0	0.0
Approach LOS	F		

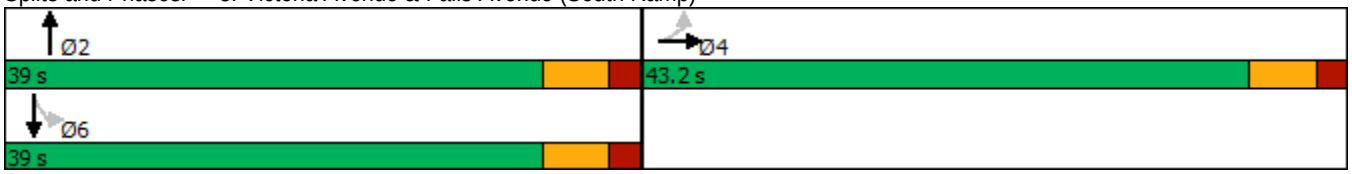
Intersection Summary			
Average Delay	10.9		
Intersection Capacity Utilization	112.8%	ICU Level of Service	H
Analysis Period (min)	15		

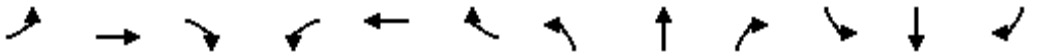
Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	112	2	546	27	385
Future Volume (vph)	112	2	546	27	385
Lane Group Flow (vph)	122	681	613	29	418
Turn Type	Perm	NA	NA	Perm	NA
Protected Phases		4	2		6
Permitted Phases	4			6	
Detector Phase	4	4	2	6	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	28.1	28.1	24.1	24.1	24.1
Total Split (s)	43.2	43.2	39.0	39.0	39.0
Total Split (%)	52.6%	52.6%	47.4%	47.4%	47.4%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	Max	Max	Max
v/c Ratio	0.17	0.95	0.84	0.19	0.56
Control Delay	14.4	40.2	33.9	20.0	21.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	14.4	40.2	33.9	20.0	21.9
Queue Length 50th (m)	10.9	73.0	86.3	2.9	50.1
Queue Length 95th (m)	20.7	#145.6	#148.2	9.2	78.4
Internal Link Dist (m)		82.5	171.2		29.4
Turn Bay Length (m)				10.0	
Base Capacity (vph)	791	787	733	154	746
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.15	0.87	0.84	0.19	0.56

Intersection Summary

Cycle Length: 82.2
Actuated Cycle Length: 78.4
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Victoria Avenue & Falls Avenue (South Ramp)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	2	625	0	0	0	0	546	18	27	385	0
Future Volume (vph)	112	2	625	0	0	0	0	546	18	27	385	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.1	6.1						6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97						1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00						1.00		0.98	1.00	
Frt	1.00	0.85						1.00		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1664	1454						1736		1654	1769	
Flt Permitted	0.95	1.00						1.00		0.21	1.00	
Satd. Flow (perm)	1664	1454						1736		360	1769	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	122	2	679	0	0	0	0	593	20	29	418	0
RTOR Reduction (vph)	0	106	0	0	0	0	0	1	0	0	0	0
Lane Group Flow (vph)	122	575	0	0	0	0	0	612	0	29	418	0
Confl. Peds. (#/hr)			8	8			63		33	33		63
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	0%	1%	6%	0%	0%	0%
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	33.1	33.1						33.1		33.1	33.1	
Effective Green, g (s)	33.1	33.1						33.1		33.1	33.1	
Actuated g/C Ratio	0.42	0.42						0.42		0.42	0.42	
Clearance Time (s)	6.1	6.1						6.1		6.1	6.1	
Vehicle Extension (s)	2.1	2.1						2.1		2.1	2.1	
Lane Grp Cap (vph)	702	613						732		151	746	
v/s Ratio Prot		c0.40						c0.35			0.24	
v/s Ratio Perm	0.07									0.08		
v/c Ratio	0.17	0.94						0.84		0.19	0.56	
Uniform Delay, d1	14.1	21.7						20.2		14.2	17.1	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	0.1	21.8						10.9		2.8	3.0	
Delay (s)	14.2	43.4						31.1		17.1	20.2	
Level of Service	B	D						C		B	C	
Approach Delay (s)		39.0			0.0			31.1			20.0	
Approach LOS		D			A			C			B	

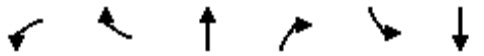
Intersection Summary			
HCM 2000 Control Delay	31.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	78.4	Sum of lost time (s)	12.2
Intersection Capacity Utilization	112.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	132	198	322	214	545	465
Future Volume (vph)	132	198	322	214	545	465
Lane Group Flow (vph)	143	215	350	233	592	505
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	6.0	8.0
Minimum Split (s)	26.3	26.3	30.3	30.3	9.0	30.3
Total Split (s)	36.3	36.3	41.3	41.3	28.0	69.3
Total Split (%)	34.4%	34.4%	39.1%	39.1%	26.5%	65.6%
Yellow Time (s)	4.1	4.1	4.1	4.1	3.0	4.1
All-Red Time (s)	2.2	2.2	2.2	2.2	0.0	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	Max	Max	None	Max
v/c Ratio	0.63	0.61	0.47	0.37	0.76	0.40
Control Delay	48.1	12.9	22.5	9.6	12.5	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.1	12.9	22.5	9.6	12.5	6.8
Queue Length 50th (m)	23.1	0.0	42.2	9.0	30.9	28.9
Queue Length 95th (m)	41.4	19.3	75.7	28.6	68.2	56.0
Internal Link Dist (m)	12.9		86.7			171.2
Turn Bay Length (m)	30.0			25.0	15.0	
Base Capacity (vph)	534	540	742	638	813	1260
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.40	0.47	0.37	0.73	0.40

Intersection Summary
Cycle Length: 105.6
Actuated Cycle Length: 88.6
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

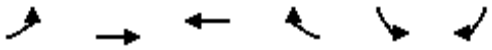
Splits and Phases: 4: Victoria Avenue & Bender Street



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	132	198	322	214	545	465
Future Volume (vph)	132	198	322	214	545	465
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.81	1.00	0.89	1.00	1.00
Flpb, ped/bikes	0.96	1.00	1.00	1.00	0.98	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1591	1223	1735	1322	1649	1769
Flt Permitted	0.95	1.00	1.00	1.00	0.43	1.00
Satd. Flow (perm)	1591	1223	1735	1322	748	1769
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	143	215	350	233	592	505
RTOR Reduction (vph)	0	184	0	83	0	0
Lane Group Flow (vph)	143	31	350	150	592	505
Confl. Peds. (#/hr)	20	77		51	51	
Heavy Vehicles (%)	1%	0%	2%	1%	0%	0%
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Actuated Green, G (s)	12.8	12.8	37.9	37.9	63.1	63.1
Effective Green, g (s)	12.8	12.8	37.9	37.9	63.1	63.1
Actuated g/C Ratio	0.14	0.14	0.43	0.43	0.71	0.71
Clearance Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Vehicle Extension (s)	2.5	2.5	3.5	3.5	3.0	3.5
Lane Grp Cap (vph)	230	176	743	566	759	1261
v/s Ratio Prot			0.20		c0.20	0.29
v/s Ratio Perm	c0.09	0.03		0.11	c0.36	
v/c Ratio	0.62	0.18	0.47	0.26	0.78	0.40
Uniform Delay, d1	35.6	33.2	18.1	16.3	6.9	5.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.5	0.4	2.1	1.1	5.1	1.0
Delay (s)	40.0	33.6	20.3	17.4	12.0	6.1
Level of Service	D	C	C	B	B	A
Approach Delay (s)	36.2		19.1			9.2
Approach LOS	D		B			A

Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	88.5	Sum of lost time (s)	15.6
Intersection Capacity Utilization	82.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	201	463	159	21	30	165
Future Volume (Veh/h)	201	463	159	21	30	165
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)	218	503	173	23	33	179
Pedestrians		2	2		53	
Lane Width (m)		3.7	3.7		3.7	
Walking Speed (m/s)		1.1	1.1		1.1	
Percent Blockage		0	0		5	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		37	79			
pX, platoon unblocked						
vC, conflicting volume	249				1178	240
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	249				1178	240
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	83				80	77
cM capacity (veh/h)	1263				167	763

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	218	503	196	212
Volume Left	218	0	0	33
Volume Right	0	0	23	179
cSH	1263	1700	1700	490
Volume to Capacity	0.17	0.30	0.12	0.43
Queue Length 95th (m)	4.7	0.0	0.0	16.4
Control Delay (s)	8.4	0.0	0.0	17.8
Lane LOS	A			C
Approach Delay (s)	2.6		0.0	17.8
Approach LOS				C

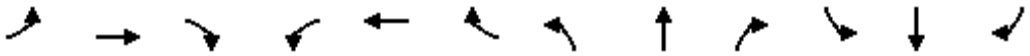
Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	48.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Configurations								
Traffic Volume (vph)	205	237	158	8	27	21	60	21
Future Volume (vph)	205	237	158	8	27	21	60	21
Lane Group Flow (vph)	0	481	172	0	46	98	65	157
Turn Type	Perm	NA	Over	Perm	NA	NA	Perm	NA
Protected Phases		8	6		8	6		2
Permitted Phases	8			8			6	
Detector Phase	8	8	6	8	8	6	6	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	26.3	42.1	42.1	26.3	26.3	14.3
Total Split (s)	72.9	72.9	26.3	72.9	72.9	26.3	26.3	18.5
Total Split (%)	61.9%	61.9%	22.3%	61.9%	61.9%	22.3%	22.3%	15.7%
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	2.2	3.0	3.0	2.2	2.2	2.2
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		7.1	6.3		7.1	6.3	6.3	6.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	Min	None	None	Min	Min	Min
v/c Ratio		0.82	0.44		0.07	0.39	0.23	0.59
Control Delay		30.4	35.9		10.5	37.7	5.5	29.7
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		30.4	35.9		10.5	37.7	5.5	29.7
Queue Length 50th (m)		54.5	12.3		2.8	12.3	0.0	10.0
Queue Length 95th (m)		101.9	28.2		8.8	32.2	5.9	#39.1
Internal Link Dist (m)		54.9			36.6	34.4		24.4
Turn Bay Length (m)			40.0					
Base Capacity (vph)		1184	748		1286	481	452	307
Starvation Cap Reductn		47	0		0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0
Reduced v/c Ratio		0.42	0.23		0.04	0.20	0.14	0.51

Intersection Summary

Cycle Length: 117.7
Actuated Cycle Length: 74.1
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Bender Street & Ontario Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	205	237	158	8	27	7	69	21	60	23	21	100
Future Volume (vph)	205	237	158	8	27	7	69	21	60	23	21	100
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Lane Util. Factor		1.00	0.88		1.00			1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		0.98			1.00	0.93		0.93	
Flpb, ped/bikes		0.96	1.00		1.00			1.00	1.00		1.00	
Frt		1.00	0.85		0.98			1.00	0.85		0.91	
Flt Protected		0.98	1.00		0.99			0.96	1.00		0.99	
Satd. Flow (prot)		1645	2647		1629			1704	1405		1449	
Flt Permitted		0.83	1.00		0.91			0.96	1.00		0.99	
Satd. Flow (perm)		1396	2647		1491			1704	1405		1449	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	223	258	172	9	29	8	75	23	65	25	23	109
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	55	0	66	0
Lane Group Flow (vph)	0	481	172	0	42	0	0	98	10	0	91	0
Confl. Peds. (#/hr)	96		60	60		96	23		50	50		23
Heavy Vehicles (%)	0%	1%	0%	0%	4%	0%	0%	0%	0%	0%	15%	0%
Turn Type	Perm	NA	Over	Perm	NA		Split	NA	Perm	Split	NA	
Protected Phases		8	6		8		6	6		2	2	
Permitted Phases	8			8					6			
Actuated Green, G (s)		32.2	10.9		32.2			10.9	10.9		10.4	
Effective Green, g (s)		32.2	10.9		32.2			10.9	10.9		10.4	
Actuated g/C Ratio		0.44	0.15		0.44			0.15	0.15		0.14	
Clearance Time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Vehicle Extension (s)		3.5	3.0		3.5			3.0	3.0		3.0	
Lane Grp Cap (vph)		614	394		655			253	209		205	
v/s Ratio Prot			c0.06					0.06			c0.06	
v/s Ratio Perm		c0.34			0.03				0.01			
v/c Ratio		0.78	0.44		0.06			0.39	0.05		0.44	
Uniform Delay, d1		17.5	28.4		11.8			28.1	26.7		28.8	
Progression Factor		1.00	1.00		1.00			1.00	1.00		1.00	
Incremental Delay, d2		6.7	0.8		0.0			1.0	0.1		1.5	
Delay (s)		24.2	29.1		11.9			29.1	26.8		30.3	
Level of Service		C	C		B			C	C		C	
Approach Delay (s)		25.5			11.9			28.2			30.3	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	73.2	Sum of lost time (s)	19.7
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

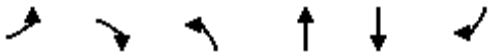
c Critical Lane Group

Lane Group	EBR	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	283	31	88	776
Future Volume (vph)	283	31	88	776
Lane Group Flow (vph)	308	34	96	844
Turn Type	Perm	Prot	NA	NA
Protected Phases		5	2	6
Permitted Phases	4			
Detector Phase	4	5	2	6
Switch Phase				
Minimum Initial (s)	1.0	8.0	10.0	10.0
Minimum Split (s)	3.0	13.0	17.0	17.0
Total Split (s)	3.0	25.0	72.0	47.0
Total Split (%)	4.0%	33.3%	96.0%	62.7%
Yellow Time (s)	2.0	3.0	5.0	5.0
All-Red Time (s)	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	2.0	5.0	7.0	7.0
Lead/Lag		Lead		Lag
Lead-Lag Optimize?				
Recall Mode	None	None	Max	Max
v/c Ratio	0.68	0.19	0.06	0.32
Control Delay	8.7	33.5	0.8	3.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	8.7	33.5	0.8	3.3
Queue Length 50th (m)	0.0	4.5	0.9	5.0
Queue Length 95th (m)	#2.2	12.2	1.8	29.6
Internal Link Dist (m)			45.6	34.5
Turn Bay Length (m)		20.0		
Base Capacity (vph)	452	435	1518	2677
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.68	0.08	0.06	0.32

Intersection Summary

Cycle Length: 75
Actuated Cycle Length: 75
Natural Cycle: 55
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Falls Avenue & Bender Street



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	283	31	88	776	1
Future Volume (vph)	0	283	31	88	776	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)		2.0	5.0	7.0	7.0	
Lane Util. Factor		1.00	1.00	1.00	0.95	
Frpb, ped/bikes		0.57	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	
Frt		0.86	1.00	1.00	1.00	
Flt Protected		1.00	0.95	1.00	1.00	
Satd. Flow (prot)		870	1632	1752	3361	
Flt Permitted		1.00	0.95	1.00	1.00	
Satd. Flow (perm)		870	1632	1752	3361	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	308	34	96	843	1
RTOR Reduction (vph)	0	304	0	0	0	0
Lane Group Flow (vph)	0	4	34	96	844	0
Confl. Peds. (#/hr)	18	39	16			16
Heavy Vehicles (%)	0%	1%	3%	1%	0%	0%
Turn Type		Perm	Prot	NA	NA	
Protected Phases			5	2	6	
Permitted Phases		4				
Actuated Green, G (s)		1.0	3.3	68.0	59.7	
Effective Green, g (s)		1.0	3.3	68.0	59.7	
Actuated g/C Ratio		0.01	0.04	0.87	0.77	
Clearance Time (s)		2.0	5.0	7.0	7.0	
Vehicle Extension (s)		0.2	2.0	4.5	4.5	
Lane Grp Cap (vph)		11	69	1527	2572	
v/s Ratio Prot			c0.02	0.05	c0.25	
v/s Ratio Perm		c0.00				
v/c Ratio		0.36	0.49	0.06	0.33	
Uniform Delay, d1		38.2	36.5	0.7	2.9	
Progression Factor		1.00	1.00	1.00	1.00	
Incremental Delay, d2		7.2	2.0	0.1	0.3	
Delay (s)		45.3	38.5	0.8	3.2	
Level of Service		D	D	A	A	
Approach Delay (s)	45.3			10.6	3.2	
Approach LOS	D			B	A	

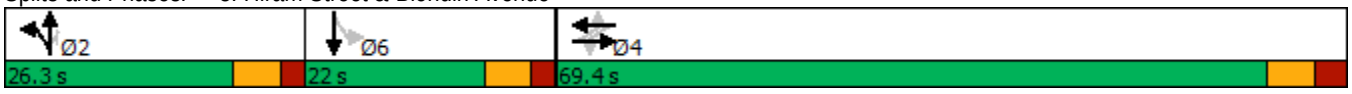
Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	78.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	5	197	89	88	22	3	148	2	254
Future Volume (vph)	5	197	89	88	22	3	148	2	254
Lane Group Flow (vph)	0	244	0	203	24	3	161	0	308
Turn Type	Perm	NA	Perm	NA	Split	NA	Perm	Perm	NA
Protected Phases		4		4	2	2			6
Permitted Phases	4		4				2	6	
Detector Phase	4	4	4	4	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	42.1	42.1	26.3	26.3	26.3	14.3	14.3
Total Split (s)	69.4	69.4	69.4	69.4	26.3	26.3	26.3	22.0	22.0
Total Split (%)	59.0%	59.0%	59.0%	59.0%	22.3%	22.3%	22.3%	18.7%	18.7%
Yellow Time (s)	4.1	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	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		7.1		7.1	6.3	6.3	6.3		6.3
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio		0.61		0.78	0.05	0.01	0.31		0.81
Control Delay		30.7		46.7	21.6	21.3	6.2		46.2
Queue Delay		0.0		0.0	0.0	0.0	0.0		0.0
Total Delay		30.7		46.7	21.6	21.3	6.2		46.2
Queue Length 50th (m)		28.7		25.5	2.4	0.3	0.0		39.1
Queue Length 95th (m)		49.0		47.3	8.2	2.3	13.5		#89.2
Internal Link Dist (m)		59.4		95.8		20.6			32.1
Turn Bay Length (m)									
Base Capacity (vph)		1492		968	467	491	515		382
Starvation Cap Reductn		0		0	0	0	0		0
Spillback Cap Reductn		0		0	0	0	0		0
Storage Cap Reductn		0		0	0	0	0		0
Reduced v/c Ratio		0.16		0.21	0.05	0.01	0.31		0.81

Intersection Summary
Cycle Length: 117.7
Actuated Cycle Length: 72.2
Natural Cycle: 85
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 8: Hiram Street & Blondin Avenue



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	197	23	89	88	9	22	3	148	2	254	28
Future Volume (vph)	5	197	23	89	88	9	22	3	148	2	254	28
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Lane Util. Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Frpb, ped/bikes		1.00			1.00		1.00	1.00	0.97		1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00	1.00		1.00	
Frt		0.99			0.99		1.00	1.00	0.85		0.99	
Flt Protected		1.00			0.98		0.95	1.00	1.00		1.00	
Satd. Flow (prot)		1738			1630		1681	1769	1449		1741	
Flt Permitted		0.99			0.67		0.95	1.00	1.00		1.00	
Satd. Flow (perm)		1724			1121		1681	1769	1449		1739	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	214	25	97	96	10	24	3	161	2	276	30
RTOR Reduction (vph)	0	5	0	0	2	0	0	0	116	0	3	0
Lane Group Flow (vph)	0	239	0	0	201	0	24	3	45	0	305	0
Confl. Peds. (#/hr)	16		9	9		16	4		14	14		4
Heavy Vehicles (%)	0%	0%	0%	5%	4%	11%	0%	0%	1%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		4			4		2	2			6	
Permitted Phases	4			4					2	6		
Actuated Green, G (s)		16.6			16.6		20.1	20.1	20.1		15.8	
Effective Green, g (s)		16.6			16.6		20.1	20.1	20.1		15.8	
Actuated g/C Ratio		0.23			0.23		0.28	0.28	0.28		0.22	
Clearance Time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)		396			257		467	492	403		380	
v/s Ratio Prot							0.01	0.00				
v/s Ratio Perm		0.14			c0.18				c0.03		c0.18	
v/c Ratio		0.60			0.78		0.05	0.01	0.11		0.80	
Uniform Delay, d1		24.9			26.1		19.1	18.8	19.4		26.7	
Progression Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		2.6			14.2		0.2	0.0	0.6		16.3	
Delay (s)		27.4			40.3		19.3	18.9	20.0		43.0	
Level of Service		C			D		B	B	B		D	
Approach Delay (s)		27.4			40.3			19.9			43.0	
Approach LOS		C			D			B			D	

Intersection Summary			
HCM 2000 Control Delay	33.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	72.2	Sum of lost time (s)	19.7
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		

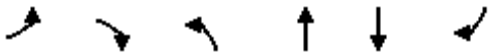
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	164	111	391	312	341	100
Future Volume (vph)	164	111	391	312	341	100
Lane Group Flow (vph)	178	121	425	339	371	109
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Detector Phase	4	4	1	2	2	2
Switch Phase						
Minimum Initial (s)	8.0	8.0	6.0	10.0	10.0	10.0
Minimum Split (s)	23.3	23.3	9.0	27.5	27.5	27.5
Total Split (s)	26.3	26.3	16.0	30.5	30.5	30.5
Total Split (%)	36.1%	36.1%	22.0%	41.9%	41.9%	41.9%
Yellow Time (s)	4.1	4.1	3.0	4.1	4.1	4.1
All-Red Time (s)	2.2	2.2	0.0	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lead/Lag			Lead	Lag	Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Max	Max	Max
v/c Ratio	0.61	0.33	0.70	0.54	0.59	0.19
Control Delay	33.4	7.5	13.6	20.8	22.0	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.4	7.5	13.6	20.8	22.0	4.8
Queue Length 50th (m)	19.9	0.0	18.6	31.2	35.0	0.0
Queue Length 95th (m)	37.1	11.1	#47.3	61.6	68.3	9.2
Internal Link Dist (m)	95.8			80.7	33.4	
Turn Bay Length (m)						
Base Capacity (vph)	480	534	640	629	629	569
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.23	0.66	0.54	0.59	0.19

Intersection Summary

Cycle Length: 72.8
Actuated Cycle Length: 64
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 9: Hiram Street & River Road

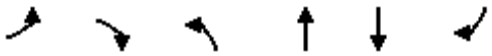


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	164	111	391	312	341	100
Future Volume (vph)	164	111	391	312	341	100
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.96	1.00	1.00	1.00	0.90
Flpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1528	1441	1572	1669	1669	1344
Flt Permitted	0.95	1.00	0.46	1.00	1.00	1.00
Satd. Flow (perm)	1528	1441	753	1669	1669	1344
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	178	121	425	339	371	109
RTOR Reduction (vph)	0	98	0	0	0	68
Lane Group Flow (vph)	178	23	425	339	371	41
Confl. Peds. (#/hr)	4	12	52			52
Heavy Vehicles (%)	10%	0%	5%	6%	6%	1%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Actuated Green, G (s)	12.2	12.2	35.8	24.1	24.1	24.1
Effective Green, g (s)	12.2	12.2	35.8	24.1	24.1	24.1
Actuated g/C Ratio	0.19	0.19	0.56	0.38	0.38	0.38
Clearance Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Vehicle Extension (s)	2.2	2.2	2.2	2.2	2.2	2.2
Lane Grp Cap (vph)	292	275	572	630	630	507
v/s Ratio Prot	c0.12		c0.14	0.20	0.22	
v/s Ratio Perm		0.02	c0.28			0.03
v/c Ratio	0.61	0.08	0.74	0.54	0.59	0.08
Uniform Delay, d1	23.6	21.2	8.6	15.5	15.9	12.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.7	0.1	4.7	3.3	4.0	0.3
Delay (s)	26.3	21.3	13.3	18.8	19.9	13.1
Level of Service	C	C	B	B	B	B
Approach Delay (s)	24.3			15.8	18.3	
Approach LOS	C			B	B	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	63.8	Sum of lost time (s)	15.8
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

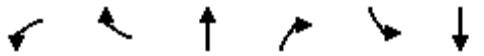
2025 Future Total AM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	227	339	178	143
Future Volume (Veh/h)	0	0	227	339	178	143
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	247	368	193	155
Pedestrians	37			5		
Lane Width (m)	0.0			3.7		
Walking Speed (m/s)	1.1			1.1		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				118		
pX, platoon unblocked						
vC, conflicting volume	1170	312	385			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1170	312	385			
tC, single (s)	6.4	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	100	100	78			
cM capacity (veh/h)	168	729	1131			

Direction, Lane #	NB 1	NB 2	SB 1
Volume Total	247	368	348
Volume Left	247	0	0
Volume Right	0	0	155
cSH	1131	1700	1700
Volume to Capacity	0.22	0.22	0.20
Queue Length 95th (m)	6.3	0.0	0.0
Control Delay (s)	9.1	0.0	0.0
Lane LOS	A		
Approach Delay (s)	3.6		0.0
Approach LOS			

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	35	17	548	0	0	177
Future Volume (Veh/h)	35	17	548	0	0	177
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)	38	18	596	0	0	192
Pedestrians	10					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	1					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			53			
pX, platoon unblocked	0.78	0.78			0.78	
vC, conflicting volume	798	606			606	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	598	351			351	
tC, single (s)	6.4	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.2	
p0 queue free %	89	97			100	
cM capacity (veh/h)	361	527			940	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	56	596	192
Volume Left	38	0	0
Volume Right	18	0	0
cSH	402	1700	1700
Volume to Capacity	0.14	0.35	0.11
Queue Length 95th (m)	3.7	0.0	0.0
Control Delay (s)	15.4	0.0	0.0
Lane LOS	C		
Approach Delay (s)	15.4	0.0	0.0
Approach LOS	C		

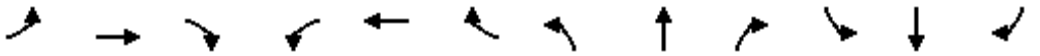
Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	184	0	365	11	200
Future Volume (vph)	184	0	365	11	200
Lane Group Flow (vph)	200	339	406	12	217
Turn Type	Perm	NA	NA	Perm	NA
Protected Phases		4	2		6
Permitted Phases	4			6	
Detector Phase	4	4	2	6	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	28.1	28.1	24.1	24.1	24.1
Total Split (s)	36.1	36.1	46.1	46.1	46.1
Total Split (%)	43.9%	43.9%	56.1%	56.1%	56.1%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	Max	Max	Max
v/c Ratio	0.63	0.48	0.39	0.02	0.21
Control Delay	33.0	2.4	8.8	6.7	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.0	2.4	8.8	6.7	7.3
Queue Length 50th (m)	22.3	0.0	21.0	0.5	9.9
Queue Length 95th (m)	40.4	0.0	48.7	2.8	24.9
Internal Link Dist (m)		82.5	171.2		29.4
Turn Bay Length (m)				10.0	
Base Capacity (vph)	727	952	1036	543	1012
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.28	0.36	0.39	0.02	0.21

Intersection Summary

Cycle Length: 82.2
Actuated Cycle Length: 65.6
Natural Cycle: 55
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Victoria Avenue & Falls Avenue (South Ramp)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	184	0	312	0	0	0	0	365	8	11	200	0
Future Volume (vph)	184	0	312	0	0	0	0	365	8	11	200	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.1	6.1						6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00						1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00						1.00		0.99	1.00	
Frt	1.00	0.85						1.00		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1583	1475						1692		1666	1654	
Flt Permitted	0.95	1.00						1.00		0.51	1.00	
Satd. Flow (perm)	1583	1475						1692		888	1654	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	200	0	339	0	0	0	0	397	9	12	217	0
RTOR Reduction (vph)	0	271	0	0	0	0	0	1	0	0	0	0
Lane Group Flow (vph)	200	68	0	0	0	0	0	405	0	12	217	0
Confl. Peds. (#/hr)	1					1	36		9	9		36
Heavy Vehicles (%)	6%	0%	2%	0%	0%	0%	0%	4%	13%	0%	7%	0%
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	13.2	13.2						40.2		40.2	40.2	
Effective Green, g (s)	13.2	13.2						40.2		40.2	40.2	
Actuated g/C Ratio	0.20	0.20						0.61		0.61	0.61	
Clearance Time (s)	6.1	6.1						6.1		6.1	6.1	
Vehicle Extension (s)	2.1	2.1						2.1		2.1	2.1	
Lane Grp Cap (vph)	318	296						1036		544	1013	
v/s Ratio Prot		0.05						c0.24			0.13	
v/s Ratio Perm	c0.13									0.01		
v/c Ratio	0.63	0.23						0.39		0.02	0.21	
Uniform Delay, d1	24.0	21.9						6.5		5.0	5.7	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	2.9	0.2						1.1		0.1	0.5	
Delay (s)	26.9	22.1						7.6		5.1	6.1	
Level of Service	C	C						A		A	A	
Approach Delay (s)		23.9			0.0			7.6			6.1	
Approach LOS		C			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	65.6	Sum of lost time (s)	12.2
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		

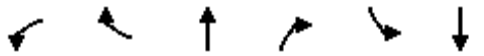
c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	68	106	255	118	266	230
Future Volume (vph)	68	106	255	118	266	230
Lane Group Flow (vph)	74	115	277	128	289	250
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	6.0	8.0
Minimum Split (s)	26.3	26.3	30.3	30.3	9.0	30.3
Total Split (s)	36.3	36.3	41.3	41.3	28.0	69.3
Total Split (%)	34.4%	34.4%	39.1%	39.1%	26.5%	65.6%
Yellow Time (s)	4.1	4.1	4.1	4.1	3.0	4.1
All-Red Time (s)	2.2	2.2	2.2	2.2	0.0	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	Max	Max	None	Max
v/c Ratio	0.43	0.45	0.28	0.16	0.37	0.19
Control Delay	43.0	13.3	10.3	3.6	4.2	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.0	13.3	10.3	3.6	4.2	4.0
Queue Length 50th (m)	11.4	0.0	19.6	1.6	9.1	9.5
Queue Length 95th (m)	24.1	14.2	40.1	10.0	19.2	19.2
Internal Link Dist (m)	12.9		86.7			171.2
Turn Bay Length (m)	30.0			25.0	15.0	
Base Capacity (vph)	550	556	999	818	895	1284
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.21	0.28	0.16	0.32	0.19

Intersection Summary

Cycle Length: 105.6
Actuated Cycle Length: 85.1
Natural Cycle: 70
Control Type: Actuated-Uncoordinated

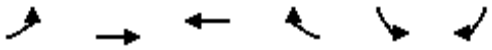
Splits and Phases: 4: Victoria Avenue & Bender Street



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	68	106	255	118	266	230
Future Volume (vph)	68	106	255	118	266	230
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.97	1.00	0.97	1.00	1.00
Flpb, ped/bikes	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1572	1369	1701	1326	1551	1735
Flt Permitted	0.95	1.00	1.00	1.00	0.56	1.00
Satd. Flow (perm)	1572	1369	1701	1326	906	1735
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	74	115	277	128	289	250
RTOR Reduction (vph)	0	102	0	42	0	0
Lane Group Flow (vph)	74	13	277	86	289	250
Confl. Peds. (#/hr)	13	3		6	6	
Heavy Vehicles (%)	4%	7%	4%	10%	8%	2%
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Actuated Green, G (s)	9.5	9.5	50.0	50.0	63.0	63.0
Effective Green, g (s)	9.5	9.5	50.0	50.0	63.0	63.0
Actuated g/C Ratio	0.11	0.11	0.59	0.59	0.74	0.74
Clearance Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Vehicle Extension (s)	2.5	2.5	3.5	3.5	3.0	3.5
Lane Grp Cap (vph)	175	152	999	779	746	1284
v/s Ratio Prot			0.16		c0.05	0.14
v/s Ratio Perm	c0.05	0.01		0.07	c0.24	
v/c Ratio	0.42	0.08	0.28	0.11	0.39	0.19
Uniform Delay, d1	35.2	33.9	8.6	7.7	3.6	3.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	0.2	0.7	0.3	0.3	0.3
Delay (s)	36.4	34.1	9.3	8.0	3.9	3.7
Level of Service	D	C	A	A	A	A
Approach Delay (s)	35.0		8.9			3.8
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	85.1	Sum of lost time (s)	15.6
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	159	224	49	6	15	125
Future Volume (Veh/h)	159	224	49	6	15	125
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)	173	243	53	7	16	136
Pedestrians			2		5	
Lane Width (m)			3.7		3.7	
Walking Speed (m/s)			1.1		1.1	
Percent Blockage			0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		37	79			
pX, platoon unblocked						
vC, conflicting volume	65				652	62
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	65				652	62
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	89				96	86
cM capacity (veh/h)	1524				383	996

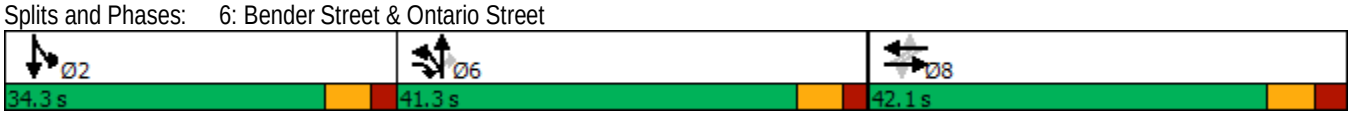
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	173	243	60	152
Volume Left	173	0	0	16
Volume Right	0	0	7	136
cSH	1524	1700	1700	853
Volume to Capacity	0.11	0.14	0.04	0.18
Queue Length 95th (m)	2.9	0.0	0.0	4.9
Control Delay (s)	7.7	0.0	0.0	10.1
Lane LOS	A			B
Approach Delay (s)	3.2		0.0	10.1
Approach LOS				B

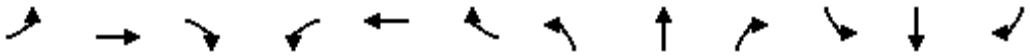
Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	32.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Configurations								
Traffic Volume (vph)	92	42	105	3	1	3	18	2
Future Volume (vph)	92	42	105	3	1	3	18	2
Lane Group Flow (vph)	0	146	114	0	13	16	20	62
Turn Type	Perm	NA	Over	Perm	NA	NA	Perm	NA
Protected Phases		8	6		8	6		2
Permitted Phases	8			8			6	
Detector Phase	8	8	6	8	8	6	6	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	26.3	42.1	42.1	26.3	26.3	14.3
Total Split (s)	42.1	42.1	41.3	42.1	42.1	41.3	41.3	34.3
Total Split (%)	35.8%	35.8%	35.1%	35.8%	35.8%	35.1%	35.1%	29.1%
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	2.2	3.0	3.0	2.2	2.2	2.2
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		7.1	6.3		7.1	6.3	6.3	6.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	Min	None	None	Min	Min	Min
v/c Ratio		0.43	0.22		0.04	0.05	0.06	0.20
Control Delay		20.2	19.0		10.1	17.9	0.3	10.9
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		20.2	19.0		10.1	17.9	0.3	10.9
Queue Length 50th (m)		10.3	4.6		0.3	1.1	0.0	1.1
Queue Length 95th (m)		23.9	11.5		3.3	5.2	0.0	9.2
Internal Link Dist (m)		54.9			36.6	34.4		24.4
Turn Bay Length (m)			40.0					
Base Capacity (vph)		1039	2005		1004	1246	1150	986
Starvation Cap Reductn		0	0		0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0
Reduced v/c Ratio		0.14	0.06		0.01	0.01	0.02	0.06

Intersection Summary
Cycle Length: 117.7
Actuated Cycle Length: 44.5
Natural Cycle: 85
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Bender Street & Ontario Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	42	105	3	1	8	12	3	18	12	2	43
Future Volume (vph)	92	42	105	3	1	8	12	3	18	12	2	43
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Lane Util. Factor		1.00	0.88		1.00			1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		0.98			1.00	0.98		0.97	
Flpb, ped/bikes		0.99	1.00		1.00			1.00	1.00		1.00	
Frt		1.00	0.85		0.91			1.00	0.85		0.90	
Flt Protected		0.97	1.00		0.99			0.96	1.00		0.99	
Satd. Flow (prot)		1650	2570		1444			1597	1471		1466	
Flt Permitted		0.79	1.00		0.89			0.96	1.00		0.99	
Satd. Flow (perm)		1343	2570		1297			1597	1471		1466	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	100	46	114	3	1	9	13	3	20	13	2	47
RTOR Reduction (vph)	0	0	0	0	7	0	0	0	16	0	38	0
Lane Group Flow (vph)	0	146	114	0	6	0	0	16	4	0	24	0
Confl. Peds. (#/hr)	12		12	12		12	5		15	15		5
Heavy Vehicles (%)	0%	10%	3%	33%	0%	0%	8%	0%	0%	0%	0%	6%
Turn Type	Perm	NA	Over	Perm	NA		Split	NA	Perm	Split	NA	
Protected Phases		8	6		8		6	6		2	2	
Permitted Phases	8			8					6			
Actuated Green, G (s)		8.8	8.8		8.8			8.8	8.8		8.5	
Effective Green, g (s)		8.8	8.8		8.8			8.8	8.8		8.5	
Actuated g/C Ratio		0.19	0.19		0.19			0.19	0.19		0.19	
Clearance Time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Vehicle Extension (s)		3.5	3.0		3.5			3.0	3.0		3.0	
Lane Grp Cap (vph)		258	493		249			306	282		272	
v/s Ratio Prot			c0.04					0.01			c0.02	
v/s Ratio Perm		c0.11			0.00				0.00			
v/c Ratio		0.57	0.23		0.02			0.05	0.01		0.09	
Uniform Delay, d1		16.8	15.6		15.0			15.1	15.0		15.4	
Progression Factor		1.00	1.00		1.00			1.00	1.00		1.00	
Incremental Delay, d2		3.1	0.2		0.0			0.1	0.0		0.1	
Delay (s)		19.8	15.9		15.1			15.2	15.0		15.6	
Level of Service		B	B		B			B	B		B	
Approach Delay (s)		18.1			15.1			15.1			15.6	
Approach LOS		B			B			B			B	

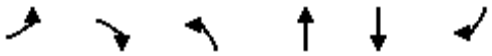
Intersection Summary			
HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	45.8	Sum of lost time (s)	19.7
Intersection Capacity Utilization	48.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBR	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	73	13	41	207
Future Volume (vph)	73	13	41	207
Lane Group Flow (vph)	79	14	45	225
Turn Type	Perm	Prot	NA	NA
Protected Phases		5	2	6
Permitted Phases	4			
Detector Phase	4	5	2	6
Switch Phase				
Minimum Initial (s)	1.0	8.0	10.0	10.0
Minimum Split (s)	3.0	13.0	17.0	17.0
Total Split (s)	3.0	25.0	72.0	47.0
Total Split (%)	4.0%	33.3%	96.0%	62.7%
Yellow Time (s)	2.0	3.0	5.0	5.0
All-Red Time (s)	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	2.0	5.0	7.0	7.0
Lead/Lag		Lead		Lag
Lead-Lag Optimize?				
Recall Mode	None	None	Max	Max
v/c Ratio	0.10	0.09	0.03	0.08
Control Delay	0.3	31.8	0.7	1.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	0.3	31.8	0.7	1.7
Queue Length 50th (m)	0.0	1.8	0.4	1.1
Queue Length 95th (m)	0.0	6.8	1.0	7.5
Internal Link Dist (m)			45.6	34.5
Turn Bay Length (m)		20.0		
Base Capacity (vph)	786	385	1534	2802
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.10	0.04	0.03	0.08

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 77.4
Natural Cycle: 40
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Falls Avenue & Bender Street



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	73	13	41	207	0
Future Volume (vph)	0	73	13	41	207	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)		2.0	5.0	7.0	7.0	
Lane Util. Factor		1.00	1.00	1.00	0.95	
Frpb, ped/bikes		0.94	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	
Frt		0.86	1.00	1.00	1.00	
Flt Protected		1.00	0.95	1.00	1.00	
Satd. Flow (prot)		1357	1488	1718	3264	
Flt Permitted		1.00	0.95	1.00	1.00	
Satd. Flow (perm)		1357	1488	1718	3264	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	79	14	45	225	0
RTOR Reduction (vph)	0	78	0	0	0	0
Lane Group Flow (vph)	0	1	14	45	225	0
Confl. Peds. (#/hr)	3	2	4			4
Heavy Vehicles (%)	0%	6%	13%	3%	3%	0%
Turn Type		Perm	Prot	NA	NA	
Protected Phases			5	2	6	
Permitted Phases		4				
Actuated Green, G (s)		0.8	1.7	71.9	65.2	
Effective Green, g (s)		0.8	1.7	71.9	65.2	
Actuated g/C Ratio		0.01	0.02	0.88	0.80	
Clearance Time (s)		2.0	5.0	7.0	7.0	
Vehicle Extension (s)		0.2	2.0	4.5	4.5	
Lane Grp Cap (vph)		13	30	1511	2604	
v/s Ratio Prot			c0.01	0.03	c0.07	
v/s Ratio Perm		c0.00				
v/c Ratio		0.06	0.47	0.03	0.09	
Uniform Delay, d1		40.1	39.6	0.6	1.8	
Progression Factor		1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.7	4.1	0.0	0.1	
Delay (s)		40.8	43.7	0.6	1.9	
Level of Service		D	D	A	A	
Approach Delay (s)	40.8			10.9	1.9	
Approach LOS	D			B	A	

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.09		
Actuated Cycle Length (s)	81.7	Sum of lost time (s)	14.0
Intersection Capacity Utilization	24.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	2	69	31	48	13	1	19	1	9
Future Volume (vph)	2	69	31	48	13	1	19	1	9
Lane Group Flow (vph)	0	95	0	87	14	1	21	0	16
Turn Type	Perm	NA	Perm	NA	Split	NA	Perm	Perm	NA
Protected Phases		4		4	2	2			6
Permitted Phases	4		4				2	6	
Detector Phase	4	4	4	4	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	42.1	42.1	26.3	26.3	26.3	14.3	14.3
Total Split (s)	42.1	42.1	42.1	42.1	41.3	41.3	41.3	34.3	34.3
Total Split (%)	35.8%	35.8%	35.8%	35.8%	35.1%	35.1%	35.1%	29.1%	29.1%
Yellow Time (s)	4.1	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	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		7.1		7.1	6.3	6.3	6.3		6.3
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio		0.45		0.50	0.02	0.00	0.03		0.03
Control Delay		41.4		48.3	19.9	20.0	0.1		20.2
Queue Delay		0.0		0.0	0.0	0.0	0.0		0.0
Total Delay		41.4		48.3	19.9	20.0	0.1		20.2
Queue Length 50th (m)		14.5		14.8	1.6	0.1	0.0		1.4
Queue Length 95th (m)		29.2		29.3	5.7	1.2	0.0		6.3
Internal Link Dist (m)		59.4		95.8		20.6			32.1
Turn Bay Length (m)									
Base Capacity (vph)		642		552	627	660	613		502
Starvation Cap Reductn		0		0	0	0	0		0
Spillback Cap Reductn		0		0	0	0	0		0
Storage Cap Reductn		0		0	0	0	0		0
Reduced v/c Ratio		0.15		0.16	0.02	0.00	0.03		0.03

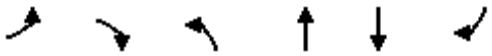
Intersection Summary
Cycle Length: 117.7
Actuated Cycle Length: 93.8
Natural Cycle: 85
Control Type: Semi Act-Uncoord

Splits and Phases: 8: Hiram Street & Blondin Avenue

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	69	17	31	48	1	13	1	19	1	9	5
Future Volume (vph)	2	69	17	31	48	1	13	1	19	1	9	5
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Lane Util. Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Frpb, ped/bikes		1.00			1.00		1.00	1.00	0.99		0.99	
Flpb, ped/bikes		1.00			1.00		1.00	1.00	1.00		1.00	
Frt		0.97			1.00		1.00	1.00	0.85		0.96	
Flt Protected		1.00			0.98		0.95	1.00	1.00		1.00	
Satd. Flow (prot)		1715			1672		1681	1769	1484		1678	
Flt Permitted		0.99			0.87		0.95	1.00	1.00		0.99	
Satd. Flow (perm)		1703			1480		1681	1769	1484		1671	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	75	18	34	52	1	14	1	21	1	10	5
RTOR Reduction (vph)	0	9	0	0	1	0	0	0	13	0	4	0
Lane Group Flow (vph)	0	86	0	0	86	0	14	1	8	0	12	0
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Heavy Vehicles (%)	0%	0%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		4			4		2	2			6	
Permitted Phases	4			4					2	6		
Actuated Green, G (s)		11.0			11.0		35.0	35.0	35.0		28.0	
Effective Green, g (s)		11.0			11.0		35.0	35.0	35.0		28.0	
Actuated g/C Ratio		0.12			0.12		0.37	0.37	0.37		0.30	
Clearance Time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)		199			173		627	660	554		499	
v/s Ratio Prot							c0.01	0.00				
v/s Ratio Perm		0.05			c0.06				0.01		c0.01	
v/c Ratio		0.43			0.50		0.02	0.00	0.01		0.03	
Uniform Delay, d1		38.5			38.8		18.5	18.4	18.5		23.2	
Progression Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		1.5			2.2		0.1	0.0	0.0		0.1	
Delay (s)		40.0			41.0		18.6	18.4	18.5		23.3	
Level of Service		D			D		B	B	B		C	
Approach Delay (s)		40.0			41.0			18.6			23.3	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	35.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.09		
Actuated Cycle Length (s)	93.7	Sum of lost time (s)	19.7
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

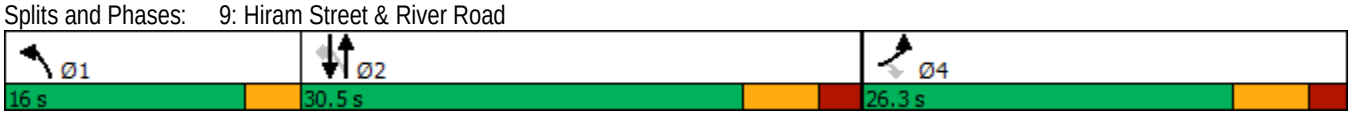
c Critical Lane Group

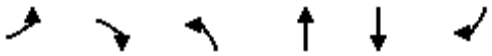


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	74	51	91	101	35
Future Volume (vph)	4	74	51	91	101	35
Lane Group Flow (vph)	4	80	55	99	110	38
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Detector Phase	4	4	1	2	2	2
Switch Phase						
Minimum Initial (s)	8.0	8.0	6.0	10.0	10.0	10.0
Minimum Split (s)	23.3	23.3	9.0	27.5	27.5	27.5
Total Split (s)	26.3	26.3	16.0	30.5	30.5	30.5
Total Split (%)	36.1%	36.1%	22.0%	41.9%	41.9%	41.9%
Yellow Time (s)	4.1	4.1	3.0	4.1	4.1	4.1
All-Red Time (s)	2.2	2.2	0.0	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lead/Lag			Lead	Lag	Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Max	Max	Max
v/c Ratio	0.01	0.26	0.06	0.09	0.09	0.04
Control Delay	19.8	8.7	3.0	8.3	8.3	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	8.7	3.0	8.3	8.3	3.7
Queue Length 50th (m)	0.3	0.0	1.4	5.3	5.9	0.0
Queue Length 95th (m)	2.4	9.0	3.7	12.1	13.1	3.8
Internal Link Dist (m)	95.8			80.7	33.4	
Turn Bay Length (m)						
Base Capacity (vph)	670	647	1060	1125	1158	935
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.12	0.05	0.09	0.09	0.04

Intersection Summary
Cycle Length: 72.8
Actuated Cycle Length: 50.5
Natural Cycle: 60
Control Type: Actuated-Uncoordinated

Splits and Phases: 9: Hiram Street & River Road

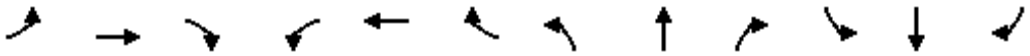




Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	74	51	91	101	35
Future Volume (vph)	4	74	51	91	101	35
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1681	1504	1670	1685	1735	1387
Flt Permitted	0.95	1.00	0.69	1.00	1.00	1.00
Satd. Flow (perm)	1681	1504	1206	1685	1735	1387
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	80	55	99	110	38
RTOR Reduction (vph)	0	73	0	0	0	17
Lane Group Flow (vph)	4	7	55	99	110	21
Confl. Peds. (#/hr)	3		9			9
Heavy Vehicles (%)	0%	0%	0%	5%	2%	5%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Actuated Green, G (s)	4.5	4.5	34.2	30.8	30.8	30.8
Effective Green, g (s)	4.5	4.5	34.2	30.8	30.8	30.8
Actuated g/C Ratio	0.08	0.08	0.63	0.57	0.57	0.57
Clearance Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Vehicle Extension (s)	2.2	2.2	2.2	2.2	2.2	2.2
Lane Grp Cap (vph)	138	124	785	952	980	783
v/s Ratio Prot	0.00		c0.00	0.06	c0.06	
v/s Ratio Perm		c0.00	0.04			0.02
v/c Ratio	0.03	0.05	0.07	0.10	0.11	0.03
Uniform Delay, d1	23.0	23.0	3.9	5.5	5.5	5.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0	0.1	0.0	0.2	0.2	0.1
Delay (s)	23.0	23.1	3.9	5.7	5.7	5.3
Level of Service	C	C	A	A	A	A
Approach Delay (s)	23.1			5.1	5.6	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	9.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.10		
Actuated Cycle Length (s)	54.5	Sum of lost time (s)	15.8
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

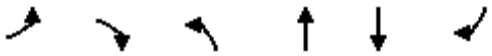


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	0	17	16	0	26	33	38	32	22	24	21
Future Volume (Veh/h)	27	0	17	16	0	26	33	38	32	22	24	21
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	0	18	17	0	28	36	41	35	24	26	23
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								48				
pX, platoon unblocked												
vC, conflicting volume	244	234	38	234	228	58	49			76		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	244	234	38	234	228	58	49			76		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	100	98	98	100	97	98			98		
cM capacity (veh/h)	670	641	1035	687	646	1007	1558			1523		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	47	45	112	73
Volume Left	29	17	36	24
Volume Right	18	28	35	23
cSH	774	857	1558	1523
Volume to Capacity	0.06	0.05	0.02	0.02
Queue Length 95th (m)	1.5	1.3	0.5	0.4
Control Delay (s)	9.9	9.4	2.5	2.5
Lane LOS	A	A	A	A
Approach Delay (s)	9.9	9.4	2.5	2.5
Approach LOS	A	A		

Intersection Summary				
Average Delay	4.9			
Intersection Capacity Utilization	19.3%	ICU Level of Service	A	
Analysis Period (min)	15			

2025 Future Total PM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	311	535	300	251
Future Volume (Veh/h)	0	0	311	535	300	251
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	338	582	326	273
Pedestrians					1	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				118		
pX, platoon unblocked	0.79					
vC, conflicting volume	1722	462	599			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1780	462	599			
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	66			
cM capacity (veh/h)	47	603	988			

Direction, Lane #	NB 1	NB 2	SB 1
Volume Total	338	582	599
Volume Left	338	0	0
Volume Right	0	0	273
cSH	988	1700	1700
Volume to Capacity	0.34	0.34	0.35
Queue Length 95th (m)	11.6	0.0	0.0
Control Delay (s)	10.5	0.0	0.0
Lane LOS	B		
Approach Delay (s)	3.9		0.0
Approach LOS			

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	79	42	807	0	0	310
Future Volume (Veh/h)	79	42	807	0	0	310
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)	86	46	877	0	0	337
Pedestrians	40					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	4					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			53			
pX, platoon unblocked	0.59	0.59			0.59	
vC, conflicting volume	1254	917			917	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1080	504			504	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	37	85			100	
cM capacity (veh/h)	137	317			603	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	132	877	337
Volume Left	86	0	0
Volume Right	46	0	0
cSH	171	1700	1700
Volume to Capacity	0.77	0.52	0.20
Queue Length 95th (m)	38.0	0.0	0.0
Control Delay (s)	74.4	0.0	0.0
Lane LOS	F		
Approach Delay (s)	74.4	0.0	0.0
Approach LOS	F		

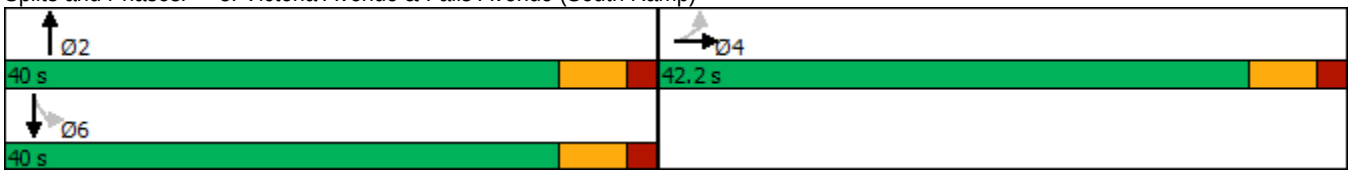
Intersection Summary			
Average Delay	7.3		
Intersection Capacity Utilization	105.3%	ICU Level of Service	G
Analysis Period (min)	15		

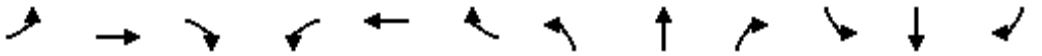
Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	189	2	614	49	334
Future Volume (vph)	189	2	614	49	334
Lane Group Flow (vph)	205	525	678	53	363
Turn Type	Perm	NA	NA	Perm	NA
Protected Phases		4	2		6
Permitted Phases	4			6	
Detector Phase	4	4	2	6	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	28.1	28.1	24.1	24.1	24.1
Total Split (s)	42.2	42.2	40.0	40.0	40.0
Total Split (%)	51.3%	51.3%	48.7%	48.7%	48.7%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	Max	Max	Max
v/c Ratio	0.40	0.87	0.78	0.26	0.42
Control Delay	19.5	27.8	25.3	18.1	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	19.5	27.8	25.3	18.1	15.1
Queue Length 50th (m)	19.9	36.0	66.0	3.6	27.2
Queue Length 95th (m)	34.3	73.0	#169.1	15.0	65.0
Internal Link Dist (m)		82.5	171.2		29.4
Turn Bay Length (m)				10.0	
Base Capacity (vph)	874	867	869	203	872
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.23	0.61	0.78	0.26	0.42

Intersection Summary

Cycle Length: 82.2
Actuated Cycle Length: 68.7
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Victoria Avenue & Falls Avenue (South Ramp)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	189	2	481	0	0	0	0	614	10	49	334	0
Future Volume (vph)	189	2	481	0	0	0	0	614	10	49	334	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.1	6.1						6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.96						1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00						1.00		0.98	1.00	
Frt	1.00	0.85						1.00		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1632	1431						1728		1582	1735	
Flt Permitted	0.95	1.00						1.00		0.24	1.00	
Satd. Flow (perm)	1632	1431						1728		396	1735	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	205	2	523	0	0	0	0	667	11	53	363	0
RTOR Reduction (vph)	0	152	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	205	373	0	0	0	0	0	678	0	53	363	0
Confl. Peds. (#/hr)			13	13			69		47	47		69
Heavy Vehicles (%)	3%	0%	1%	0%	0%	0%	0%	2%	0%	4%	2%	0%
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	21.7	21.7						34.6		34.6	34.6	
Effective Green, g (s)	21.7	21.7						34.6		34.6	34.6	
Actuated g/C Ratio	0.32	0.32						0.51		0.51	0.51	
Clearance Time (s)	6.1	6.1						6.1		6.1	6.1	
Vehicle Extension (s)	2.1	2.1						2.1		2.1	2.1	
Lane Grp Cap (vph)	516	453						872		200	876	
v/s Ratio Prot		c0.26						c0.39			0.21	
v/s Ratio Perm	0.13									0.13		
v/c Ratio	0.40	0.82						0.78		0.27	0.41	
Uniform Delay, d1	18.3	21.6						13.8		9.7	10.6	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	0.2	11.0						6.7		3.2	1.4	
Delay (s)	18.5	32.6						20.5		12.9	12.1	
Level of Service	B	C						C		B	B	
Approach Delay (s)		28.7			0.0			20.5			12.2	
Approach LOS		C			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	68.5	Sum of lost time (s)	12.2
Intersection Capacity Utilization	105.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	114	255	337	227	398	404
Future Volume (vph)	114	255	337	227	398	404
Lane Group Flow (vph)	124	277	366	247	433	439
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	6.0	8.0
Minimum Split (s)	26.3	26.3	30.3	30.3	9.0	30.3
Total Split (s)	36.3	36.3	41.3	41.3	28.0	69.3
Total Split (%)	34.4%	34.4%	39.1%	39.1%	26.5%	65.6%
Yellow Time (s)	4.1	4.1	4.1	4.1	3.0	4.1
All-Red Time (s)	2.2	2.2	2.2	2.2	0.0	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	Max	Max	None	Max
v/c Ratio	0.61	0.62	0.41	0.35	0.61	0.35
Control Delay	48.3	11.1	16.7	8.1	8.1	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.3	11.1	16.7	8.1	8.1	6.2
Queue Length 50th (m)	20.0	0.0	34.4	8.0	19.3	23.4
Queue Length 95th (m)	36.9	20.5	75.5	30.4	40.2	46.0
Internal Link Dist (m)	12.9		86.7			171.2
Turn Bay Length (m)	30.0			25.0	15.0	
Base Capacity (vph)	493	683	889	697	825	1253
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.41	0.41	0.35	0.52	0.35

Intersection Summary

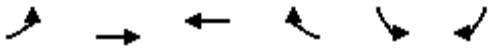
Cycle Length: 105.6
Actuated Cycle Length: 88.2
Natural Cycle: 70
Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Victoria Avenue & Bender Street

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	114	255	337	227	398	404
Future Volume (vph)	114	255	337	227	398	404
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.98	1.00	0.85	1.00	1.00
Flpb, ped/bikes	0.89	1.00	1.00	1.00	0.97	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1488	1471	1701	1236	1615	1752
Flt Permitted	0.95	1.00	1.00	1.00	0.46	1.00
Satd. Flow (perm)	1488	1471	1701	1236	783	1752
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	277	366	247	433	439
RTOR Reduction (vph)	0	238	0	71	0	0
Lane Group Flow (vph)	124	39	366	176	433	439
Confl. Peds. (#/hr)	52	1		74	74	
Heavy Vehicles (%)	0%	0%	4%	3%	1%	1%
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Actuated Green, G (s)	12.5	12.5	46.1	46.1	63.1	63.1
Effective Green, g (s)	12.5	12.5	46.1	46.1	63.1	63.1
Actuated g/C Ratio	0.14	0.14	0.52	0.52	0.72	0.72
Clearance Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Vehicle Extension (s)	2.5	2.5	3.5	3.5	3.0	3.5
Lane Grp Cap (vph)	210	208	889	646	692	1253
v/s Ratio Prot			0.22		c0.10	0.25
v/s Ratio Perm	c0.08	0.03		0.14	c0.35	
v/c Ratio	0.59	0.19	0.41	0.27	0.63	0.35
Uniform Delay, d1	35.5	33.4	12.8	11.7	5.5	4.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.7	0.3	1.4	1.0	1.8	0.8
Delay (s)	39.1	33.7	14.2	12.8	7.2	5.5
Level of Service	D	C	B	B	A	A
Approach Delay (s)	35.4		13.6			6.4
Approach LOS	D		B			A

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	88.2	Sum of lost time (s)	15.6
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	197	353	219	21	26	142
Future Volume (Veh/h)	197	353	219	21	26	142
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)	214	384	238	23	28	154
Pedestrians		14	13		35	
Lane Width (m)		3.7	3.7		3.7	
Walking Speed (m/s)		1.1	1.1		1.1	
Percent Blockage		1	1		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		37	79			
pX, platoon unblocked						
vC, conflicting volume	296				1110	298
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	296				1110	298
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	83				85	78
cM capacity (veh/h)	1235				185	712

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	214	384	261	182
Volume Left	214	0	0	28
Volume Right	0	0	23	154
cSH	1235	1700	1700	495
Volume to Capacity	0.17	0.23	0.15	0.37
Queue Length 95th (m)	4.8	0.0	0.0	12.7
Control Delay (s)	8.5	0.0	0.0	16.4
Lane LOS	A			C
Approach Delay (s)	3.1		0.0	16.4
Approach LOS				C

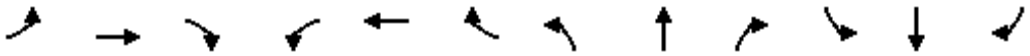
Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Configurations								
Traffic Volume (vph)	199	147	118	12	25	17	43	18
Future Volume (vph)	199	147	118	12	25	17	43	18
Lane Group Flow (vph)	0	376	128	0	45	114	47	232
Turn Type	Perm	NA	Over	Perm	NA	NA	Perm	NA
Protected Phases		8	6		8	6		2
Permitted Phases	8			8			6	
Detector Phase	8	8	6	8	8	6	6	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	26.3	42.1	42.1	26.3	26.3	14.3
Total Split (s)	42.1	42.1	41.3	42.1	42.1	41.3	41.3	34.3
Total Split (%)	35.8%	35.8%	35.1%	35.8%	35.8%	35.1%	35.1%	29.1%
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	2.2	3.0	3.0	2.2	2.2	2.2
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		7.1	6.3		7.1	6.3	6.3	6.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	Min	None	None	Min	Min	Min
v/c Ratio		0.69	0.34		0.08	0.48	0.19	0.71
Control Delay		28.9	34.8		15.2	40.0	2.5	33.3
Queue Delay		0.1	0.0		0.0	0.0	0.0	0.0
Total Delay		29.0	34.8		15.2	40.0	2.5	33.3
Queue Length 50th (m)		43.5	10.1		3.4	16.2	0.0	22.6
Queue Length 95th (m)		#104.5	20.4		11.6	34.2	1.4	47.9
Internal Link Dist (m)		54.9			36.6	34.4		24.4
Turn Bay Length (m)			40.0					
Base Capacity (vph)		571	1188		623	762	588	584
Starvation Cap Reductn		11	0		0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0
Reduced v/c Ratio		0.67	0.11		0.07	0.15	0.08	0.40

Intersection Summary

Cycle Length: 117.7
Actuated Cycle Length: 79.1
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Bender Street & Ontario Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	199	147	118	12	25	5	88	17	43	57	18	138
Future Volume (vph)	199	147	118	12	25	5	88	17	43	57	18	138
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Lane Util. Factor		1.00	0.88		1.00			1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		0.99			1.00	0.86		0.95	
Flpb, ped/bikes		0.95	1.00		0.99			1.00	1.00		1.00	
Frt		1.00	0.85		0.98			1.00	0.85		0.91	
Flt Protected		0.97	1.00		0.99			0.96	1.00		0.99	
Satd. Flow (prot)		1592	2647		1565			1698	1289		1481	
Flt Permitted		0.80	1.00		0.88			0.96	1.00		0.99	
Satd. Flow (perm)		1305	2647		1393			1698	1289		1481	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	216	160	128	13	27	5	96	18	47	62	20	150
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	40	0	60	0
Lane Group Flow (vph)	0	376	128	0	42	0	0	114	7	0	172	0
Confl. Peds. (#/hr)	79		109	109		79	23		113	113		23
Heavy Vehicles (%)	2%	4%	0%	25%	0%	0%	0%	0%	0%	7%	0%	0%
Turn Type	Perm	NA	Over	Perm	NA		Split	NA	Perm	Split	NA	
Protected Phases		8	6		8		6	6		2	2	
Permitted Phases	8			8					6			
Actuated Green, G (s)		33.8	11.2		33.8			11.2	11.2		14.2	
Effective Green, g (s)		33.8	11.2		33.8			11.2	11.2		14.2	
Actuated g/C Ratio		0.43	0.14		0.43			0.14	0.14		0.18	
Clearance Time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Vehicle Extension (s)		3.5	3.0		3.5			3.0	3.0		3.0	
Lane Grp Cap (vph)		559	375		596			241	182		266	
v/s Ratio Prot			0.05					c0.07			c0.12	
v/s Ratio Perm		c0.29			0.03				0.01			
v/c Ratio		0.67	0.34		0.07			0.47	0.04		0.65	
Uniform Delay, d1		18.1	30.5		13.3			31.1	29.2		30.0	
Progression Factor		1.00	1.00		1.00			1.00	1.00		1.00	
Incremental Delay, d2		3.3	0.5		0.1			1.5	0.1		5.3	
Delay (s)		21.4	31.1		13.4			32.6	29.3		35.4	
Level of Service		C	C		B			C	C		D	
Approach Delay (s)		23.9			13.4			31.6			35.4	
Approach LOS		C			B			C			D	

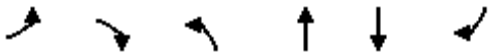
Intersection Summary			
HCM 2000 Control Delay	27.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	78.9	Sum of lost time (s)	19.7
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBR	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	241	35	75	466
Future Volume (vph)	241	35	75	466
Lane Group Flow (vph)	262	38	82	508
Turn Type	Perm	Prot	NA	NA
Protected Phases		5	2	6
Permitted Phases	4			
Detector Phase	4	5	2	6
Switch Phase				
Minimum Initial (s)	1.0	8.0	10.0	10.0
Minimum Split (s)	3.0	13.0	17.0	17.0
Total Split (s)	3.0	25.0	72.0	47.0
Total Split (%)	4.0%	33.3%	96.0%	62.7%
Yellow Time (s)	2.0	3.0	5.0	5.0
All-Red Time (s)	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	2.0	5.0	7.0	7.0
Lead/Lag		Lead		Lag
Lead-Lag Optimize?				
Recall Mode	None	None	Max	Max
v/c Ratio	0.50	0.23	0.06	0.21
Control Delay	3.5	34.1	0.8	3.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	3.5	34.1	0.8	3.6
Queue Length 50th (m)	0.0	5.0	0.7	11.3
Queue Length 95th (m)	0.0	13.1	1.6	17.4
Internal Link Dist (m)			45.6	34.5
Turn Bay Length (m)		20.0		
Base Capacity (vph)	519	407	1446	2457
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.50	0.09	0.06	0.21

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Natural Cycle: 40
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Falls Avenue & Bender Street



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	241	35	75	466	1
Future Volume (vph)	0	241	35	75	466	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)		2.0	5.0	7.0	7.0	
Lane Util. Factor		1.00	1.00	1.00	0.95	
Frpb, ped/bikes		0.59	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	
Frt		0.86	1.00	1.00	1.00	
Flt Protected		1.00	0.95	1.00	1.00	
Satd. Flow (prot)		861	1528	1669	3232	
Flt Permitted		1.00	0.95	1.00	1.00	
Satd. Flow (perm)		861	1528	1669	3232	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	262	38	82	507	1
RTOR Reduction (vph)	0	259	0	0	0	0
Lane Group Flow (vph)	0	3	38	82	508	0
Confl. Peds. (#/hr)	37	37	67			67
Heavy Vehicles (%)	0%	4%	10%	6%	4%	0%
Turn Type		Perm	Prot	NA	NA	
Protected Phases			5	2	6	
Permitted Phases		4				
Actuated Green, G (s)		1.0	5.0	67.0	57.0	
Effective Green, g (s)		1.0	5.0	67.0	57.0	
Actuated g/C Ratio		0.01	0.06	0.87	0.74	
Clearance Time (s)		2.0	5.0	7.0	7.0	
Vehicle Extension (s)		0.2	2.0	4.5	4.5	
Lane Grp Cap (vph)		11	99	1452	2392	
v/s Ratio Prot			c0.02	0.05	c0.16	
v/s Ratio Perm		c0.00				
v/c Ratio		0.31	0.38	0.06	0.21	
Uniform Delay, d1		37.7	34.5	0.7	3.1	
Progression Factor		1.00	1.00	1.00	1.00	
Incremental Delay, d2		5.8	0.9	0.1	0.2	
Delay (s)		43.4	35.4	0.8	3.3	
Level of Service		D	D	A	A	
Approach Delay (s)	43.4			11.7	3.3	
Approach LOS	D			B	A	

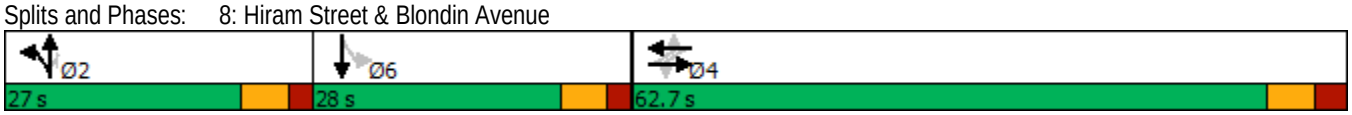
Intersection Summary			
HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	77.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	10	164	85	117	61	4	139	1	224
Future Volume (vph)	10	164	85	117	61	4	139	1	224
Lane Group Flow (vph)	0	230	0	224	66	4	151	0	276
Turn Type	Perm	NA	Perm	NA	Split	NA	Perm	Perm	NA
Protected Phases		4		4	2	2			6
Permitted Phases	4		4				2	6	
Detector Phase	4	4	4	4	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	42.1	42.1	26.3	26.3	26.3	14.3	14.3
Total Split (s)	62.7	62.7	62.7	62.7	27.0	27.0	27.0	28.0	28.0
Total Split (%)	53.3%	53.3%	53.3%	53.3%	22.9%	22.9%	22.9%	23.8%	23.8%
Yellow Time (s)	4.1	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	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		7.1		7.1	6.3	6.3	6.3		6.3
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio		0.58		0.82	0.15	0.01	0.31		0.59
Control Delay		32.0		53.6	26.4	25.2	6.9		32.5
Queue Delay		0.0		0.0	0.0	0.0	0.0		0.0
Total Delay		32.0		53.6	26.4	25.2	6.9		32.5
Queue Length 50th (m)		29.6		32.6	7.8	0.5	0.0		36.0
Queue Length 95th (m)		50.3		57.0	19.5	3.1	14.1		67.6
Internal Link Dist (m)		59.4		95.8		20.6			32.1
Turn Bay Length (m)									
Base Capacity (vph)		1153		809	430	453	486		469
Starvation Cap Reductn		0		0	0	0	0		0
Spillback Cap Reductn		0		0	0	0	0		0
Storage Cap Reductn		0		0	0	0	0		0
Reduced v/c Ratio		0.20		0.28	0.15	0.01	0.31		0.59

Intersection Summary
Cycle Length: 117.7
Actuated Cycle Length: 81.1
Natural Cycle: 85
Control Type: Semi Act-Uncoord

Splits and Phases: 8: Hiram Street & Blondin Avenue



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	164	38	85	117	5	61	4	139	1	224	29
Future Volume (vph)	10	164	38	85	117	5	61	4	139	1	224	29
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Lane Util. Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Frpb, ped/bikes		0.99			1.00		1.00	1.00	0.98		1.00	
Flpb, ped/bikes		1.00			0.99		1.00	1.00	1.00		1.00	
Frt		0.98			1.00		1.00	1.00	0.85		0.98	
Flt Protected		1.00			0.98		0.95	1.00	1.00		1.00	
Satd. Flow (prot)		1708			1649		1681	1769	1462		1736	
Flt Permitted		0.98			0.70		0.95	1.00	1.00		1.00	
Satd. Flow (perm)		1672			1180		1681	1769	1462		1736	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	178	41	92	127	5	66	4	151	1	243	32
RTOR Reduction (vph)	0	10	0	0	1	0	0	0	112	0	4	0
Lane Group Flow (vph)	0	220	0	0	223	0	66	4	39	0	272	0
Confl. Peds. (#/hr)	2		25	25		3	3		5	5		3
Heavy Vehicles (%)	0%	0%	0%	0%	7%	0%	0%	0%	1%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		4			4		2	2			6	
Permitted Phases	4			4					2	6		
Actuated Green, G (s)		18.7			18.7		20.8	20.8	20.8		21.8	
Effective Green, g (s)		18.7			18.7		20.8	20.8	20.8		21.8	
Actuated g/C Ratio		0.23			0.23		0.26	0.26	0.26		0.27	
Clearance Time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)		386			272		431	454	375		467	
v/s Ratio Prot							c0.04	0.00				
v/s Ratio Perm		0.13			c0.19				0.03		0.16	
v/c Ratio		0.57			0.82		0.15	0.01	0.10		0.58	
Uniform Delay, d1		27.6			29.6		23.3	22.4	23.0		25.7	
Progression Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		1.9			17.7		0.8	0.0	0.6		5.2	
Delay (s)		29.5			47.2		24.0	22.5	23.5		30.9	
Level of Service		C			D		C	C	C		C	
Approach Delay (s)		29.5			47.2			23.7			30.9	
Approach LOS		C			D			C			C	

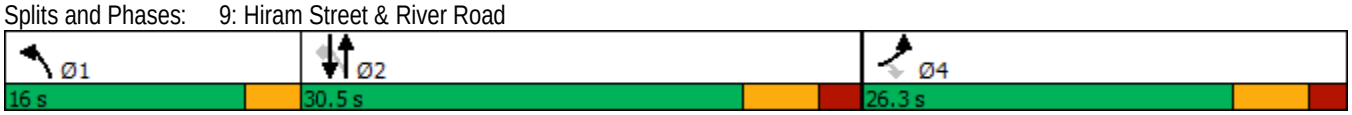
Intersection Summary			
HCM 2000 Control Delay	32.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	81.0	Sum of lost time (s)	19.7
Intersection Capacity Utilization	89.7%	ICU Level of Service	E
Analysis Period (min)	15		

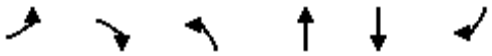
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	148	133	290	346	266	77
Future Volume (vph)	148	133	290	346	266	77
Lane Group Flow (vph)	161	145	315	376	289	84
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Detector Phase	4	4	1	2	2	2
Switch Phase						
Minimum Initial (s)	8.0	8.0	6.0	10.0	10.0	10.0
Minimum Split (s)	23.3	23.3	9.0	27.5	27.5	27.5
Total Split (s)	26.3	26.3	16.0	30.5	30.5	30.5
Total Split (%)	36.1%	36.1%	22.0%	41.9%	41.9%	41.9%
Yellow Time (s)	4.1	4.1	3.0	4.1	4.1	4.1
All-Red Time (s)	2.2	2.2	0.0	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lead/Lag			Lead	Lag	Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Max	Max	Max
v/c Ratio	0.54	0.39	0.47	0.55	0.42	0.15
Control Delay	29.9	8.0	7.2	19.1	16.7	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.9	8.0	7.2	19.1	16.7	4.8
Queue Length 50th (m)	16.3	0.0	11.3	30.2	21.7	0.0
Queue Length 95th (m)	33.5	12.4	26.6	65.2	48.1	7.8
Internal Link Dist (m)	95.8			80.7	33.4	
Turn Bay Length (m)						
Base Capacity (vph)	560	571	750	680	694	556
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.25	0.42	0.55	0.42	0.15

Intersection Summary
Cycle Length: 72.8
Actuated Cycle Length: 60.4
Natural Cycle: 60
Control Type: Actuated-Uncoordinated

Splits and Phases: 9: Hiram Street & River Road

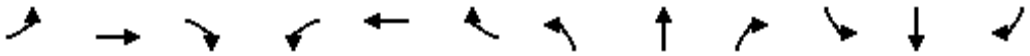




Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	148	133	290	346	266	77
Future Volume (vph)	148	133	290	346	266	77
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.95	1.00	1.00	1.00	0.88
Flpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1681	1432	1570	1701	1735	1296
Flt Permitted	0.95	1.00	0.57	1.00	1.00	1.00
Satd. Flow (perm)	1681	1432	947	1701	1735	1296
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	161	145	315	376	289	84
RTOR Reduction (vph)	0	119	0	0	0	50
Lane Group Flow (vph)	161	26	315	376	289	34
Confl. Peds. (#/hr)	10	16	72			72
Heavy Vehicles (%)	0%	0%	3%	4%	2%	2%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Actuated Green, G (s)	10.8	10.8	33.7	24.2	24.2	24.2
Effective Green, g (s)	10.8	10.8	33.7	24.2	24.2	24.2
Actuated g/C Ratio	0.18	0.18	0.56	0.40	0.40	0.40
Clearance Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Vehicle Extension (s)	2.2	2.2	2.2	2.2	2.2	2.2
Lane Grp Cap (vph)	301	256	627	682	696	520
v/s Ratio Prot	c0.10		c0.08	c0.22	0.17	
v/s Ratio Perm		0.02	0.20			0.03
v/c Ratio	0.53	0.10	0.50	0.55	0.42	0.06
Uniform Delay, d1	22.5	20.7	7.3	13.9	13.0	11.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	0.1	0.3	3.2	1.8	0.2
Delay (s)	23.6	20.8	7.7	17.1	14.8	11.3
Level of Service	C	C	A	B	B	B
Approach Delay (s)	22.3			12.8	14.0	
Approach LOS	C			B	B	

Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	60.3	Sum of lost time (s)	15.8
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

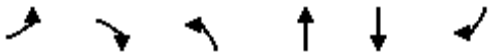


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	0	43	41	0	24	26	63	25	44	105	42
Future Volume (Veh/h)	25	0	43	41	0	24	26	63	25	44	105	42
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	0	47	45	0	26	28	68	27	48	114	46
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								48				
pX, platoon unblocked												
vC, conflicting volume	396	384	137	418	394	82	160			95		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	396	384	137	418	394	82	160			95		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	100	95	91	100	97	98			97		
cM capacity (veh/h)	527	521	911	497	515	978	1419			1499		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	74	71	123	208
Volume Left	27	45	28	48
Volume Right	47	26	27	46
cSH	720	607	1419	1499
Volume to Capacity	0.10	0.12	0.02	0.03
Queue Length 95th (m)	2.6	3.0	0.5	0.8
Control Delay (s)	10.6	11.7	1.8	1.9
Lane LOS	B	B	A	A
Approach Delay (s)	10.6	11.7	1.8	1.9
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.7			
Intersection Capacity Utilization	28.9%	ICU Level of Service	A	
Analysis Period (min)	15			

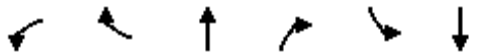
2025 Future Total SAT



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	352	406	321	139
Future Volume (Veh/h)	0	0	352	406	321	139
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	383	441	349	151
Pedestrians	92				1	
Lane Width (m)	0.0				3.7	
Walking Speed (m/s)	1.1				1.1	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				118		
pX, platoon unblocked						
vC, conflicting volume	1724	516	592			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1724	516	592			
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	61			
cM capacity (veh/h)	61	563	989			

Direction, Lane #	NB 1	NB 2	SB 1
Volume Total	383	441	500
Volume Left	383	0	0
Volume Right	0	0	151
cSH	989	1700	1700
Volume to Capacity	0.39	0.26	0.29
Queue Length 95th (m)	14.1	0.0	0.0
Control Delay (s)	10.9	0.0	0.0
Lane LOS	B		
Approach Delay (s)	5.1		0.0
Approach LOS			

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	114	40	725	0	0	322
Future Volume (Veh/h)	114	40	725	0	0	322
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)	124	43	788	0	0	350
Pedestrians	78					1
Lane Width (m)	3.7					3.7
Walking Speed (m/s)	1.1					1.1
Percent Blockage	7					0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			53			
pX, platoon unblocked	0.61	0.61			0.61	
vC, conflicting volume	1216	867			866	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1038	469			468	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	16	87			100	
cM capacity (veh/h)	147	340			629	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	167	788	350
Volume Left	124	0	0
Volume Right	43	0	0
cSH	172	1700	1700
Volume to Capacity	0.97	0.46	0.21
Queue Length 95th (m)	57.7	0.0	0.0
Control Delay (s)	114.9	0.0	0.0
Lane LOS	F		
Approach Delay (s)	114.9	0.0	0.0
Approach LOS	F		

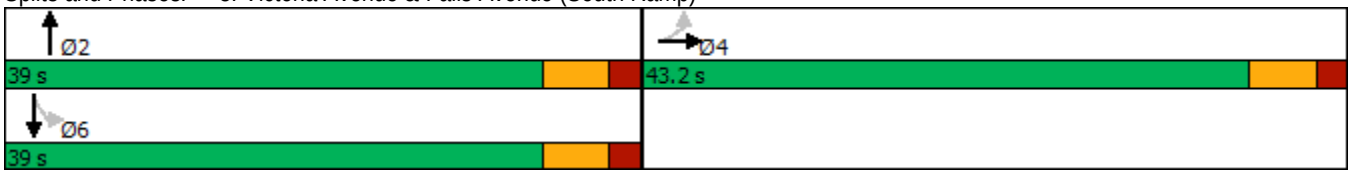
Intersection Summary			
Average Delay	14.7		
Intersection Capacity Utilization	116.9%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	112	2	575	27	406
Future Volume (vph)	112	2	575	27	406
Lane Group Flow (vph)	122	702	645	29	441
Turn Type	Perm	NA	NA	Perm	NA
Protected Phases		4	2		6
Permitted Phases	4			6	
Detector Phase	4	4	2	6	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	28.1	28.1	24.1	24.1	24.1
Total Split (s)	43.2	43.2	39.0	39.0	39.0
Total Split (%)	52.6%	52.6%	47.4%	47.4%	47.4%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	Max	Max	Max
v/c Ratio	0.17	0.96	0.90	0.25	0.61
Control Delay	14.2	43.9	41.4	23.4	23.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	14.2	43.9	41.4	23.4	23.5
Queue Length 50th (m)	10.9	81.0	93.6	3.0	53.7
Queue Length 95th (m)	20.7	#155.7	#159.8	10.0	83.7
Internal Link Dist (m)		82.5	171.2		29.4
Turn Bay Length (m)				10.0	
Base Capacity (vph)	772	764	715	117	728
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.16	0.92	0.90	0.25	0.61

Intersection Summary

Cycle Length: 82.2
Actuated Cycle Length: 80.2
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Victoria Avenue & Falls Avenue (South Ramp)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	2	644	0	0	0	0	575	18	27	406	0
Future Volume (vph)	112	2	644	0	0	0	0	575	18	27	406	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.1	6.1						6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97						1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00						1.00		1.00	1.00	
Frt	1.00	0.85						1.00		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1664	1453						1737		1681	1769	
Flt Permitted	0.95	1.00						1.00		0.16	1.00	
Satd. Flow (perm)	1664	1453						1737		287	1769	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	122	2	700	0	0	0	0	625	20	29	441	0
RTOR Reduction (vph)	0	96	0	0	0	0	0	1	0	0	0	0
Lane Group Flow (vph)	122	606	0	0	0	0	0	644	0	29	441	0
Confl. Peds. (#/hr)			8	8			63		33	33		63
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	0%	1%	6%	0%	0%	0%
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	35.0	35.0						33.0		33.0	33.0	
Effective Green, g (s)	35.0	35.0						33.0		33.0	33.0	
Actuated g/C Ratio	0.44	0.44						0.41		0.41	0.41	
Clearance Time (s)	6.1	6.1						6.1		6.1	6.1	
Vehicle Extension (s)	2.1	2.1						2.1		2.1	2.1	
Lane Grp Cap (vph)	726	634						714		118	727	
v/s Ratio Prot		c0.42						c0.37			0.25	
v/s Ratio Perm	0.07									0.10		
v/c Ratio	0.17	0.96						0.90		0.25	0.61	
Uniform Delay, d1	13.7	21.9						22.1		15.5	18.5	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	0.0	24.9						16.8		4.9	3.7	
Delay (s)	13.8	46.8						38.9		20.4	22.2	
Level of Service	B	D						D		C	C	
Approach Delay (s)		41.9			0.0			38.9			22.1	
Approach LOS		D			A			D			C	

Intersection Summary			
HCM 2000 Control Delay	36.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	80.2	Sum of lost time (s)	12.2
Intersection Capacity Utilization	116.9%	ICU Level of Service	H
Analysis Period (min)	15		

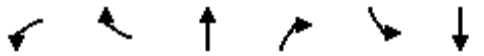
c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	151	227	322	234	585	465
Future Volume (vph)	151	227	322	234	585	465
Lane Group Flow (vph)	164	247	350	254	636	505
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	6.0	8.0
Minimum Split (s)	26.3	26.3	30.3	30.3	9.0	30.3
Total Split (s)	36.3	36.3	41.3	41.3	28.0	69.3
Total Split (%)	34.4%	34.4%	39.1%	39.1%	26.5%	65.6%
Yellow Time (s)	4.1	4.1	4.1	4.1	3.0	4.1
All-Red Time (s)	2.2	2.2	2.2	2.2	0.0	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	Max	Max	None	Max
v/c Ratio	0.67	0.63	0.52	0.42	0.81	0.41
Control Delay	49.0	12.3	25.1	10.6	16.9	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.0	12.3	25.1	10.6	16.9	7.3
Queue Length 50th (m)	26.9	0.0	45.0	10.5	37.4	30.8
Queue Length 95th (m)	46.6	20.7	78.0	32.3	#97.7	59.8
Internal Link Dist (m)	12.9		86.7			171.2
Turn Bay Length (m)	30.0			25.0	15.0	
Base Capacity (vph)	527	557	677	603	784	1243
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.44	0.52	0.42	0.81	0.41

Intersection Summary

Cycle Length: 105.6
Actuated Cycle Length: 89.8
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

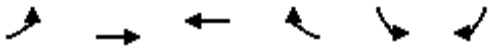
Splits and Phases: 4: Victoria Avenue & Bender Street



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	151	227	322	234	585	465
Future Volume (vph)	151	227	322	234	585	465
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.81	1.00	0.89	1.00	1.00
Flpb, ped/bikes	0.96	1.00	1.00	1.00	0.98	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1590	1219	1735	1320	1651	1769
Flt Permitted	0.95	1.00	1.00	1.00	0.41	1.00
Satd. Flow (perm)	1590	1219	1735	1320	709	1769
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	164	247	350	254	636	505
RTOR Reduction (vph)	0	208	0	97	0	0
Lane Group Flow (vph)	164	39	350	157	636	505
Confl. Peds. (#/hr)	20	77		51	51	
Heavy Vehicles (%)	1%	0%	2%	1%	0%	0%
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Actuated Green, G (s)	14.1	14.1	35.1	35.1	63.2	63.2
Effective Green, g (s)	14.1	14.1	35.1	35.1	63.2	63.2
Actuated g/C Ratio	0.16	0.16	0.39	0.39	0.70	0.70
Clearance Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Vehicle Extension (s)	2.5	2.5	3.5	3.5	3.0	3.5
Lane Grp Cap (vph)	249	191	677	515	761	1243
v/s Ratio Prot			0.20		c0.23	0.29
v/s Ratio Perm	c0.10	0.03		0.12	c0.35	
v/c Ratio	0.66	0.20	0.52	0.31	0.84	0.41
Uniform Delay, d1	35.6	33.0	20.9	19.0	8.1	5.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.5	0.4	2.8	1.5	7.9	1.0
Delay (s)	41.2	33.4	23.7	20.5	16.0	6.5
Level of Service	D	C	C	C	B	A
Approach Delay (s)	36.5		22.4			11.8
Approach LOS	D		C			B

Intersection Summary			
HCM 2000 Control Delay	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	89.9	Sum of lost time (s)	15.6
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	201	523	207	25	34	165
Future Volume (Veh/h)	201	523	207	25	34	165
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)	218	568	225	27	37	179
Pedestrians		2	2		53	
Lane Width (m)		3.7	3.7		3.7	
Walking Speed (m/s)		1.1	1.1		1.1	
Percent Blockage		0	0		5	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		37	79			
pX, platoon unblocked						
vC, conflicting volume	305				1298	294
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	305				1298	294
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	82				74	75
cM capacity (veh/h)	1205				140	712

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	218	568	252	216
Volume Left	218	0	0	37
Volume Right	0	0	27	179
cSH	1205	1700	1700	419
Volume to Capacity	0.18	0.33	0.15	0.52
Queue Length 95th (m)	5.0	0.0	0.0	21.8
Control Delay (s)	8.6	0.0	0.0	22.4
Lane LOS	A			C
Approach Delay (s)	2.4		0.0	22.4
Approach LOS				C

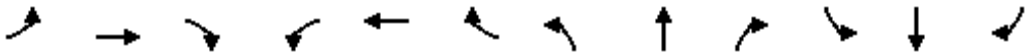
Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Configurations								
Traffic Volume (vph)	269	237	158	8	27	21	60	21
Future Volume (vph)	269	237	158	8	27	21	60	21
Lane Group Flow (vph)	0	550	172	0	54	98	65	230
Turn Type	Perm	NA	Over	Perm	NA	NA	Perm	NA
Protected Phases		8	6		8	6		2
Permitted Phases	8			8			6	
Detector Phase	8	8	6	8	8	6	6	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	26.3	42.1	42.1	26.3	26.3	14.3
Total Split (s)	72.9	72.9	26.3	72.9	72.9	26.3	26.3	18.5
Total Split (%)	61.9%	61.9%	22.3%	61.9%	61.9%	22.3%	22.3%	15.7%
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	2.2	3.0	3.0	2.2	2.2	2.2
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		7.1	6.3		7.1	6.3	6.3	6.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	Min	None	None	Min	Min	Min
v/c Ratio		0.88	0.49		0.08	0.43	0.25	0.82
Control Delay		35.7	42.7		8.7	44.8	5.9	48.9
Queue Delay		0.2	0.0		0.0	0.0	0.0	0.0
Total Delay		36.0	42.7		8.7	44.8	5.9	48.9
Queue Length 50th (m)		74.4	14.7		3.0	14.7	0.0	22.4
Queue Length 95th (m)		131.5	32.2		9.0	36.6	5.7	#84.0
Internal Link Dist (m)		54.9			36.6	34.4		24.4
Turn Bay Length (m)			40.0					
Base Capacity (vph)		1028	639		1133	411	400	282
Starvation Cap Reductn		103	0		0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0
Reduced v/c Ratio		0.59	0.27		0.05	0.24	0.16	0.82

Intersection Summary

Cycle Length: 117.7
Actuated Cycle Length: 86.3
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Bender Street & Ontario Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	269	237	158	8	27	15	69	21	60	39	21	152
Future Volume (vph)	269	237	158	8	27	15	69	21	60	39	21	152
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Lane Util. Factor		1.00	0.88		1.00			1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		0.96			1.00	0.93		0.93	
Flpb, ped/bikes		0.94	1.00		1.00			1.00	1.00		1.00	
Frt		1.00	0.85		0.96			1.00	0.85		0.90	
Flt Protected		0.97	1.00		0.99			0.96	1.00		0.99	
Satd. Flow (prot)		1617	2647		1579			1704	1392		1453	
Flt Permitted		0.80	1.00		0.91			0.96	1.00		0.99	
Satd. Flow (perm)		1336	2647		1456			1704	1392		1453	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	292	258	172	9	29	16	75	23	65	42	23	165
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	56	0	74	0
Lane Group Flow (vph)	0	550	172	0	46	0	0	98	9	0	156	0
Confl. Peds. (#/hr)	96		60	60		96	23		50	50		23
Heavy Vehicles (%)	0%	1%	0%	0%	4%	0%	0%	0%	0%	0%	15%	0%
Turn Type	Perm	NA	Over	Perm	NA		Split	NA	Perm	Split	NA	
Protected Phases		8	6		8		6	6		2	2	
Permitted Phases	8			8					6			
Actuated Green, G (s)		41.5	11.5		41.5			11.5	11.5		12.7	
Effective Green, g (s)		41.5	11.5		41.5			11.5	11.5		12.7	
Actuated g/C Ratio		0.49	0.13		0.49			0.13	0.13		0.15	
Clearance Time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Vehicle Extension (s)		3.5	3.0		3.5			3.0	3.0		3.0	
Lane Grp Cap (vph)		649	356		707			229	187		216	
v/s Ratio Prot			c0.06					0.06			c0.11	
v/s Ratio Perm		c0.41			0.03				0.01			
v/c Ratio		0.85	0.48		0.06			0.43	0.05		0.72	
Uniform Delay, d1		19.2	34.2		11.6			33.9	32.2		34.7	
Progression Factor		1.00	1.00		1.00			1.00	1.00		1.00	
Incremental Delay, d2		10.2	1.0		0.0			1.3	0.1		11.3	
Delay (s)		29.4	35.2		11.7			35.2	32.3		45.9	
Level of Service		C	D		B			D	C		D	
Approach Delay (s)		30.8			11.7			34.0			45.9	
Approach LOS		C			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	33.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	85.4	Sum of lost time (s)	19.7
Intersection Capacity Utilization	76.4%	ICU Level of Service	D
Analysis Period (min)	15		

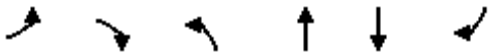
c Critical Lane Group

Lane Group	EBR	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	299	39	88	776
Future Volume (vph)	299	39	88	776
Lane Group Flow (vph)	325	42	96	844
Turn Type	Perm	Prot	NA	NA
Protected Phases		5	2	6
Permitted Phases	4			
Detector Phase	4	5	2	6
Switch Phase				
Minimum Initial (s)	1.0	8.0	10.0	10.0
Minimum Split (s)	3.0	13.0	17.0	17.0
Total Split (s)	3.0	25.0	72.0	47.0
Total Split (%)	4.0%	33.3%	96.0%	62.7%
Yellow Time (s)	2.0	3.0	5.0	5.0
All-Red Time (s)	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	2.0	5.0	7.0	7.0
Lead/Lag		Lead		Lag
Lead-Lag Optimize?				
Recall Mode	None	None	Max	Max
v/c Ratio	0.72	0.24	0.06	0.33
Control Delay	10.8	34.0	0.8	4.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	10.8	34.0	0.8	4.1
Queue Length 50th (m)	0.0	5.6	0.9	21.3
Queue Length 95th (m)	#8.2	14.1	1.8	31.0
Internal Link Dist (m)			45.6	34.5
Turn Bay Length (m)		20.0		
Base Capacity (vph)	452	435	1518	2554
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.72	0.10	0.06	0.33

Intersection Summary

Cycle Length: 75
Actuated Cycle Length: 75
Natural Cycle: 55
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Falls Avenue & Bender Street



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	299	39	88	776	1
Future Volume (vph)	0	299	39	88	776	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)		2.0	5.0	7.0	7.0	
Lane Util. Factor		1.00	1.00	1.00	0.95	
Frpb, ped/bikes		0.58	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	
Frt		0.86	1.00	1.00	1.00	
Flt Protected		1.00	0.95	1.00	1.00	
Satd. Flow (prot)		873	1632	1752	3361	
Flt Permitted		1.00	0.95	1.00	1.00	
Satd. Flow (perm)		873	1632	1752	3361	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	325	42	96	843	1
RTOR Reduction (vph)	0	321	0	0	0	0
Lane Group Flow (vph)	0	4	42	96	844	0
Confl. Peds. (#/hr)	18	39	16			16
Heavy Vehicles (%)	0%	1%	3%	1%	0%	0%
Turn Type		Perm	Prot	NA	NA	
Protected Phases			5	2	6	
Permitted Phases		4				
Actuated Green, G (s)		1.0	5.0	67.0	57.0	
Effective Green, g (s)		1.0	5.0	67.0	57.0	
Actuated g/C Ratio		0.01	0.06	0.87	0.74	
Clearance Time (s)		2.0	5.0	7.0	7.0	
Vehicle Extension (s)		0.2	2.0	4.5	4.5	
Lane Grp Cap (vph)		11	105	1524	2488	
v/s Ratio Prot			c0.03	0.05	c0.25	
v/s Ratio Perm		c0.00				
v/c Ratio		0.38	0.40	0.06	0.34	
Uniform Delay, d1		37.7	34.6	0.7	3.5	
Progression Factor		1.00	1.00	1.00	1.00	
Incremental Delay, d2		7.9	0.9	0.1	0.4	
Delay (s)		45.6	35.5	0.8	3.8	
Level of Service		D	D	A	A	
Approach Delay (s)	45.6			11.3	3.8	
Approach LOS	D			B	A	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	77.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	55.9%	ICU Level of Service	B
Analysis Period (min)	15		

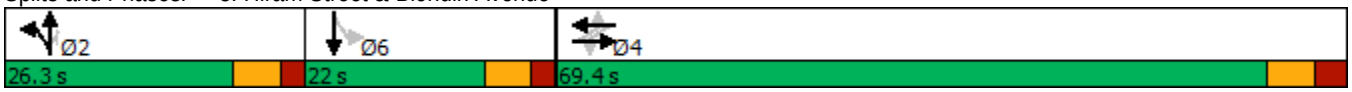
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	9	235	89	158	39	3	148	2	254
Future Volume (vph)	9	235	89	158	39	3	148	2	254
Lane Group Flow (vph)	0	305	0	279	42	3	161	0	308
Turn Type	Perm	NA	Perm	NA	Split	NA	Perm	Perm	NA
Protected Phases		4		4	2	2			6
Permitted Phases	4		4				2	6	
Detector Phase	4	4	4	4	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	42.1	42.1	26.3	26.3	26.3	14.3	14.3
Total Split (s)	69.4	69.4	69.4	69.4	26.3	26.3	26.3	22.0	22.0
Total Split (%)	59.0%	59.0%	59.0%	59.0%	22.3%	22.3%	22.3%	18.7%	18.7%
Yellow Time (s)	4.1	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	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		7.1		7.1	6.3	6.3	6.3		6.3
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio		0.64		0.88	0.10	0.01	0.33		0.86
Control Delay		29.6		53.7	24.9	24.7	6.8		55.7
Queue Delay		0.0		0.0	0.0	0.0	0.0		0.0
Total Delay		29.6		53.7	24.9	24.7	6.8		55.7
Queue Length 50th (m)		37.4		38.3	4.6	0.4	0.0		42.6
Queue Length 95th (m)		60.5		66.5	13.7	2.5	14.6		#100.6
Internal Link Dist (m)		59.4		95.8		20.6			32.1
Turn Bay Length (m)									
Base Capacity (vph)		1383		926	438	461	493		358
Starvation Cap Reductn		0		0	0	0	0		0
Spillback Cap Reductn		0		0	0	0	0		0
Storage Cap Reductn		0		0	0	0	0		0
Reduced v/c Ratio		0.22		0.30	0.10	0.01	0.33		0.86

Intersection Summary

Cycle Length: 117.7
Actuated Cycle Length: 77.2
Natural Cycle: 85
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 8: Hiram Street & Blondin Avenue



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	235	37	89	158	9	39	3	148	2	254	28
Future Volume (vph)	9	235	37	89	158	9	39	3	148	2	254	28
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Lane Util. Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Frpb, ped/bikes		1.00			1.00		1.00	1.00	0.97		1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00	1.00		1.00	
Frt		0.98			1.00		1.00	1.00	0.85		0.99	
Flt Protected		1.00			0.98		0.95	1.00	1.00		1.00	
Satd. Flow (prot)		1728			1649		1681	1769	1448		1740	
Flt Permitted		0.98			0.68		0.95	1.00	1.00		1.00	
Satd. Flow (perm)		1702			1142		1681	1769	1448		1739	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	255	40	97	172	10	42	3	161	2	276	30
RTOR Reduction (vph)	0	7	0	0	1	0	0	0	119	0	3	0
Lane Group Flow (vph)	0	298	0	0	278	0	42	3	42	0	305	0
Confl. Peds. (#/hr)	16		9	9		16	4		14	14		4
Heavy Vehicles (%)	0%	0%	0%	5%	4%	11%	0%	0%	1%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		4			4		2	2			6	
Permitted Phases	4			4					2	6		
Actuated Green, G (s)		21.5			21.5		20.1	20.1	20.1		15.8	
Effective Green, g (s)		21.5			21.5		20.1	20.1	20.1		15.8	
Actuated g/C Ratio		0.28			0.28		0.26	0.26	0.26		0.20	
Clearance Time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)		474			318		438	461	377		356	
v/s Ratio Prot							0.02	0.00				
v/s Ratio Perm		0.17			c0.24				c0.03		c0.18	
v/c Ratio		0.63			0.87		0.10	0.01	0.11		0.86	
Uniform Delay, d1		24.3			26.5		21.6	21.1	21.7		29.6	
Progression Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		2.6			22.2		0.4	0.0	0.6		22.4	
Delay (s)		26.9			48.7		22.0	21.1	22.3		51.9	
Level of Service		C			D		C	C	C		D	
Approach Delay (s)		26.9			48.7			22.2			51.9	
Approach LOS		C			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	38.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	77.1	Sum of lost time (s)	19.7
Intersection Capacity Utilization	89.6%	ICU Level of Service	E
Analysis Period (min)	15		

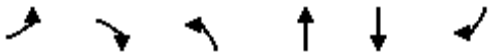
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	172	141	437	312	341	124
Future Volume (vph)	172	141	437	312	341	124
Lane Group Flow (vph)	187	153	475	339	371	135
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Detector Phase	4	4	1	2	2	2
Switch Phase						
Minimum Initial (s)	8.0	8.0	6.0	10.0	10.0	10.0
Minimum Split (s)	23.3	23.3	9.0	27.5	27.5	27.5
Total Split (s)	26.3	26.3	16.0	30.5	30.5	30.5
Total Split (%)	36.1%	36.1%	22.0%	41.9%	41.9%	41.9%
Yellow Time (s)	4.1	4.1	3.0	4.1	4.1	4.1
All-Red Time (s)	2.2	2.2	0.0	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lead/Lag			Lead	Lag	Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Max	Max	Max
v/c Ratio	0.63	0.38	0.77	0.55	0.60	0.23
Control Delay	34.3	7.3	18.0	21.5	22.8	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.3	7.3	18.0	21.5	22.8	4.7
Queue Length 50th (m)	21.1	0.0	22.4	31.7	35.5	0.0
Queue Length 95th (m)	38.8	12.2	#63.8	62.4	69.2	10.4
Internal Link Dist (m)	95.8			80.7	33.4	
Turn Bay Length (m)						
Base Capacity (vph)	470	547	624	616	616	575
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.28	0.76	0.55	0.60	0.23

Intersection Summary

Cycle Length: 72.8
Actuated Cycle Length: 65.3
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

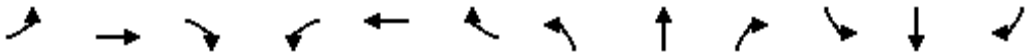
Splits and Phases: 9: Hiram Street & River Road



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	172	141	437	312	341	124
Future Volume (vph)	172	141	437	312	341	124
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.96	1.00	1.00	1.00	0.90
Flpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1528	1440	1572	1669	1669	1342
Flt Permitted	0.95	1.00	0.45	1.00	1.00	1.00
Satd. Flow (perm)	1528	1440	740	1669	1669	1342
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	187	153	475	339	371	135
RTOR Reduction (vph)	0	123	0	0	0	85
Lane Group Flow (vph)	187	30	475	339	371	50
Confl. Peds. (#/hr)	4	12	52			52
Heavy Vehicles (%)	10%	0%	5%	6%	6%	1%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Actuated Green, G (s)	12.6	12.6	36.8	24.1	24.1	24.1
Effective Green, g (s)	12.6	12.6	36.8	24.1	24.1	24.1
Actuated g/C Ratio	0.19	0.19	0.56	0.37	0.37	0.37
Clearance Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Vehicle Extension (s)	2.2	2.2	2.2	2.2	2.2	2.2
Lane Grp Cap (vph)	295	278	579	616	616	496
v/s Ratio Prot	c0.12		c0.16	0.20	0.22	
v/s Ratio Perm		0.02	c0.30			0.04
v/c Ratio	0.63	0.11	0.82	0.55	0.60	0.10
Uniform Delay, d1	24.2	21.7	9.1	16.3	16.7	13.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.5	0.1	8.8	3.5	4.3	0.4
Delay (s)	27.7	21.7	17.9	19.8	21.0	13.9
Level of Service	C	C	B	B	C	B
Approach Delay (s)	25.0			18.7	19.1	
Approach LOS	C			B	B	

Intersection Summary			
HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	65.2	Sum of lost time (s)	15.8
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

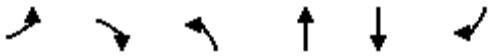


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	0	35	33	0	27	37	96	35	44	117	43
Future Volume (Veh/h)	29	0	35	33	0	27	37	96	35	44	117	43
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	32	0	38	36	0	29	40	104	38	48	127	47
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								48				
pX, platoon unblocked												
vC, conflicting volume	478	468	150	488	473	123	174			142		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	478	468	150	488	473	123	174			142		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	93	100	96	92	100	97	97			97		
cM capacity (veh/h)	459	463	896	448	460	928	1403			1441		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	70	65	182	222
Volume Left	32	36	40	48
Volume Right	38	29	38	47
cSH	625	582	1403	1441
Volume to Capacity	0.11	0.11	0.03	0.03
Queue Length 95th (m)	2.9	2.8	0.7	0.8
Control Delay (s)	11.5	12.0	1.9	1.9
Lane LOS	B	B	A	A
Approach Delay (s)	11.5	12.0	1.9	1.9
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.3			
Intersection Capacity Utilization	28.0%	ICU Level of Service	A	
Analysis Period (min)	15			

2030 Future Background AM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	228	364	177	157
Future Volume (Veh/h)	0	0	228	364	177	157
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	248	396	192	171
Pedestrians	37			5		
Lane Width (m)	0.0			3.7		
Walking Speed (m/s)	1.1			1.1		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				118		
pX, platoon unblocked						
vC, conflicting volume	1206	320	400			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1206	320	400			
tC, single (s)	6.4	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	100	100	78			
cM capacity (veh/h)	159	722	1117			

Direction, Lane #	NB 1	NB 2	SB 1
Volume Total	248	396	363
Volume Left	248	0	0
Volume Right	0	0	171
cSH	1117	1700	1700
Volume to Capacity	0.22	0.23	0.21
Queue Length 95th (m)	6.5	0.0	0.0
Control Delay (s)	9.1	0.0	0.0
Lane LOS	A		
Approach Delay (s)	3.5		0.0
Approach LOS			

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	36	18	573	0	0	176
Future Volume (Veh/h)	36	18	573	0	0	176
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)	39	20	623	0	0	191
Pedestrians	10					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	1					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			53			
pX, platoon unblocked	0.76	0.76			0.76	
vC, conflicting volume	824	633			633	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	610	359			359	
tC, single (s)	6.4	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.2	
p0 queue free %	89	96			100	
cM capacity (veh/h)	347	509			911	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	59	623	191
Volume Left	39	0	0
Volume Right	20	0	0
cSH	389	1700	1700
Volume to Capacity	0.15	0.37	0.11
Queue Length 95th (m)	4.0	0.0	0.0
Control Delay (s)	15.9	0.0	0.0
Lane LOS	C		
Approach Delay (s)	15.9	0.0	0.0
Approach LOS	C		

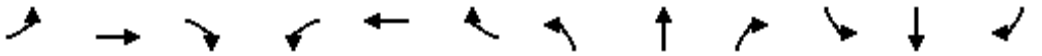
Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	203	0	371	13	198
Future Volume (vph)	203	0	371	13	198
Lane Group Flow (vph)	221	337	413	14	215
Turn Type	Perm	NA	NA	Perm	NA
Protected Phases		4	2		6
Permitted Phases	4			6	
Detector Phase	4	4	2	6	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	28.1	28.1	24.1	24.1	24.1
Total Split (s)	36.1	36.1	46.1	46.1	46.1
Total Split (%)	43.9%	43.9%	56.1%	56.1%	56.1%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	Max	Max	Max
v/c Ratio	0.66	0.47	0.40	0.03	0.21
Control Delay	33.9	2.2	9.3	7.2	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.9	2.2	9.3	7.2	7.7
Queue Length 50th (m)	25.0	0.0	22.5	0.6	10.2
Queue Length 95th (m)	44.2	0.0	52.3	3.2	25.8
Internal Link Dist (m)		82.5	171.2		29.4
Turn Bay Length (m)				10.0	
Base Capacity (vph)	718	948	1023	528	1000
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.31	0.36	0.40	0.03	0.21

Intersection Summary

Cycle Length: 82.2
Actuated Cycle Length: 66.5
Natural Cycle: 55
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Victoria Avenue & Falls Avenue (South Ramp)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	0	310	0	0	0	0	371	9	13	198	0
Future Volume (vph)	203	0	310	0	0	0	0	371	9	13	198	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.1	6.1						6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00						1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00						1.00		0.99	1.00	
Frt	1.00	0.85						1.00		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1583	1475						1691		1666	1654	
Flt Permitted	0.95	1.00						1.00		0.50	1.00	
Satd. Flow (perm)	1583	1475						1691		874	1654	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	221	0	337	0	0	0	0	403	10	14	215	0
RTOR Reduction (vph)	0	266	0	0	0	0	0	1	0	0	0	0
Lane Group Flow (vph)	221	71	0	0	0	0	0	412	0	14	215	0
Confl. Peds. (#/hr)	1					1	36		9	9		36
Heavy Vehicles (%)	6%	0%	2%	0%	0%	0%	0%	4%	13%	0%	7%	0%
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	14.0	14.0						40.2		40.2	40.2	
Effective Green, g (s)	14.0	14.0						40.2		40.2	40.2	
Actuated g/C Ratio	0.21	0.21						0.61		0.61	0.61	
Clearance Time (s)	6.1	6.1						6.1		6.1	6.1	
Vehicle Extension (s)	2.1	2.1						2.1		2.1	2.1	
Lane Grp Cap (vph)	333	310						1023		529	1001	
v/s Ratio Prot		0.05						c0.24			0.13	
v/s Ratio Perm	c0.14									0.02		
v/c Ratio	0.66	0.23						0.40		0.03	0.21	
Uniform Delay, d1	24.0	21.7						6.8		5.3	5.9	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	4.0	0.2						1.2		0.1	0.5	
Delay (s)	28.0	21.9						8.0		5.3	6.4	
Level of Service	C	C						A		A	A	
Approach Delay (s)		24.3			0.0			8.0			6.4	
Approach LOS		C			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	66.4	Sum of lost time (s)	12.2
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		

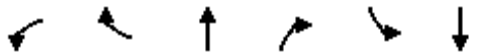
c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	60	97	270	110	246	244
Future Volume (vph)	60	97	270	110	246	244
Lane Group Flow (vph)	65	105	293	120	267	265
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	6.0	8.0
Minimum Split (s)	26.3	26.3	30.3	30.3	9.0	30.3
Total Split (s)	36.3	36.3	41.3	41.3	28.0	69.3
Total Split (%)	34.4%	34.4%	39.1%	39.1%	26.5%	65.6%
Yellow Time (s)	4.1	4.1	4.1	4.1	3.0	4.1
All-Red Time (s)	2.2	2.2	2.2	2.2	0.0	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	Max	Max	None	Max
v/c Ratio	0.39	0.44	0.29	0.15	0.35	0.21
Control Delay	42.2	13.6	9.9	3.6	3.9	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.2	13.6	9.9	3.6	3.9	3.9
Queue Length 50th (m)	10.0	0.0	20.2	1.8	7.9	9.8
Queue Length 95th (m)	21.7	13.7	40.7	9.6	16.9	19.7
Internal Link Dist (m)	12.9		86.7			171.2
Turn Bay Length (m)	30.0			25.0	15.0	
Base Capacity (vph)	553	551	1014	825	890	1290
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.19	0.29	0.15	0.30	0.21

Intersection Summary

Cycle Length: 105.6
Actuated Cycle Length: 84.7
Natural Cycle: 70
Control Type: Actuated-Uncoordinated

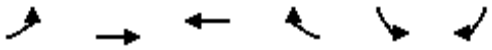
Splits and Phases: 4: Victoria Avenue & Bender Street



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	60	97	270	110	246	244
Future Volume (vph)	60	97	270	110	246	244
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.97	1.00	0.97	1.00	1.00
Flpb, ped/bikes	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1572	1369	1701	1326	1551	1735
Flt Permitted	0.95	1.00	1.00	1.00	0.54	1.00
Satd. Flow (perm)	1572	1369	1701	1326	889	1735
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	105	293	120	267	265
RTOR Reduction (vph)	0	94	0	36	0	0
Lane Group Flow (vph)	65	11	293	84	267	265
Confl. Peds. (#/hr)	13	3		6	6	
Heavy Vehicles (%)	4%	7%	4%	10%	8%	2%
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Actuated Green, G (s)	9.1	9.1	50.6	50.6	63.1	63.1
Effective Green, g (s)	9.1	9.1	50.6	50.6	63.1	63.1
Actuated g/C Ratio	0.11	0.11	0.60	0.60	0.74	0.74
Clearance Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Vehicle Extension (s)	2.5	2.5	3.5	3.5	3.0	3.5
Lane Grp Cap (vph)	168	146	1014	791	735	1291
v/s Ratio Prot			0.17		c0.04	0.15
v/s Ratio Perm	c0.04	0.01		0.06	c0.23	
v/c Ratio	0.39	0.08	0.29	0.11	0.36	0.21
Uniform Delay, d1	35.3	34.1	8.3	7.4	3.4	3.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	0.2	0.7	0.3	0.3	0.4
Delay (s)	36.3	34.2	9.1	7.6	3.8	3.6
Level of Service	D	C	A	A	A	A
Approach Delay (s)	35.0		8.6			3.7
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	84.8	Sum of lost time (s)	15.6
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	169	185	29	3	13	128
Future Volume (Veh/h)	169	185	29	3	13	128
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)	184	201	32	3	14	139
Pedestrians			2		5	
Lane Width (m)			3.7		3.7	
Walking Speed (m/s)			1.1		1.1	
Percent Blockage			0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		37	79			
pX, platoon unblocked						
vC, conflicting volume	40				610	38
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	40				610	38
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	88				97	86
cM capacity (veh/h)	1556				404	1026

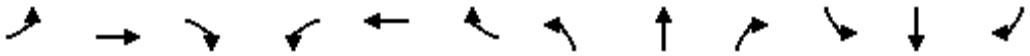
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	184	201	35	153
Volume Left	184	0	0	14
Volume Right	0	0	3	139
cSH	1556	1700	1700	899
Volume to Capacity	0.12	0.12	0.02	0.17
Queue Length 95th (m)	3.1	0.0	0.0	4.6
Control Delay (s)	7.6	0.0	0.0	9.8
Lane LOS	A			A
Approach Delay (s)	3.6		0.0	9.8
Approach LOS				A

Intersection Summary			
Average Delay	5.1		
Intersection Capacity Utilization	32.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Configurations								
Traffic Volume (vph)	36	46	116	3	1	3	20	2
Future Volume (vph)	36	46	116	3	1	3	20	2
Lane Group Flow (vph)	0	89	126	0	7	18	22	29
Turn Type	Perm	NA	Over	Perm	NA	NA	Perm	NA
Protected Phases		8	6		8	6		2
Permitted Phases	8			8			6	
Detector Phase	8	8	6	8	8	6	6	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	26.3	42.1	42.1	26.3	26.3	14.3
Total Split (s)	42.1	42.1	41.3	42.1	42.1	41.3	41.3	34.3
Total Split (%)	35.8%	35.8%	35.1%	35.8%	35.8%	35.1%	35.1%	29.1%
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	2.2	3.0	3.0	2.2	2.2	2.2
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		7.1	6.3		7.1	6.3	6.3	6.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	Min	None	None	Min	Min	Min
v/c Ratio		0.26	0.22		0.02	0.05	0.06	0.09
Control Delay		17.1	16.4		12.7	16.1	0.2	11.4
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		17.1	16.4		12.7	16.1	0.2	11.4
Queue Length 50th (m)		6.0	4.8		0.3	1.2	0.0	0.6
Queue Length 95th (m)		15.4	11.2		2.6	5.1	0.0	5.7
Internal Link Dist (m)		54.9			36.6	34.4		24.4
Turn Bay Length (m)			40.0					
Base Capacity (vph)		1218	2202		1004	1364	1253	1133
Starvation Cap Reductn		0	0		0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0
Reduced v/c Ratio		0.07	0.06		0.01	0.01	0.02	0.03

Intersection Summary
Cycle Length: 117.7
Actuated Cycle Length: 39.1
Natural Cycle: 85
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Bender Street & Ontario Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	46	116	3	1	3	14	3	20	6	2	18
Future Volume (vph)	36	46	116	3	1	3	14	3	20	6	2	18
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Lane Util. Factor		1.00	0.88		1.00			1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		0.99			1.00	0.98		0.98	
Flpb, ped/bikes		1.00	1.00		1.00			1.00	1.00		1.00	
Frt		1.00	0.85		0.94			1.00	0.85		0.91	
Flt Protected		0.98	1.00		0.98			0.96	1.00		0.99	
Satd. Flow (prot)		1634	2570		1411			1592	1472		1489	
Flt Permitted		0.86	1.00		0.82			0.96	1.00		0.99	
Satd. Flow (perm)		1429	2570		1182			1592	1472		1489	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	50	126	3	1	3	15	3	22	7	2	20
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	17	0	16	0
Lane Group Flow (vph)	0	89	126	0	4	0	0	18	5	0	13	0
Confl. Peds. (#/hr)	12		12	12		12	5		15	15		5
Heavy Vehicles (%)	0%	10%	3%	33%	0%	0%	8%	0%	0%	0%	0%	6%
Turn Type	Perm	NA	Over	Perm	NA		Split	NA	Perm	Split	NA	
Protected Phases		8	6		8		6	6		2	2	
Permitted Phases	8			8					6			
Actuated Green, G (s)		4.9	8.7		4.9			8.7	8.7		8.4	
Effective Green, g (s)		4.9	8.7		4.9			8.7	8.7		8.4	
Actuated g/C Ratio		0.12	0.21		0.12			0.21	0.21		0.20	
Clearance Time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Vehicle Extension (s)		3.5	3.0		3.5			3.0	3.0		3.0	
Lane Grp Cap (vph)		167	536		138			332	307		299	
v/s Ratio Prot			c0.05					0.01			c0.01	
v/s Ratio Perm		c0.06			0.00				0.00			
v/c Ratio		0.53	0.24		0.03			0.05	0.01		0.04	
Uniform Delay, d1		17.3	13.7		16.3			13.2	13.1		13.4	
Progression Factor		1.00	1.00		1.00			1.00	1.00		1.00	
Incremental Delay, d2		3.7	0.2		0.1			0.1	0.0		0.1	
Delay (s)		21.0	14.0		16.4			13.3	13.1		13.5	
Level of Service		C	B		B			B	B		B	
Approach Delay (s)		16.9			16.4			13.2			13.5	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	41.7	Sum of lost time (s)	19.7
Intersection Capacity Utilization	47.8%	ICU Level of Service	A
Analysis Period (min)	15		

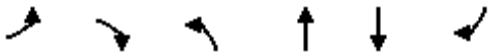
c Critical Lane Group

Lane Group	EBR	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	72	9	45	229
Future Volume (vph)	72	9	45	229
Lane Group Flow (vph)	78	10	49	249
Turn Type	Perm	Prot	NA	NA
Protected Phases		5	2	6
Permitted Phases	4			
Detector Phase	4	5	2	6
Switch Phase				
Minimum Initial (s)	1.0	8.0	10.0	10.0
Minimum Split (s)	3.0	13.0	17.0	17.0
Total Split (s)	3.0	25.0	72.0	47.0
Total Split (%)	4.0%	33.3%	96.0%	62.7%
Yellow Time (s)	2.0	3.0	5.0	5.0
All-Red Time (s)	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	2.0	5.0	7.0	7.0
Lead/Lag		Lead		Lag
Lead-Lag Optimize?				
Recall Mode	None	None	Max	Max
v/c Ratio	0.10	0.06	0.03	0.09
Control Delay	0.3	31.3	0.7	1.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	0.3	31.3	0.7	1.7
Queue Length 50th (m)	0.0	1.3	0.4	1.2
Queue Length 95th (m)	0.0	5.4	1.1	8.2
Internal Link Dist (m)			45.6	34.5
Turn Bay Length (m)		20.0		
Base Capacity (vph)	763	385	1534	2802
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.10	0.03	0.03	0.09

Intersection Summary

Cycle Length: 75
Actuated Cycle Length: 77.4
Natural Cycle: 40
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Falls Avenue & Bender Street



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	72	9	45	229	0
Future Volume (vph)	0	72	9	45	229	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)		2.0	5.0	7.0	7.0	
Lane Util. Factor		1.00	1.00	1.00	0.95	
Frpb, ped/bikes		0.94	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	
Frt		0.86	1.00	1.00	1.00	
Flt Protected		1.00	0.95	1.00	1.00	
Satd. Flow (prot)		1357	1488	1718	3264	
Flt Permitted		1.00	0.95	1.00	1.00	
Satd. Flow (perm)		1357	1488	1718	3264	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	78	10	49	249	0
RTOR Reduction (vph)	0	77	0	0	0	0
Lane Group Flow (vph)	0	1	10	49	249	0
Confl. Peds. (#/hr)	3	2	4			4
Heavy Vehicles (%)	0%	6%	13%	3%	3%	0%
Turn Type		Perm	Prot	NA	NA	
Protected Phases			5	2	6	
Permitted Phases		4				
Actuated Green, G (s)		0.8	1.7	71.9	65.2	
Effective Green, g (s)		0.8	1.7	71.9	65.2	
Actuated g/C Ratio		0.01	0.02	0.88	0.80	
Clearance Time (s)		2.0	5.0	7.0	7.0	
Vehicle Extension (s)		0.2	2.0	4.5	4.5	
Lane Grp Cap (vph)		13	30	1511	2604	
v/s Ratio Prot			c0.01	0.03	c0.08	
v/s Ratio Perm		c0.00				
v/c Ratio		0.06	0.33	0.03	0.10	
Uniform Delay, d1		40.1	39.4	0.6	1.8	
Progression Factor		1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.7	2.4	0.0	0.1	
Delay (s)		40.8	41.8	0.6	1.9	
Level of Service		D	D	A	A	
Approach Delay (s)	40.8			7.6	1.9	
Approach LOS	D			A	A	

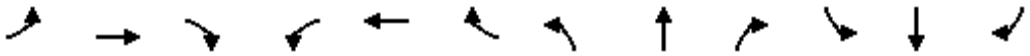
Intersection Summary			
HCM 2000 Control Delay	10.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.10		
Actuated Cycle Length (s)	81.7	Sum of lost time (s)	14.0
Intersection Capacity Utilization	22.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	1	30	34	18	5	1	21	1	10
Future Volume (vph)	1	30	34	18	5	1	21	1	10
Lane Group Flow (vph)	0	43	0	58	5	1	23	0	14
Turn Type	Perm	NA	Perm	NA	Split	NA	Perm	Perm	NA
Protected Phases		4		4	2	2			6
Permitted Phases	4		4				2	6	
Detector Phase	4	4	4	4	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	42.1	42.1	26.3	26.3	26.3	14.3	14.3
Total Split (s)	42.1	42.1	42.1	42.1	41.3	41.3	41.3	34.3	34.3
Total Split (%)	35.8%	35.8%	35.8%	35.8%	35.1%	35.1%	35.1%	29.1%	29.1%
Yellow Time (s)	4.1	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	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		7.1		7.1	6.3	6.3	6.3		6.3
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio		0.23		0.40	0.01	0.00	0.04		0.03
Control Delay		34.5		46.5	18.8	19.0	0.1		21.5
Queue Delay		0.0		0.0	0.0	0.0	0.0		0.0
Total Delay		34.5		46.5	18.8	19.0	0.1		21.5
Queue Length 50th (m)		5.6		9.6	0.6	0.1	0.0		1.5
Queue Length 95th (m)		15.2		21.5	2.9	1.2	0.0		6.0
Internal Link Dist (m)		59.4		95.8		20.6			32.1
Turn Bay Length (m)									
Base Capacity (vph)		673		533	663	698	643		543
Starvation Cap Reductn		0		0	0	0	0		0
Spillback Cap Reductn		0		0	0	0	0		0
Storage Cap Reductn		0		0	0	0	0		0
Reduced v/c Ratio		0.06		0.11	0.01	0.00	0.04		0.03

Intersection Summary
Cycle Length: 117.7
Actuated Cycle Length: 89.3
Natural Cycle: 85
Control Type: Semi Act-Uncoord

Splits and Phases: 8: Hiram Street & Blondin Avenue



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	30	8	34	18	1	5	1	21	1	10	2
Future Volume (vph)	1	30	8	34	18	1	5	1	21	1	10	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Lane Util. Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Frpb, ped/bikes		1.00			1.00		1.00	1.00	0.99		1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00	1.00		1.00	
Frt		0.97			1.00		1.00	1.00	0.85		0.98	
Flt Protected		1.00			0.97		0.95	1.00	1.00		1.00	
Satd. Flow (prot)		1710			1674		1681	1769	1484		1724	
Flt Permitted		0.99			0.78		0.95	1.00	1.00		0.99	
Satd. Flow (perm)		1694			1349		1681	1769	1484		1716	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	33	9	37	20	1	5	1	23	1	11	2
RTOR Reduction (vph)	0	8	0	0	1	0	0	0	14	0	1	0
Lane Group Flow (vph)	0	35	0	0	57	0	5	1	9	0	13	0
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Heavy Vehicles (%)	0%	0%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		4			4		2	2			6	
Permitted Phases	4			4					2	6		
Actuated Green, G (s)		7.7			7.7		35.2	35.2	35.2		28.2	
Effective Green, g (s)		7.7			7.7		35.2	35.2	35.2		28.2	
Actuated g/C Ratio		0.08			0.08		0.39	0.39	0.39		0.31	
Clearance Time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)		143			114		651	685	575		532	
v/s Ratio Prot							0.00	0.00				
v/s Ratio Perm		0.02			c0.04				c0.01		c0.01	
v/c Ratio		0.24			0.50		0.01	0.00	0.02		0.02	
Uniform Delay, d1		38.8			39.7		17.1	17.0	17.1		21.7	
Progression Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		0.9			3.4		0.0	0.0	0.0		0.1	
Delay (s)		39.7			43.1		17.1	17.0	17.2		21.8	
Level of Service		D			D		B	B	B		C	
Approach Delay (s)		39.7			43.1			17.2			21.8	
Approach LOS		D			D			B			C	

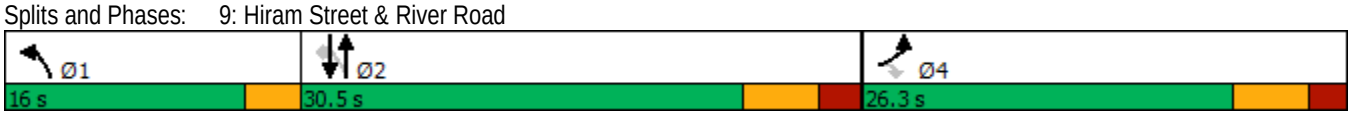
Intersection Summary			
HCM 2000 Control Delay	34.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.07		
Actuated Cycle Length (s)	90.8	Sum of lost time (s)	19.7
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

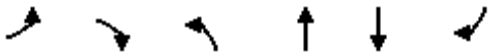
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	36	37	100	111	24
Future Volume (vph)	5	36	37	100	111	24
Lane Group Flow (vph)	5	39	40	109	121	26
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Detector Phase	4	4	1	2	2	2
Switch Phase						
Minimum Initial (s)	8.0	8.0	6.0	10.0	10.0	10.0
Minimum Split (s)	23.3	23.3	9.0	27.5	27.5	27.5
Total Split (s)	26.3	26.3	16.0	30.5	30.5	30.5
Total Split (%)	36.1%	36.1%	22.0%	41.9%	41.9%	41.9%
Yellow Time (s)	4.1	4.1	3.0	4.1	4.1	4.1
All-Red Time (s)	2.2	2.2	0.0	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lead/Lag			Lead	Lag	Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Max	Max	Max
v/c Ratio	0.02	0.14	0.04	0.08	0.09	0.02
Control Delay	19.4	9.6	2.4	6.5	6.5	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.4	9.6	2.4	6.5	6.5	4.2
Queue Length 50th (m)	0.4	0.0	0.3	0.0	0.0	0.0
Queue Length 95th (m)	2.7	6.4	2.9	13.0	14.1	3.2
Internal Link Dist (m)	95.8			80.7	33.4	
Turn Bay Length (m)						
Base Capacity (vph)	692	642	1119	1312	1351	1082
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.06	0.04	0.08	0.09	0.02

Intersection Summary
Cycle Length: 72.8
Actuated Cycle Length: 48.9
Natural Cycle: 60
Control Type: Actuated-Uncoordinated

Splits and Phases: 9: Hiram Street & River Road



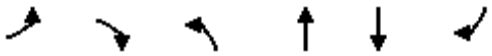


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	36	37	100	111	24
Future Volume (vph)	5	36	37	100	111	24
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1681	1504	1670	1685	1735	1387
Flt Permitted	0.95	1.00	0.68	1.00	1.00	1.00
Satd. Flow (perm)	1681	1504	1194	1685	1735	1387
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	39	40	109	121	26
RTOR Reduction (vph)	0	37	0	0	0	10
Lane Group Flow (vph)	5	2	40	109	121	16
Confl. Peds. (#/hr)	3		9			9
Heavy Vehicles (%)	0%	0%	0%	5%	2%	5%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Actuated Green, G (s)	2.9	2.9	36.1	33.9	33.9	33.9
Effective Green, g (s)	2.9	2.9	36.1	33.9	33.9	33.9
Actuated g/C Ratio	0.05	0.05	0.66	0.62	0.62	0.62
Clearance Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Vehicle Extension (s)	2.2	2.2	2.2	2.2	2.2	2.2
Lane Grp Cap (vph)	88	79	805	1042	1073	858
v/s Ratio Prot	c0.00		c0.00	0.06	c0.07	
v/s Ratio Perm		0.00	0.03			0.01
v/c Ratio	0.06	0.03	0.05	0.10	0.11	0.02
Uniform Delay, d1	24.7	24.6	3.3	4.3	4.3	4.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.1	0.0	0.2	0.2	0.0
Delay (s)	24.8	24.7	3.3	4.5	4.5	4.1
Level of Service	C	C	A	A	A	A
Approach Delay (s)	24.7			4.1	4.4	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.10		
Actuated Cycle Length (s)	54.8	Sum of lost time (s)	15.8
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

2030 Future Background PM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	318	559	315	277
Future Volume (Veh/h)	0	0	318	559	315	277
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	346	608	342	301
Pedestrians					1	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				118		
pX, platoon unblocked	0.77					
vC, conflicting volume	1794	492	643			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1880	492	643			
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	64			
cM capacity (veh/h)	39	580	951			

Direction, Lane #	NB 1	NB 2	SB 1
Volume Total	346	608	643
Volume Left	346	0	0
Volume Right	0	0	301
cSH	951	1700	1700
Volume to Capacity	0.36	0.36	0.38
Queue Length 95th (m)	12.7	0.0	0.0
Control Delay (s)	10.9	0.0	0.0
Lane LOS	B		
Approach Delay (s)	4.0		0.0
Approach LOS			

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	62.2%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	83	46	833	0	0	326
Future Volume (Veh/h)	83	46	833	0	0	326
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)	90	50	905	0	0	354
Pedestrians	40					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	4					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			53			
pX, platoon unblocked	0.56	0.56			0.56	
vC, conflicting volume	1299	945			945	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1143	514			514	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	26	83			100	
cM capacity (veh/h)	121	300			575	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	140	905	354
Volume Left	90	0	0
Volume Right	50	0	0
cSH	154	1700	1700
Volume to Capacity	0.91	0.53	0.21
Queue Length 95th (m)	48.9	0.0	0.0
Control Delay (s)	108.1	0.0	0.0
Lane LOS	F		
Approach Delay (s)	108.1	0.0	0.0
Approach LOS	F		

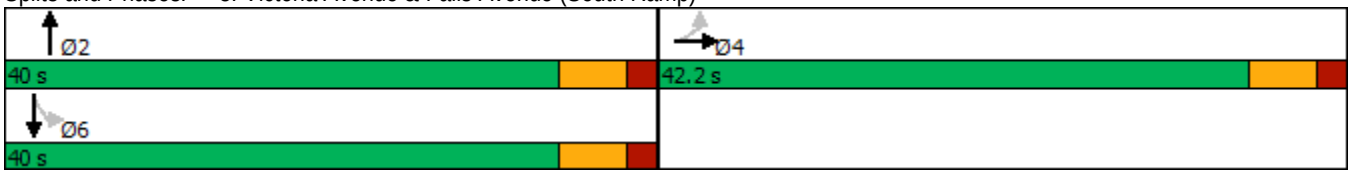
Intersection Summary			
Average Delay	10.8		
Intersection Capacity Utilization	107.8%	ICU Level of Service	G
Analysis Period (min)	15		

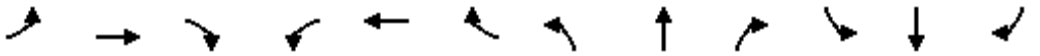
Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	209	2	619	54	348
Future Volume (vph)	209	2	619	54	348
Lane Group Flow (vph)	227	537	685	59	378
Turn Type	Perm	NA	NA	Perm	NA
Protected Phases		4	2		6
Permitted Phases	4			6	
Detector Phase	4	4	2	6	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	28.1	28.1	24.1	24.1	24.1
Total Split (s)	42.2	42.2	40.0	40.0	40.0
Total Split (%)	51.3%	51.3%	48.7%	48.7%	48.7%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	Max	Max	Max
v/c Ratio	0.43	0.88	0.80	0.31	0.44
Control Delay	19.8	29.5	27.1	20.4	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	29.5	27.1	20.4	15.9
Queue Length 50th (m)	22.3	39.8	70.6	4.4	30.1
Queue Length 95th (m)	38.0	78.4	#171.9	17.5	68.5
Internal Link Dist (m)		82.5	171.2		29.4
Turn Bay Length (m)				10.0	
Base Capacity (vph)	860	852	855	188	858
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.26	0.63	0.80	0.31	0.44

Intersection Summary

Cycle Length: 82.2
Actuated Cycle Length: 69.7
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Victoria Avenue & Falls Avenue (South Ramp)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	209	2	492	0	0	0	0	619	11	54	348	0
Future Volume (vph)	209	2	492	0	0	0	0	619	11	54	348	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.1	6.1						6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.96						1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00						1.00		0.98	1.00	
Frt	1.00	0.85						1.00		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1632	1431						1728		1584	1735	
Flt Permitted	0.95	1.00						1.00		0.22	1.00	
Satd. Flow (perm)	1632	1431						1728		373	1735	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	227	2	535	0	0	0	0	673	12	59	378	0
RTOR Reduction (vph)	0	143	0	0	0	0	0	1	0	0	0	0
Lane Group Flow (vph)	227	394	0	0	0	0	0	684	0	59	378	0
Confl. Peds. (#/hr)			13	13			69		47	47		69
Heavy Vehicles (%)	3%	0%	1%	0%	0%	0%	0%	2%	0%	4%	2%	0%
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	22.8	22.8						34.5		34.5	34.5	
Effective Green, g (s)	22.8	22.8						34.5		34.5	34.5	
Actuated g/C Ratio	0.33	0.33						0.50		0.50	0.50	
Clearance Time (s)	6.1	6.1						6.1		6.1	6.1	
Vehicle Extension (s)	2.1	2.1						2.1		2.1	2.1	
Lane Grp Cap (vph)	535	469						857		185	861	
v/s Ratio Prot		c0.28						c0.40			0.22	
v/s Ratio Perm	0.14									0.16		
v/c Ratio	0.42	0.84						0.80		0.32	0.44	
Uniform Delay, d1	18.2	21.7						14.6		10.5	11.3	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	0.2	12.0						7.7		4.5	1.6	
Delay (s)	18.5	33.7						22.3		15.0	12.9	
Level of Service	B	C						C		B	B	
Approach Delay (s)		29.2			0.0			22.3			13.2	
Approach LOS		C			A			C			B	

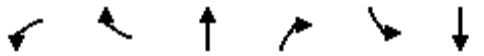
Intersection Summary			
HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	69.5	Sum of lost time (s)	12.2
Intersection Capacity Utilization	107.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	104	234	361	224	395	431
Future Volume (vph)	104	234	361	224	395	431
Lane Group Flow (vph)	113	254	392	243	429	468
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	6.0	8.0
Minimum Split (s)	26.3	26.3	30.3	30.3	9.0	30.3
Total Split (s)	36.3	36.3	41.3	41.3	28.0	69.3
Total Split (%)	34.4%	34.4%	39.1%	39.1%	26.5%	65.6%
Yellow Time (s)	4.1	4.1	4.1	4.1	3.0	4.1
All-Red Time (s)	2.2	2.2	2.2	2.2	0.0	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	Max	Max	None	Max
v/c Ratio	0.58	0.61	0.44	0.35	0.61	0.37
Control Delay	47.5	11.3	16.9	8.5	7.9	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.5	11.3	16.9	8.5	7.9	6.1
Queue Length 50th (m)	18.0	0.0	36.5	8.4	18.2	24.6
Queue Length 95th (m)	34.1	19.8	82.2	31.7	37.9	47.8
Internal Link Dist (m)	12.9		86.7			171.2
Turn Bay Length (m)	30.0			25.0	15.0	
Base Capacity (vph)	497	671	895	695	818	1262
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.38	0.44	0.35	0.52	0.37

Intersection Summary
Cycle Length: 105.6
Actuated Cycle Length: 87.5
Natural Cycle: 70
Control Type: Actuated-Uncoordinated

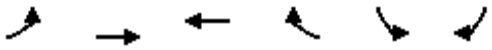
Splits and Phases: 4: Victoria Avenue & Bender Street



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	104	234	361	224	395	431
Future Volume (vph)	104	234	361	224	395	431
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.98	1.00	0.85	1.00	1.00
Flpb, ped/bikes	0.89	1.00	1.00	1.00	0.97	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1490	1471	1701	1238	1620	1752
Flt Permitted	0.95	1.00	1.00	1.00	0.44	1.00
Satd. Flow (perm)	1490	1471	1701	1238	753	1752
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	113	254	392	243	429	468
RTOR Reduction (vph)	0	220	0	64	0	0
Lane Group Flow (vph)	113	34	392	179	429	468
Confl. Peds. (#/hr)	52	1		74	74	
Heavy Vehicles (%)	0%	0%	4%	3%	1%	1%
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Actuated Green, G (s)	11.8	11.8	46.1	46.1	63.1	63.1
Effective Green, g (s)	11.8	11.8	46.1	46.1	63.1	63.1
Actuated g/C Ratio	0.13	0.13	0.53	0.53	0.72	0.72
Clearance Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Vehicle Extension (s)	2.5	2.5	3.5	3.5	3.0	3.5
Lane Grp Cap (vph)	200	198	896	652	681	1263
v/s Ratio Prot			0.23		c0.10	0.27
v/s Ratio Perm	c0.08	0.02		0.14	c0.35	
v/c Ratio	0.56	0.17	0.44	0.27	0.63	0.37
Uniform Delay, d1	35.4	33.5	12.7	11.4	5.4	4.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.9	0.3	1.6	1.0	1.8	0.8
Delay (s)	38.4	33.8	14.3	12.5	7.2	5.5
Level of Service	D	C	B	B	A	A
Approach Delay (s)	35.2		13.6			6.3
Approach LOS	D		B			A

Intersection Summary			
HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	87.5	Sum of lost time (s)	15.6
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	206	339	183	19	25	148
Future Volume (Veh/h)	206	339	183	19	25	148
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)	224	368	199	21	27	161
Pedestrians		14	13		35	
Lane Width (m)		3.7	3.7		3.7	
Walking Speed (m/s)		1.1	1.1		1.1	
Percent Blockage		1	1		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		37	79			
pX, platoon unblocked						
vC, conflicting volume	255				1074	258
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	255				1074	258
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	82				86	79
cM capacity (veh/h)	1279				194	749

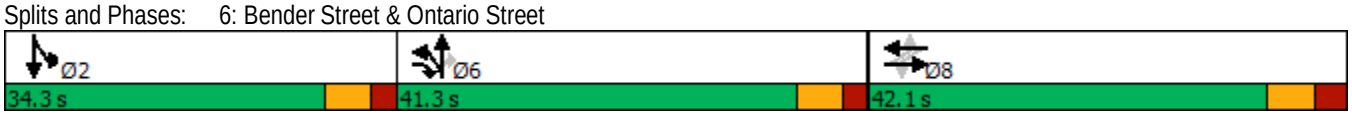
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	224	368	220	188
Volume Left	224	0	0	27
Volume Right	0	0	21	161
cSH	1279	1700	1700	531
Volume to Capacity	0.18	0.22	0.13	0.35
Queue Length 95th (m)	4.8	0.0	0.0	12.1
Control Delay (s)	8.4	0.0	0.0	15.5
Lane LOS	A			C
Approach Delay (s)	3.2		0.0	15.5
Approach LOS				C

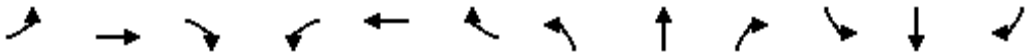
Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Configurations								
Traffic Volume (vph)	155	162	130	14	28	18	47	20
Future Volume (vph)	155	162	130	14	28	18	47	20
Lane Group Flow (vph)	0	344	141	0	47	127	51	153
Turn Type	Perm	NA	Over	Perm	NA	NA	Perm	NA
Protected Phases		8	6		8	6		2
Permitted Phases	8			8			6	
Detector Phase	8	8	6	8	8	6	6	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	26.3	42.1	42.1	26.3	26.3	14.3
Total Split (s)	42.1	42.1	41.3	42.1	42.1	41.3	41.3	34.3
Total Split (%)	35.8%	35.8%	35.1%	35.8%	35.8%	35.1%	35.1%	29.1%
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	2.2	3.0	3.0	2.2	2.2	2.2
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		7.1	6.3		7.1	6.3	6.3	6.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	Min	None	None	Min	Min	Min
v/c Ratio		0.69	0.32		0.09	0.45	0.18	0.52
Control Delay		26.9	29.1		14.5	33.3	3.0	24.2
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		26.9	29.1		14.5	33.3	3.0	24.2
Queue Length 50th (m)		33.9	8.7		3.4	14.2	0.0	9.6
Queue Length 95th (m)		73.5	20.3		11.0	34.7	2.5	29.8
Internal Link Dist (m)		54.9			36.6	34.4		24.4
Turn Bay Length (m)			40.0					
Base Capacity (vph)		710	1420		733	911	684	686
Starvation Cap Reductn		7	0		0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0
Reduced v/c Ratio		0.49	0.10		0.06	0.14	0.07	0.22

Intersection Summary
Cycle Length: 117.7
Actuated Cycle Length: 67.3
Natural Cycle: 85
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Bender Street & Ontario Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	162	130	14	28	2	98	18	47	32	20	88
Future Volume (vph)	155	162	130	14	28	2	98	18	47	32	20	88
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Lane Util. Factor		1.00	0.88		1.00			1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		1.00			1.00	0.88		0.94	
Flpb, ped/bikes		0.97	1.00		0.99			1.00	1.00		1.00	
Frt		1.00	0.85		0.99			1.00	0.85		0.92	
Flt Protected		0.98	1.00		0.98			0.96	1.00		0.99	
Satd. Flow (prot)		1619	2647		1578			1698	1319		1485	
Flt Permitted		0.82	1.00		0.86			0.96	1.00		0.99	
Satd. Flow (perm)		1362	2647		1376			1698	1319		1485	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	168	176	141	15	30	2	107	20	51	35	22	96
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	42	0	57	0
Lane Group Flow (vph)	0	344	141	0	46	0	0	127	9	0	96	0
Confl. Peds. (#/hr)	79		109	109		79	23		113	113		23
Heavy Vehicles (%)	2%	4%	0%	25%	0%	0%	0%	0%	0%	7%	0%	0%
Turn Type	Perm	NA	Over	Perm	NA		Split	NA	Perm	Split	NA	
Protected Phases		8	6		8		6	6		2	2	
Permitted Phases	8			8					6			
Actuated Green, G (s)		25.2	11.3		25.2			11.3	11.3		10.5	
Effective Green, g (s)		25.2	11.3		25.2			11.3	11.3		10.5	
Actuated g/C Ratio		0.38	0.17		0.38			0.17	0.17		0.16	
Clearance Time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Vehicle Extension (s)		3.5	3.0		3.5			3.0	3.0		3.0	
Lane Grp Cap (vph)		514	448		519			287	223		233	
v/s Ratio Prot			0.05					c0.07			c0.06	
v/s Ratio Perm		c0.25			0.03				0.01			
v/c Ratio		0.67	0.31		0.09			0.44	0.04		0.41	
Uniform Delay, d1		17.3	24.3		13.4			24.9	23.2		25.3	
Progression Factor		1.00	1.00		1.00			1.00	1.00		1.00	
Incremental Delay, d2		3.4	0.4		0.1			1.1	0.1		1.2	
Delay (s)		20.7	24.7		13.4			26.0	23.2		26.5	
Level of Service		C	C		B			C	C		C	
Approach Delay (s)		21.9			13.4			25.2			26.5	
Approach LOS		C			B			C			C	

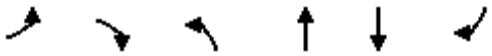
Intersection Summary			
HCM 2000 Control Delay	22.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	66.7	Sum of lost time (s)	19.7
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBR	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	235	36	83	497
Future Volume (vph)	235	36	83	497
Lane Group Flow (vph)	255	39	90	541
Turn Type	Perm	Prot	NA	NA
Protected Phases		5	2	6
Permitted Phases	4			
Detector Phase	4	5	2	6
Switch Phase				
Minimum Initial (s)	1.0	8.0	10.0	10.0
Minimum Split (s)	3.0	13.0	17.0	17.0
Total Split (s)	3.0	25.0	72.0	47.0
Total Split (%)	4.0%	33.3%	96.0%	62.7%
Yellow Time (s)	2.0	3.0	5.0	5.0
All-Red Time (s)	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	2.0	5.0	7.0	7.0
Lead/Lag		Lead		Lag
Lead-Lag Optimize?				
Recall Mode	None	None	Max	Max
v/c Ratio	0.50	0.23	0.06	0.22
Control Delay	3.5	34.2	0.8	3.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	3.5	34.2	0.8	3.7
Queue Length 50th (m)	0.0	5.2	0.8	12.3
Queue Length 95th (m)	0.0	13.4	1.7	18.7
Internal Link Dist (m)			45.6	34.5
Turn Bay Length (m)		20.0		
Base Capacity (vph)	507	407	1446	2456
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.50	0.10	0.06	0.22

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Natural Cycle: 40
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Falls Avenue & Bender Street



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	235	36	83	497	1
Future Volume (vph)	0	235	36	83	497	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)		2.0	5.0	7.0	7.0	
Lane Util. Factor		1.00	1.00	1.00	0.95	
Frpb, ped/bikes		0.59	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	
Frt		0.86	1.00	1.00	1.00	
Flt Protected		1.00	0.95	1.00	1.00	
Satd. Flow (prot)		861	1528	1669	3232	
Flt Permitted		1.00	0.95	1.00	1.00	
Satd. Flow (perm)		861	1528	1669	3232	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	255	39	90	540	1
RTOR Reduction (vph)	0	252	0	0	0	0
Lane Group Flow (vph)	0	3	39	90	541	0
Confl. Peds. (#/hr)	37	37	67			67
Heavy Vehicles (%)	0%	4%	10%	6%	4%	0%
Turn Type		Perm	Prot	NA	NA	
Protected Phases			5	2	6	
Permitted Phases		4				
Actuated Green, G (s)		1.0	5.0	67.0	57.0	
Effective Green, g (s)		1.0	5.0	67.0	57.0	
Actuated g/C Ratio		0.01	0.06	0.87	0.74	
Clearance Time (s)		2.0	5.0	7.0	7.0	
Vehicle Extension (s)		0.2	2.0	4.5	4.5	
Lane Grp Cap (vph)		11	99	1452	2392	
v/s Ratio Prot			c0.03	0.05	c0.17	
v/s Ratio Perm		c0.00				
v/c Ratio		0.30	0.39	0.06	0.23	
Uniform Delay, d1		37.7	34.5	0.7	3.1	
Progression Factor		1.00	1.00	1.00	1.00	
Incremental Delay, d2		5.5	0.9	0.1	0.2	
Delay (s)		43.2	35.5	0.8	3.3	
Level of Service		D	D	A	A	
Approach Delay (s)	43.2			11.3	3.3	
Approach LOS	D			B	A	

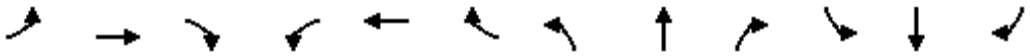
Intersection Summary			
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	77.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	45.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	6	140	94	69	36	5	150	1	225
Future Volume (vph)	6	140	94	69	36	5	150	1	225
Lane Group Flow (vph)	0	184	0	184	39	5	163	0	274
Turn Type	Perm	NA	Perm	NA	Split	NA	Perm	Perm	NA
Protected Phases		4		4	2	2			6
Permitted Phases	4		4				2	6	
Detector Phase	4	4	4	4	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	42.1	42.1	26.3	26.3	26.3	14.3	14.3
Total Split (s)	42.1	42.1	42.1	42.1	41.3	41.3	41.3	34.3	34.3
Total Split (%)	35.8%	35.8%	35.8%	35.8%	35.1%	35.1%	35.1%	29.1%	29.1%
Yellow Time (s)	4.1	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	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		7.1		7.1	6.3	6.3	6.3		6.3
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio		0.52		0.83	0.07	0.01	0.27		0.58
Control Delay		40.2		67.2	26.7	26.6	5.8		39.8
Queue Delay		0.0		0.0	0.0	0.0	0.0		0.0
Total Delay		40.2		67.2	26.7	26.6	5.8		39.8
Queue Length 50th (m)		32.1		35.5	5.3	0.7	0.0		47.2
Queue Length 95th (m)		52.4		60.3	14.2	3.7	14.9		83.1
Internal Link Dist (m)		59.4		95.8		20.6			32.1
Turn Bay Length (m)									
Base Capacity (vph)		574		362	564	594	598		471
Starvation Cap Reductn		0		0	0	0	0		0
Spillback Cap Reductn		0		0	0	0	0		0
Storage Cap Reductn		0		0	0	0	0		0
Reduced v/c Ratio		0.32		0.51	0.07	0.01	0.27		0.58

Intersection Summary
Cycle Length: 117.7
Actuated Cycle Length: 104.6
Natural Cycle: 85
Control Type: Semi Act-Uncoord

Splits and Phases: 8: Hiram Street & Blondin Avenue



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	140	23	94	69	6	36	5	150	1	225	26
Future Volume (vph)	6	140	23	94	69	6	36	5	150	1	225	26
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Lane Util. Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Frpb, ped/bikes		0.99			1.00		1.00	1.00	0.98		1.00	
Flpb, ped/bikes		1.00			0.99		1.00	1.00	1.00		1.00	
Frt		0.98			0.99		1.00	1.00	0.85		0.99	
Flt Protected		1.00			0.97		0.95	1.00	1.00		1.00	
Satd. Flow (prot)		1720			1640		1681	1769	1460		1740	
Flt Permitted		0.99			0.64		0.95	1.00	1.00		1.00	
Satd. Flow (perm)		1698			1079		1681	1769	1460		1740	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	152	25	102	75	7	39	5	163	1	245	28
RTOR Reduction (vph)	0	6	0	0	2	0	0	0	108	0	4	0
Lane Group Flow (vph)	0	178	0	0	182	0	39	5	55	0	270	0
Confl. Peds. (#/hr)	2		25	25		3	3		5	5		3
Heavy Vehicles (%)	0%	0%	0%	0%	7%	0%	0%	0%	1%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		4			4		2	2			6	
Permitted Phases	4			4					2	6		
Actuated Green, G (s)		21.6			21.6		35.2	35.2	35.2		28.1	
Effective Green, g (s)		21.6			21.6		35.2	35.2	35.2		28.1	
Actuated g/C Ratio		0.21			0.21		0.34	0.34	0.34		0.27	
Clearance Time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)		350			222		565	595	491		467	
v/s Ratio Prot							0.02	0.00				
v/s Ratio Perm		0.11			c0.17				c0.04		0.16	
v/c Ratio		0.51			0.82		0.07	0.01	0.11		0.58	
Uniform Delay, d1		36.8			39.7		23.6	23.1	23.9		33.1	
Progression Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		1.2			21.1		0.2	0.0	0.5		5.2	
Delay (s)		38.0			60.7		23.8	23.1	24.4		38.3	
Level of Service		D			E		C	C	C		D	
Approach Delay (s)		38.0			60.7			24.2			38.3	
Approach LOS		D			E			C			D	

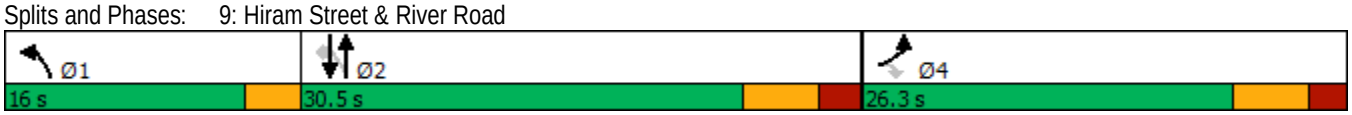
Intersection Summary			
HCM 2000 Control Delay	39.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	104.6	Sum of lost time (s)	19.7
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		

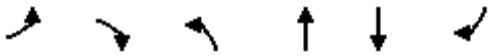
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	145	125	265	375	294	63
Future Volume (vph)	145	125	265	375	294	63
Lane Group Flow (vph)	158	136	288	408	320	68
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Detector Phase	4	4	1	2	2	2
Switch Phase						
Minimum Initial (s)	8.0	8.0	6.0	10.0	10.0	10.0
Minimum Split (s)	23.3	23.3	9.0	27.5	27.5	27.5
Total Split (s)	26.3	26.3	16.0	30.5	30.5	30.5
Total Split (%)	36.1%	36.1%	22.0%	41.9%	41.9%	41.9%
Yellow Time (s)	4.1	4.1	3.0	4.1	4.1	4.1
All-Red Time (s)	2.2	2.2	0.0	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lead/Lag			Lead	Lag	Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Max	Max	Max
v/c Ratio	0.53	0.37	0.45	0.59	0.46	0.12
Control Delay	29.6	8.0	7.0	19.8	17.0	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.6	8.0	7.0	19.8	17.0	5.0
Queue Length 50th (m)	15.7	0.0	10.0	32.8	23.9	0.0
Queue Length 95th (m)	32.8	12.0	23.8	71.8	53.6	7.1
Internal Link Dist (m)	95.8			80.7	33.4	
Turn Bay Length (m)						
Base Capacity (vph)	565	569	731	687	700	551
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.24	0.39	0.59	0.46	0.12

Intersection Summary
Cycle Length: 72.8
Actuated Cycle Length: 59.8
Natural Cycle: 60
Control Type: Actuated-Uncoordinated

Splits and Phases: 9: Hiram Street & River Road



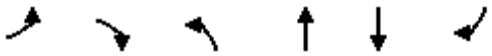


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	145	125	265	375	294	63
Future Volume (vph)	145	125	265	375	294	63
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.95	1.00	1.00	1.00	0.88
Flpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1681	1432	1578	1701	1735	1297
Flt Permitted	0.95	1.00	0.54	1.00	1.00	1.00
Satd. Flow (perm)	1681	1432	895	1701	1735	1297
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	158	136	288	408	320	68
RTOR Reduction (vph)	0	112	0	0	0	40
Lane Group Flow (vph)	158	24	288	408	320	28
Confl. Peds. (#/hr)	10	16	72			72
Heavy Vehicles (%)	0%	0%	3%	4%	2%	2%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Actuated Green, G (s)	10.7	10.7	33.3	24.2	24.2	24.2
Effective Green, g (s)	10.7	10.7	33.3	24.2	24.2	24.2
Actuated g/C Ratio	0.18	0.18	0.56	0.40	0.40	0.40
Clearance Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Vehicle Extension (s)	2.2	2.2	2.2	2.2	2.2	2.2
Lane Grp Cap (vph)	300	256	602	688	702	524
v/s Ratio Prot	c0.09		c0.07	c0.24	0.18	
v/s Ratio Perm		0.02	0.19			0.02
v/c Ratio	0.53	0.10	0.48	0.59	0.46	0.05
Uniform Delay, d1	22.3	20.5	7.2	13.9	13.0	10.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.1	0.3	3.7	2.1	0.2
Delay (s)	23.2	20.6	7.5	17.7	15.1	11.0
Level of Service	C	C	A	B	B	B
Approach Delay (s)	22.0			13.5	14.4	
Approach LOS	C			B	B	

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	59.8	Sum of lost time (s)	15.8
Intersection Capacity Utilization	58.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

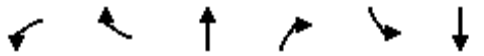
2030 Future Background SAT



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	359	425	331	154
Future Volume (Veh/h)	0	0	359	425	331	154
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	390	462	360	167
Pedestrians	92				1	
Lane Width (m)	0.0				3.7	
Walking Speed (m/s)	1.1				1.1	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				118		
pX, platoon unblocked						
vC, conflicting volume	1778	536	619			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1778	536	619			
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	60			
cM capacity (veh/h)	55	549	966			

Direction, Lane #	NB 1	NB 2	SB 1
Volume Total	390	462	527
Volume Left	390	0	0
Volume Right	0	0	167
cSH	966	1700	1700
Volume to Capacity	0.40	0.27	0.31
Queue Length 95th (m)	15.0	0.0	0.0
Control Delay (s)	11.2	0.0	0.0
Lane LOS	B		
Approach Delay (s)	5.1		0.0
Approach LOS			

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	120	44	748	0	0	332
Future Volume (Veh/h)	120	44	748	0	0	332
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)	130	48	813	0	0	361
Pedestrians	78					1
Lane Width (m)	3.7					3.7
Walking Speed (m/s)	1.1					1.1
Percent Blockage	7					0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			53			
pX, platoon unblocked	0.60	0.60			0.60	
vC, conflicting volume	1252	892			891	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1083	479			477	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	3	85			100	
cM capacity (veh/h)	134	326			605	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	178	813	361
Volume Left	130	0	0
Volume Right	48	0	0
cSH	159	1700	1700
Volume to Capacity	1.12	0.48	0.21
Queue Length 95th (m)	71.7	0.0	0.0
Control Delay (s)	164.4	0.0	0.0
Lane LOS	F		
Approach Delay (s)	164.4	0.0	0.0
Approach LOS	F		

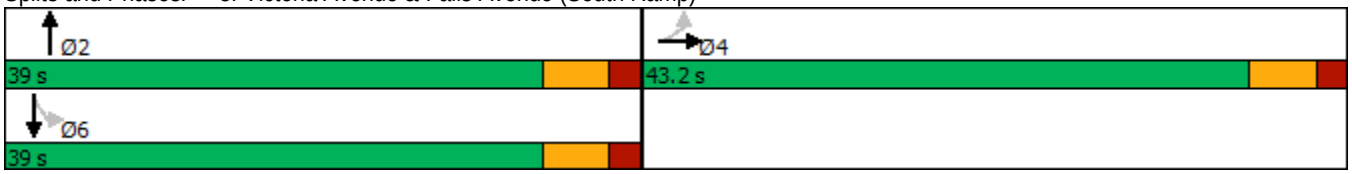
Intersection Summary			
Average Delay	21.6		
Intersection Capacity Utilization	119.7%	ICU Level of Service	H
Analysis Period (min)	15		

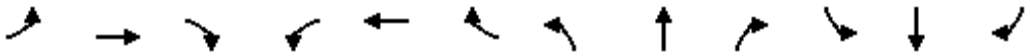
Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	124	2	583	30	419
Future Volume (vph)	124	2	583	30	419
Lane Group Flow (vph)	135	718	656	33	455
Turn Type	Perm	NA	NA	Perm	NA
Protected Phases		4	2		6
Permitted Phases	4			6	
Detector Phase	4	4	2	6	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	28.1	28.1	24.1	24.1	24.1
Total Split (s)	43.2	43.2	39.0	39.0	39.0
Total Split (%)	52.6%	52.6%	47.4%	47.4%	47.4%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	Max	Max	Max
v/c Ratio	0.18	0.98	0.93	0.32	0.63
Control Delay	14.4	47.8	45.6	27.5	24.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	14.4	47.8	45.6	27.5	24.5
Queue Length 50th (m)	12.1	86.8	96.0	3.5	56.0
Queue Length 95th (m)	22.6	#163.3	#164.1	11.9	86.8
Internal Link Dist (m)		82.5	171.2		29.4
Turn Bay Length (m)				10.0	
Base Capacity (vph)	762	753	706	103	718
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.18	0.95	0.93	0.32	0.63

Intersection Summary

Cycle Length: 82.2
Actuated Cycle Length: 81.1
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Victoria Avenue & Falls Avenue (South Ramp)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	2	659	0	0	0	0	583	20	30	419	0
Future Volume (vph)	124	2	659	0	0	0	0	583	20	30	419	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.1	6.1						6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97						1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00						1.00		1.00	1.00	
Frt	1.00	0.85						1.00		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1664	1453						1736		1681	1769	
Flt Permitted	0.95	1.00						1.00		0.14	1.00	
Satd. Flow (perm)	1664	1453						1736		255	1769	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	135	2	716	0	0	0	0	634	22	33	455	0
RTOR Reduction (vph)	0	90	0	0	0	0	0	2	0	0	0	0
Lane Group Flow (vph)	135	628	0	0	0	0	0	654	0	33	455	0
Confl. Peds. (#/hr)			8	8			63		33	33		63
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	0%	1%	6%	0%	0%	0%
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	35.9	35.9						32.9		32.9	32.9	
Effective Green, g (s)	35.9	35.9						32.9		32.9	32.9	
Actuated g/C Ratio	0.44	0.44						0.41		0.41	0.41	
Clearance Time (s)	6.1	6.1						6.1		6.1	6.1	
Vehicle Extension (s)	2.1	2.1						2.1		2.1	2.1	
Lane Grp Cap (vph)	737	643						705		103	718	
v/s Ratio Prot		c0.43						c0.38			0.26	
v/s Ratio Perm	0.08									0.13		
v/c Ratio	0.18	0.98						0.93		0.32	0.63	
Uniform Delay, d1	13.7	22.1						22.9		16.4	19.2	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	0.1	29.2						20.2		8.0	4.2	
Delay (s)	13.7	51.4						43.2		24.4	23.5	
Level of Service	B	D						D		C	C	
Approach Delay (s)		45.4			0.0			43.2			23.5	
Approach LOS		D			A			D			C	

Intersection Summary			
HCM 2000 Control Delay	39.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	81.0	Sum of lost time (s)	12.2
Intersection Capacity Utilization	119.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	142	212	342	233	582	496
Future Volume (vph)	142	212	342	233	582	496
Lane Group Flow (vph)	154	230	372	253	633	539
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	6.0	8.0
Minimum Split (s)	26.3	26.3	30.3	30.3	9.0	30.3
Total Split (s)	36.3	36.3	41.3	41.3	28.0	69.3
Total Split (%)	34.4%	34.4%	39.1%	39.1%	26.5%	65.6%
Yellow Time (s)	4.1	4.1	4.1	4.1	3.0	4.1
All-Red Time (s)	2.2	2.2	2.2	2.2	0.0	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	Max	Max	None	Max
v/c Ratio	0.65	0.62	0.55	0.42	0.82	0.43
Control Delay	48.5	12.6	25.5	11.1	17.7	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.5	12.6	25.5	11.1	17.7	7.4
Queue Length 50th (m)	25.1	0.0	48.0	11.5	35.9	32.7
Queue Length 95th (m)	44.1	19.8	82.5	33.3	#95.8	63.5
Internal Link Dist (m)	12.9		86.7			171.2
Turn Bay Length (m)	30.0			25.0	15.0	
Base Capacity (vph)	531	548	682	600	774	1251
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.42	0.55	0.42	0.82	0.43

Intersection Summary

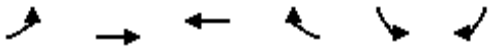
Cycle Length: 105.6
Actuated Cycle Length: 89.2
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Victoria Avenue & Bender Street

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	142	212	342	233	582	496
Future Volume (vph)	142	212	342	233	582	496
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.81	1.00	0.89	1.00	1.00
Flpb, ped/bikes	0.96	1.00	1.00	1.00	0.98	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1590	1221	1735	1321	1655	1769
Flt Permitted	0.95	1.00	1.00	1.00	0.39	1.00
Satd. Flow (perm)	1590	1221	1735	1321	674	1769
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	154	230	372	253	633	539
RTOR Reduction (vph)	0	195	0	90	0	0
Lane Group Flow (vph)	154	35	372	163	633	539
Confl. Peds. (#/hr)	20	77		51	51	
Heavy Vehicles (%)	1%	0%	2%	1%	0%	0%
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Actuated Green, G (s)	13.5	13.5	35.1	35.1	63.1	63.1
Effective Green, g (s)	13.5	13.5	35.1	35.1	63.1	63.1
Actuated g/C Ratio	0.15	0.15	0.39	0.39	0.71	0.71
Clearance Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Vehicle Extension (s)	2.5	2.5	3.5	3.5	3.0	3.5
Lane Grp Cap (vph)	240	184	682	519	751	1251
v/s Ratio Prot			0.21		c0.24	0.30
v/s Ratio Perm	c0.10	0.03		0.12	c0.36	
v/c Ratio	0.64	0.19	0.55	0.31	0.84	0.43
Uniform Delay, d1	35.6	33.1	20.9	18.7	8.2	5.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.1	0.4	3.1	1.6	8.5	1.1
Delay (s)	40.7	33.4	24.0	20.3	16.7	6.6
Level of Service	D	C	C	C	B	A
Approach Delay (s)	36.3		22.5			12.1
Approach LOS	D		C			B

Intersection Summary			
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	89.2	Sum of lost time (s)	15.6
Intersection Capacity Utilization	84.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	209	511	175	23	33	172
Future Volume (Veh/h)	209	511	175	23	33	172
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)	227	555	190	25	36	187
Pedestrians		2	2		53	
Lane Width (m)		3.7	3.7		3.7	
Walking Speed (m/s)		1.1	1.1		1.1	
Percent Blockage		0	0		5	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		37	79			
pX, platoon unblocked						
vC, conflicting volume	268				1266	258
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	268				1266	258
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	82				75	75
cM capacity (veh/h)	1243				146	746

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	227	555	215	223
Volume Left	227	0	0	36
Volume Right	0	0	25	187
cSH	1243	1700	1700	448
Volume to Capacity	0.18	0.33	0.13	0.50
Queue Length 95th (m)	5.1	0.0	0.0	20.6
Control Delay (s)	8.5	0.0	0.0	20.7
Lane LOS	A			C
Approach Delay (s)	2.5		0.0	20.7
Approach LOS				C

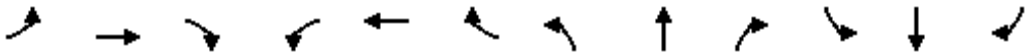
Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Configurations								
Traffic Volume (vph)	212	262	175	9	30	23	67	23
Future Volume (vph)	212	262	175	9	30	23	67	23
Lane Group Flow (vph)	0	515	190	0	52	108	73	168
Turn Type	Perm	NA	Over	Perm	NA	NA	Perm	NA
Protected Phases		8	6		8	6		2
Permitted Phases	8			8			6	
Detector Phase	8	8	6	8	8	6	6	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	26.3	42.1	42.1	26.3	26.3	14.3
Total Split (s)	72.9	72.9	26.3	72.9	72.9	26.3	26.3	18.5
Total Split (%)	61.9%	61.9%	22.3%	61.9%	61.9%	22.3%	22.3%	15.7%
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	2.2	3.0	3.0	2.2	2.2	2.2
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		7.1	6.3		7.1	6.3	6.3	6.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	Min	None	None	Min	Min	Min
v/c Ratio		0.84	0.49		0.08	0.43	0.26	0.64
Control Delay		31.9	38.8		10.5	40.8	7.3	34.4
Queue Delay		0.1	0.0		0.0	0.0	0.0	0.0
Total Delay		32.0	38.8		10.5	40.8	7.3	34.4
Queue Length 50th (m)		64.3	14.8		3.5	14.8	0.0	12.4
Queue Length 95th (m)		115.5	32.8		9.7	37.1	8.1	#49.7
Internal Link Dist (m)		54.9			36.6	34.4		24.4
Turn Bay Length (m)			40.0					
Base Capacity (vph)		1144	705		1233	454	431	294
Starvation Cap Reductn		78	0		0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0
Reduced v/c Ratio		0.48	0.27		0.04	0.24	0.17	0.57

Intersection Summary

Cycle Length: 117.7
Actuated Cycle Length: 79
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Bender Street & Ontario Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	212	262	175	9	30	8	76	23	67	25	23	107
Future Volume (vph)	212	262	175	9	30	8	76	23	67	25	23	107
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Lane Util. Factor		1.00	0.88		1.00			1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		0.98			1.00	0.93		0.93	
Flpb, ped/bikes		0.96	1.00		1.00			1.00	1.00		1.00	
Frt		1.00	0.85		0.98			1.00	0.85		0.91	
Flt Protected		0.98	1.00		0.99			0.96	1.00		0.99	
Satd. Flow (prot)		1645	2647		1628			1704	1400		1449	
Flt Permitted		0.83	1.00		0.90			0.96	1.00		0.99	
Satd. Flow (perm)		1398	2647		1483			1704	1400		1449	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	230	285	190	10	33	9	83	25	73	27	25	116
RTOR Reduction (vph)	0	0	0	0	5	0	0	0	62	0	65	0
Lane Group Flow (vph)	0	515	190	0	47	0	0	108	11	0	103	0
Confl. Peds. (#/hr)	96		60	60		96	23		50	50		23
Heavy Vehicles (%)	0%	1%	0%	0%	4%	0%	0%	0%	0%	0%	15%	0%
Turn Type	Perm	NA	Over	Perm	NA		Split	NA	Perm	Split	NA	
Protected Phases		8	6		8		6	6		2	2	
Permitted Phases	8			8					6			
Actuated Green, G (s)		35.7	11.6		35.7			11.6	11.6		10.9	
Effective Green, g (s)		35.7	11.6		35.7			11.6	11.6		10.9	
Actuated g/C Ratio		0.46	0.15		0.46			0.15	0.15		0.14	
Clearance Time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Vehicle Extension (s)		3.5	3.0		3.5			3.0	3.0		3.0	
Lane Grp Cap (vph)		640	394		679			253	208		202	
v/s Ratio Prot			c0.07					0.06			c0.07	
v/s Ratio Perm		c0.37			0.03				0.01			
v/c Ratio		0.80	0.48		0.07			0.43	0.05		0.51	
Uniform Delay, d1		18.1	30.4		11.8			30.1	28.4		31.0	
Progression Factor		1.00	1.00		1.00			1.00	1.00		1.00	
Incremental Delay, d2		7.5	0.9		0.1			1.2	0.1		2.0	
Delay (s)		25.6	31.3		11.9			31.3	28.5		33.0	
Level of Service		C	C		B			C	C		C	
Approach Delay (s)		27.1			11.9			30.2			33.0	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	77.9	Sum of lost time (s)	19.7
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		

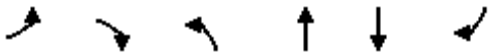
c Critical Lane Group

Lane Group	EBR	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	312	34	98	835
Future Volume (vph)	312	34	98	835
Lane Group Flow (vph)	339	37	107	909
Turn Type	Perm	Prot	NA	NA
Protected Phases		5	2	6
Permitted Phases	4			
Detector Phase	4	5	2	6
Switch Phase				
Minimum Initial (s)	1.0	8.0	10.0	10.0
Minimum Split (s)	3.0	13.0	17.0	17.0
Total Split (s)	3.0	25.0	72.0	47.0
Total Split (%)	4.0%	33.3%	96.0%	62.7%
Yellow Time (s)	2.0	3.0	5.0	5.0
All-Red Time (s)	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	2.0	5.0	7.0	7.0
Lead/Lag		Lead		Lag
Lead-Lag Optimize?				
Recall Mode	None	None	Max	Max
v/c Ratio	0.77	0.21	0.07	0.34
Control Delay	14.8	33.6	0.8	3.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	14.8	33.6	0.8	3.4
Queue Length 50th (m)	0.0	4.9	1.0	5.6
Queue Length 95th (m)	#17.2	12.9	2.0	33.2
Internal Link Dist (m)			45.6	34.5
Turn Bay Length (m)		20.0		
Base Capacity (vph)	439	435	1518	2675
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.77	0.09	0.07	0.34

Intersection Summary

Cycle Length: 75
Actuated Cycle Length: 75
Natural Cycle: 55
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Falls Avenue & Bender Street



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	312	34	98	835	1
Future Volume (vph)	0	312	34	98	835	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)		2.0	5.0	7.0	7.0	
Lane Util. Factor		1.00	1.00	1.00	0.95	
Frpb, ped/bikes		0.57	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	
Frt		0.86	1.00	1.00	1.00	
Flt Protected		1.00	0.95	1.00	1.00	
Satd. Flow (prot)		870	1632	1752	3361	
Flt Permitted		1.00	0.95	1.00	1.00	
Satd. Flow (perm)		870	1632	1752	3361	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	339	37	107	908	1
RTOR Reduction (vph)	0	335	0	0	0	0
Lane Group Flow (vph)	0	4	37	107	909	0
Confl. Peds. (#/hr)	18	39	16			16
Heavy Vehicles (%)	0%	1%	3%	1%	0%	0%
Turn Type		Perm	Prot	NA	NA	
Protected Phases			5	2	6	
Permitted Phases		4				
Actuated Green, G (s)		1.0	3.3	68.0	59.7	
Effective Green, g (s)		1.0	3.3	68.0	59.7	
Actuated g/C Ratio		0.01	0.04	0.87	0.77	
Clearance Time (s)		2.0	5.0	7.0	7.0	
Vehicle Extension (s)		0.2	2.0	4.5	4.5	
Lane Grp Cap (vph)		11	69	1527	2572	
v/s Ratio Prot			c0.02	0.06	c0.27	
v/s Ratio Perm		c0.00				
v/c Ratio		0.40	0.54	0.07	0.35	
Uniform Delay, d1		38.2	36.6	0.7	2.9	
Progression Factor		1.00	1.00	1.00	1.00	
Incremental Delay, d2		8.3	4.0	0.1	0.4	
Delay (s)		46.5	40.6	0.8	3.3	
Level of Service		D	D	A	A	
Approach Delay (s)	46.5			11.0	3.3	
Approach LOS	D			B	A	

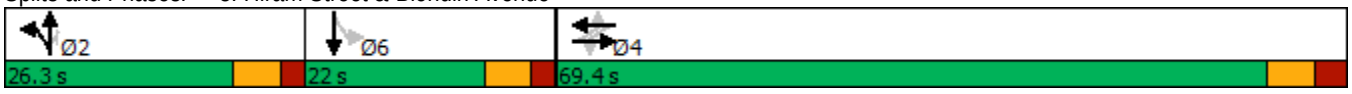
Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	78.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

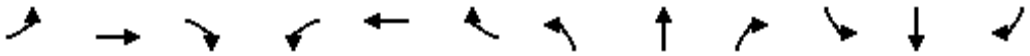
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	6	204	99	98	24	3	159	2	255
Future Volume (vph)	6	204	99	98	24	3	159	2	255
Lane Group Flow (vph)	0	256	0	226	26	3	173	0	309
Turn Type	Perm	NA	Perm	NA	Split	NA	Perm	Perm	NA
Protected Phases		4		4	2	2			6
Permitted Phases	4		4				2	6	
Detector Phase	4	4	4	4	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	42.1	42.1	26.3	26.3	26.3	14.3	14.3
Total Split (s)	69.4	69.4	69.4	69.4	26.3	26.3	26.3	22.0	22.0
Total Split (%)	59.0%	59.0%	59.0%	59.0%	22.3%	22.3%	22.3%	18.7%	18.7%
Yellow Time (s)	4.1	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	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		7.1		7.1	6.3	6.3	6.3		6.3
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio		0.59		0.82	0.06	0.01	0.34		0.83
Control Delay		29.2		48.6	22.9	22.7	6.4		49.9
Queue Delay		0.0		0.0	0.0	0.0	0.0		0.0
Total Delay		29.2		48.6	22.9	22.7	6.4		49.9
Queue Length 50th (m)		30.3		29.2	2.7	0.3	0.0		40.6
Queue Length 95th (m)		50.8		52.9	9.2	2.4	14.5		#94.8
Internal Link Dist (m)		59.4		95.8		20.6			32.1
Turn Bay Length (m)									
Base Capacity (vph)		1450		932	455	479	515		373
Starvation Cap Reductn		0		0	0	0	0		0
Spillback Cap Reductn		0		0	0	0	0		0
Storage Cap Reductn		0		0	0	0	0		0
Reduced v/c Ratio		0.18		0.24	0.06	0.01	0.34		0.83

Intersection Summary
Cycle Length: 117.7
Actuated Cycle Length: 74.2
Natural Cycle: 85
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 8: Hiram Street & Blondin Avenue

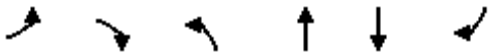




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	204	25	99	98	10	24	3	159	2	255	28
Future Volume (vph)	6	204	25	99	98	10	24	3	159	2	255	28
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Lane Util. Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Frpb, ped/bikes		1.00			1.00		1.00	1.00	0.97		1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00	1.00		1.00	
Frt		0.99			0.99		1.00	1.00	0.85		0.99	
Flt Protected		1.00			0.98		0.95	1.00	1.00		1.00	
Satd. Flow (prot)		1736			1630		1681	1769	1449		1741	
Flt Permitted		0.99			0.66		0.95	1.00	1.00		1.00	
Satd. Flow (perm)		1717			1107		1681	1769	1449		1739	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	222	27	108	107	11	26	3	173	2	277	30
RTOR Reduction (vph)	0	6	0	0	2	0	0	0	126	0	3	0
Lane Group Flow (vph)	0	250	0	0	224	0	26	3	47	0	306	0
Confl. Peds. (#/hr)	16		9	9		16	4		14	14		4
Heavy Vehicles (%)	0%	0%	0%	5%	4%	11%	0%	0%	1%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		4			4		2	2			6	
Permitted Phases	4			4					2	6		
Actuated Green, G (s)		18.5			18.5		20.1	20.1	20.1		15.8	
Effective Green, g (s)		18.5			18.5		20.1	20.1	20.1		15.8	
Actuated g/C Ratio		0.25			0.25		0.27	0.27	0.27		0.21	
Clearance Time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)		428			276		455	479	393		370	
v/s Ratio Prot							0.02	0.00				
v/s Ratio Perm		0.15			c0.20				c0.03		c0.18	
v/c Ratio		0.58			0.81		0.06	0.01	0.12		0.83	
Uniform Delay, d1		24.4			26.2		20.0	19.7	20.3		27.8	
Progression Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		2.0			16.3		0.2	0.0	0.6		18.7	
Delay (s)		26.5			42.5		20.2	19.7	21.0		46.6	
Level of Service		C			D		C	B	C		D	
Approach Delay (s)		26.5			42.5			20.8			46.6	
Approach LOS		C			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	35.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	74.1	Sum of lost time (s)	19.7
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

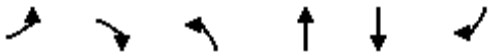


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	168	123	410	336	377	110
Future Volume (vph)	168	123	410	336	377	110
Lane Group Flow (vph)	183	134	446	365	410	120
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Detector Phase	4	4	1	2	2	2
Switch Phase						
Minimum Initial (s)	8.0	8.0	6.0	10.0	10.0	10.0
Minimum Split (s)	23.3	23.3	9.0	27.5	27.5	27.5
Total Split (s)	26.3	26.3	16.0	30.5	30.5	30.5
Total Split (%)	36.1%	36.1%	22.0%	41.9%	41.9%	41.9%
Yellow Time (s)	4.1	4.1	3.0	4.1	4.1	4.1
All-Red Time (s)	2.2	2.2	0.0	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lead/Lag			Lead	Lag	Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Max	Max	Max
v/c Ratio	0.63	0.35	0.76	0.59	0.66	0.21
Control Delay	34.1	7.4	17.6	22.4	24.8	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.1	7.4	17.6	22.4	24.8	4.8
Queue Length 50th (m)	20.5	0.0	20.3	34.6	40.2	0.0
Queue Length 95th (m)	38.0	11.6	#61.7	67.4	#85.4	9.7
Internal Link Dist (m)	95.8			80.7	33.4	
Turn Bay Length (m)						
Base Capacity (vph)	472	536	597	618	618	568
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.25	0.75	0.59	0.66	0.21

Intersection Summary

Cycle Length: 72.8
Actuated Cycle Length: 65
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 9: Hiram Street & River Road

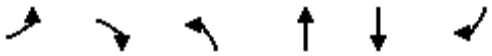


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	168	123	410	336	377	110
Future Volume (vph)	168	123	410	336	377	110
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.96	1.00	1.00	1.00	0.90
Flpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1528	1440	1578	1669	1669	1342
Flt Permitted	0.95	1.00	0.40	1.00	1.00	1.00
Satd. Flow (perm)	1528	1440	667	1669	1669	1342
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	183	134	446	365	410	120
RTOR Reduction (vph)	0	108	0	0	0	75
Lane Group Flow (vph)	183	26	446	365	410	45
Confl. Peds. (#/hr)	4	12	52			52
Heavy Vehicles (%)	10%	0%	5%	6%	6%	1%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Actuated Green, G (s)	12.4	12.4	36.7	24.1	24.1	24.1
Effective Green, g (s)	12.4	12.4	36.7	24.1	24.1	24.1
Actuated g/C Ratio	0.19	0.19	0.57	0.37	0.37	0.37
Clearance Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Vehicle Extension (s)	2.2	2.2	2.2	2.2	2.2	2.2
Lane Grp Cap (vph)	291	275	554	619	619	498
v/s Ratio Prot	c0.12		c0.16	0.22	0.25	
v/s Ratio Perm		0.02	c0.30			0.03
v/c Ratio	0.63	0.09	0.81	0.59	0.66	0.09
Uniform Delay, d1	24.1	21.6	9.0	16.4	17.0	13.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.3	0.1	8.0	4.1	5.5	0.4
Delay (s)	27.4	21.7	17.0	20.5	22.5	13.6
Level of Service	C	C	B	C	C	B
Approach Delay (s)	25.0			18.6	20.5	
Approach LOS	C			B	C	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	64.9	Sum of lost time (s)	15.8
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

2030 Future Total AM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	231	373	195	157
Future Volume (Veh/h)	0	0	231	373	195	157
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	251	405	212	171
Pedestrians	37			5		
Lane Width (m)	0.0			3.7		
Walking Speed (m/s)	1.1			1.1		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				118		
pX, platoon unblocked						
vC, conflicting volume	1242	340	420			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1242	340	420			
tC, single (s)	6.4	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	100	100	77			
cM capacity (veh/h)	150	704	1097			

Direction, Lane #	NB 1	NB 2	SB 1
Volume Total	251	405	383
Volume Left	251	0	0
Volume Right	0	0	171
cSH	1097	1700	1700
Volume to Capacity	0.23	0.24	0.23
Queue Length 95th (m)	6.7	0.0	0.0
Control Delay (s)	9.3	0.0	0.0
Lane LOS	A		
Approach Delay (s)	3.5		0.0
Approach LOS			

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	51.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	36	18	585	0	0	194
Future Volume (Veh/h)	36	18	585	0	0	194
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)	39	20	636	0	0	211
Pedestrians	10					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	1					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			53			
pX, platoon unblocked	0.75	0.75			0.75	
vC, conflicting volume	857	646			646	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	647	367			367	
tC, single (s)	6.4	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.2	
p0 queue free %	88	96			100	
cM capacity (veh/h)	328	500			898	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	59	636	211
Volume Left	39	0	0
Volume Right	20	0	0
cSH	371	1700	1700
Volume to Capacity	0.16	0.37	0.12
Queue Length 95th (m)	4.3	0.0	0.0
Control Delay (s)	16.5	0.0	0.0
Lane LOS	C		
Approach Delay (s)	16.5	0.0	0.0
Approach LOS	C		

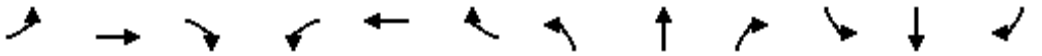
Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	203	0	383	13	216
Future Volume (vph)	203	0	383	13	216
Lane Group Flow (vph)	221	360	426	14	235
Turn Type	Perm	NA	NA	Perm	NA
Protected Phases		4	2		6
Permitted Phases	4			6	
Detector Phase	4	4	2	6	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	28.1	28.1	24.1	24.1	24.1
Total Split (s)	36.1	36.1	46.1	46.1	46.1
Total Split (%)	43.9%	43.9%	56.1%	56.1%	56.1%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	Max	Max	Max
v/c Ratio	0.66	0.52	0.42	0.03	0.24
Control Delay	33.4	3.2	9.6	7.3	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.4	3.2	9.6	7.3	7.9
Queue Length 50th (m)	25.0	0.0	24.7	0.6	11.9
Queue Length 95th (m)	44.2	3.5	54.6	3.2	28.3
Internal Link Dist (m)		82.5	171.2		29.4
Turn Bay Length (m)				10.0	
Base Capacity (vph)	716	932	1020	514	997
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.31	0.39	0.42	0.03	0.24

Intersection Summary

Cycle Length: 82.2
Actuated Cycle Length: 66.7
Natural Cycle: 55
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Victoria Avenue & Falls Avenue (South Ramp)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	0	331	0	0	0	0	383	9	13	216	0
Future Volume (vph)	203	0	331	0	0	0	0	383	9	13	216	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.1	6.1						6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00						1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00						1.00		0.99	1.00	
Frt	1.00	0.85						1.00		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1583	1475						1691		1666	1654	
Flt Permitted	0.95	1.00						1.00		0.49	1.00	
Satd. Flow (perm)	1583	1475						1691		855	1654	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	221	0	360	0	0	0	0	416	10	14	235	0
RTOR Reduction (vph)	0	283	0	0	0	0	0	1	0	0	0	0
Lane Group Flow (vph)	221	77	0	0	0	0	0	425	0	14	235	0
Confl. Peds. (#/hr)	1					1	36		9	9		36
Heavy Vehicles (%)	6%	0%	2%	0%	0%	0%	0%	4%	13%	0%	7%	0%
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	14.2	14.2						40.2		40.2	40.2	
Effective Green, g (s)	14.2	14.2						40.2		40.2	40.2	
Actuated g/C Ratio	0.21	0.21						0.60		0.60	0.60	
Clearance Time (s)	6.1	6.1						6.1		6.1	6.1	
Vehicle Extension (s)	2.1	2.1						2.1		2.1	2.1	
Lane Grp Cap (vph)	337	314						1020		516	998	
v/s Ratio Prot		0.05						c0.25			0.14	
v/s Ratio Perm	c0.14									0.02		
v/c Ratio	0.66	0.24						0.42		0.03	0.24	
Uniform Delay, d1	24.0	21.7						7.0		5.3	6.1	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	3.6	0.2						1.3		0.1	0.6	
Delay (s)	27.6	21.9						8.2		5.4	6.7	
Level of Service	C	C						A		A	A	
Approach Delay (s)		24.1			0.0			8.2			6.6	
Approach LOS		C			A			A			A	

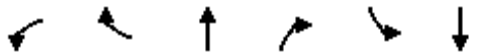
Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	66.6	Sum of lost time (s)	12.2
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	71	109	270	127	285	244
Future Volume (vph)	71	109	270	127	285	244
Lane Group Flow (vph)	77	118	293	138	310	265
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	6.0	8.0
Minimum Split (s)	26.3	26.3	30.3	30.3	9.0	30.3
Total Split (s)	36.3	36.3	41.3	41.3	28.0	69.3
Total Split (%)	34.4%	34.4%	39.1%	39.1%	26.5%	65.6%
Yellow Time (s)	4.1	4.1	4.1	4.1	3.0	4.1
All-Red Time (s)	2.2	2.2	2.2	2.2	0.0	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	Max	Max	None	Max
v/c Ratio	0.44	0.46	0.30	0.17	0.40	0.21
Control Delay	43.3	13.1	10.9	4.0	4.5	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.3	13.1	10.9	4.0	4.5	4.1
Queue Length 50th (m)	11.9	0.0	21.4	2.2	10.1	10.3
Queue Length 95th (m)	24.8	14.3	43.9	11.3	21.2	20.8
Internal Link Dist (m)	12.9		86.7			171.2
Turn Bay Length (m)	30.0			25.0	15.0	
Base Capacity (vph)	549	557	989	812	883	1282
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.21	0.30	0.17	0.35	0.21

Intersection Summary
Cycle Length: 105.6
Actuated Cycle Length: 85.3
Natural Cycle: 70
Control Type: Actuated-Uncoordinated

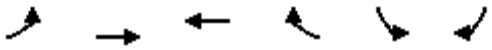
Splits and Phases: 4: Victoria Avenue & Bender Street



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	71	109	270	127	285	244
Future Volume (vph)	71	109	270	127	285	244
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.97	1.00	0.97	1.00	1.00
Flpb, ped/bikes	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1572	1369	1701	1326	1551	1735
Flt Permitted	0.95	1.00	1.00	1.00	0.54	1.00
Satd. Flow (perm)	1572	1369	1701	1326	883	1735
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	77	118	293	138	310	265
RTOR Reduction (vph)	0	105	0	43	0	0
Lane Group Flow (vph)	77	13	293	95	310	265
Confl. Peds. (#/hr)	13	3		6	6	
Heavy Vehicles (%)	4%	7%	4%	10%	8%	2%
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Actuated Green, G (s)	9.6	9.6	49.6	49.6	63.0	63.0
Effective Green, g (s)	9.6	9.6	49.6	49.6	63.0	63.0
Actuated g/C Ratio	0.11	0.11	0.58	0.58	0.74	0.74
Clearance Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Vehicle Extension (s)	2.5	2.5	3.5	3.5	3.0	3.5
Lane Grp Cap (vph)	177	154	990	771	734	1282
v/s Ratio Prot			0.17		c0.05	0.15
v/s Ratio Perm	c0.05	0.01		0.07	c0.26	
v/c Ratio	0.44	0.09	0.30	0.12	0.42	0.21
Uniform Delay, d1	35.3	33.9	9.0	8.0	3.7	3.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	0.2	0.8	0.3	0.4	0.4
Delay (s)	36.5	34.0	9.7	8.3	4.1	3.8
Level of Service	D	C	A	A	A	A
Approach Delay (s)	35.0		9.3			4.0
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	85.2	Sum of lost time (s)	15.6
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	169	241	52	6	17	128
Future Volume (Veh/h)	169	241	52	6	17	128
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)	184	262	57	7	18	139
Pedestrians			2		5	
Lane Width (m)			3.7		3.7	
Walking Speed (m/s)			1.1		1.1	
Percent Blockage			0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		37	79			
pX, platoon unblocked						
vC, conflicting volume	69				698	66
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	69				698	66
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	88				95	86
cM capacity (veh/h)	1518				358	991

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	184	262	64	157
Volume Left	184	0	0	18
Volume Right	0	0	7	139
cSH	1518	1700	1700	824
Volume to Capacity	0.12	0.15	0.04	0.19
Queue Length 95th (m)	3.1	0.0	0.0	5.3
Control Delay (s)	7.7	0.0	0.0	10.4
Lane LOS	A			B
Approach Delay (s)	3.2		0.0	10.4
Approach LOS				B

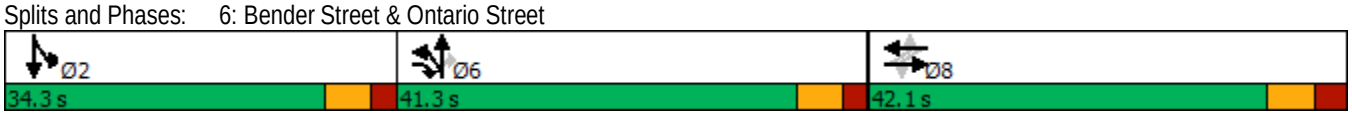
Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	33.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Configurations								
Traffic Volume (vph)	96	46	116	3	1	3	20	2
Future Volume (vph)	96	46	116	3	1	3	20	2
Lane Group Flow (vph)	0	154	126	0	13	18	22	64
Turn Type	Perm	NA	Over	Perm	NA	NA	Perm	NA
Protected Phases		8	6		8	6		2
Permitted Phases	8			8			6	
Detector Phase	8	8	6	8	8	6	6	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	26.3	42.1	42.1	26.3	26.3	14.3
Total Split (s)	42.1	42.1	41.3	42.1	42.1	41.3	41.3	34.3
Total Split (%)	35.8%	35.8%	35.1%	35.8%	35.8%	35.1%	35.1%	29.1%
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	2.2	3.0	3.0	2.2	2.2	2.2
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		7.1	6.3		7.1	6.3	6.3	6.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	Min	None	None	Min	Min	Min
v/c Ratio		0.45	0.25		0.04	0.06	0.06	0.20
Control Delay		20.5	19.3		10.1	18.1	0.3	11.1
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		20.5	19.3		10.1	18.1	0.3	11.1
Queue Length 50th (m)		10.9	5.2		0.3	1.3	0.0	1.1
Queue Length 95th (m)		25.4	12.6		3.3	5.8	0.0	9.7
Internal Link Dist (m)		54.9			36.6	34.4		24.4
Turn Bay Length (m)			40.0					
Base Capacity (vph)		1032	1986		995	1230	1140	978
Starvation Cap Reductn		0	0		0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0
Reduced v/c Ratio		0.15	0.06		0.01	0.01	0.02	0.07

Intersection Summary

Cycle Length: 117.7
Actuated Cycle Length: 45
Natural Cycle: 85
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Bender Street & Ontario Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	46	116	3	1	8	14	3	20	13	2	44
Future Volume (vph)	96	46	116	3	1	8	14	3	20	13	2	44
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Lane Util. Factor		1.00	0.88		1.00			1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		0.98			1.00	0.98		0.98	
Flpb, ped/bikes		0.99	1.00		1.00			1.00	1.00		1.00	
Frt		1.00	0.85		0.91			1.00	0.85		0.90	
Flt Protected		0.97	1.00		0.99			0.96	1.00		0.99	
Satd. Flow (prot)		1649	2570		1444			1592	1471		1468	
Flt Permitted		0.79	1.00		0.89			0.96	1.00		0.99	
Satd. Flow (perm)		1346	2570		1297			1592	1471		1468	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	104	50	126	3	1	9	15	3	22	14	2	48
RTOR Reduction (vph)	0	0	0	0	7	0	0	0	18	0	39	0
Lane Group Flow (vph)	0	154	126	0	6	0	0	18	4	0	25	0
Confl. Peds. (#/hr)	12		12	12		12	5		15	15		5
Heavy Vehicles (%)	0%	10%	3%	33%	0%	0%	8%	0%	0%	0%	0%	6%
Turn Type	Perm	NA	Over	Perm	NA		Split	NA	Perm	Split	NA	
Protected Phases		8	6		8		6	6		2	2	
Permitted Phases	8			8					6			
Actuated Green, G (s)		9.0	9.0		9.0			9.0	9.0		8.5	
Effective Green, g (s)		9.0	9.0		9.0			9.0	9.0		8.5	
Actuated g/C Ratio		0.19	0.19		0.19			0.19	0.19		0.18	
Clearance Time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Vehicle Extension (s)		3.5	3.0		3.5			3.0	3.0		3.0	
Lane Grp Cap (vph)		262	500		252			310	286		270	
v/s Ratio Prot			c0.05					0.01			c0.02	
v/s Ratio Perm		c0.11			0.00				0.00			
v/c Ratio		0.59	0.25		0.02			0.06	0.01		0.09	
Uniform Delay, d1		16.9	15.7		15.0			15.1	15.0		15.6	
Progression Factor		1.00	1.00		1.00			1.00	1.00		1.00	
Incremental Delay, d2		3.6	0.3		0.0			0.1	0.0		0.1	
Delay (s)		20.5	16.0		15.1			15.2	15.0		15.8	
Level of Service		C	B		B			B	B		B	
Approach Delay (s)		18.5			15.1			15.1			15.8	
Approach LOS		B			B			B			B	

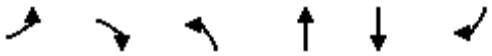
Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	46.2	Sum of lost time (s)	19.7
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBR	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	79	14	45	229
Future Volume (vph)	79	14	45	229
Lane Group Flow (vph)	86	15	49	249
Turn Type	Perm	Prot	NA	NA
Protected Phases		5	2	6
Permitted Phases	4			
Detector Phase	4	5	2	6
Switch Phase				
Minimum Initial (s)	1.0	8.0	10.0	10.0
Minimum Split (s)	3.0	13.0	17.0	17.0
Total Split (s)	3.0	25.0	72.0	47.0
Total Split (%)	4.0%	33.3%	96.0%	62.7%
Yellow Time (s)	2.0	3.0	5.0	5.0
All-Red Time (s)	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	2.0	5.0	7.0	7.0
Lead/Lag		Lead		Lag
Lead-Lag Optimize?				
Recall Mode	None	None	Max	Max
v/c Ratio	0.11	0.10	0.03	0.09
Control Delay	0.3	31.9	0.7	1.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	0.3	31.9	0.7	1.7
Queue Length 50th (m)	0.0	2.0	0.4	1.2
Queue Length 95th (m)	0.0	7.1	1.1	8.2
Internal Link Dist (m)			45.6	34.5
Turn Bay Length (m)		20.0		
Base Capacity (vph)	763	385	1534	2802
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.11	0.04	0.03	0.09

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 77.4
Natural Cycle: 40
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Falls Avenue & Bender Street



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	79	14	45	229	0
Future Volume (vph)	0	79	14	45	229	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)		2.0	5.0	7.0	7.0	
Lane Util. Factor		1.00	1.00	1.00	0.95	
Frpb, ped/bikes		0.94	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	
Frt		0.86	1.00	1.00	1.00	
Flt Protected		1.00	0.95	1.00	1.00	
Satd. Flow (prot)		1357	1488	1718	3264	
Flt Permitted		1.00	0.95	1.00	1.00	
Satd. Flow (perm)		1357	1488	1718	3264	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	86	15	49	249	0
RTOR Reduction (vph)	0	85	0	0	0	0
Lane Group Flow (vph)	0	1	15	49	249	0
Confl. Peds. (#/hr)	3	2	4			4
Heavy Vehicles (%)	0%	6%	13%	3%	3%	0%
Turn Type		Perm	Prot	NA	NA	
Protected Phases			5	2	6	
Permitted Phases		4				
Actuated Green, G (s)		0.8	1.7	71.9	65.2	
Effective Green, g (s)		0.8	1.7	71.9	65.2	
Actuated g/C Ratio		0.01	0.02	0.88	0.80	
Clearance Time (s)		2.0	5.0	7.0	7.0	
Vehicle Extension (s)		0.2	2.0	4.5	4.5	
Lane Grp Cap (vph)		13	30	1511	2604	
v/s Ratio Prot			c0.01	0.03	c0.08	
v/s Ratio Perm		c0.00				
v/c Ratio		0.06	0.50	0.03	0.10	
Uniform Delay, d1		40.1	39.6	0.6	1.8	
Progression Factor		1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.8	4.7	0.0	0.1	
Delay (s)		40.8	44.3	0.6	1.9	
Level of Service		D	D	A	A	
Approach Delay (s)	40.8			10.9	1.9	
Approach LOS	D			B	A	

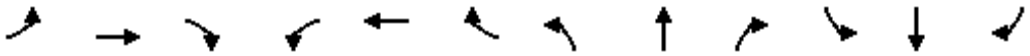
Intersection Summary			
HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.10		
Actuated Cycle Length (s)	81.7	Sum of lost time (s)	14.0
Intersection Capacity Utilization	25.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	2	72	34	49	14	1	21	1	10
Future Volume (vph)	2	72	34	49	14	1	21	1	10
Lane Group Flow (vph)	0	100	0	91	15	1	23	0	17
Turn Type	Perm	NA	Perm	NA	Split	NA	Perm	Perm	NA
Protected Phases		4		4	2	2			6
Permitted Phases	4		4				2	6	
Detector Phase	4	4	4	4	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	42.1	42.1	26.3	26.3	26.3	14.3	14.3
Total Split (s)	42.1	42.1	42.1	42.1	41.3	41.3	41.3	34.3	34.3
Total Split (%)	35.8%	35.8%	35.8%	35.8%	35.1%	35.1%	35.1%	29.1%	29.1%
Yellow Time (s)	4.1	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	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		7.1		7.1	6.3	6.3	6.3		6.3
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio		0.47		0.52	0.02	0.00	0.04		0.03
Control Delay		41.3		49.4	20.1	20.0	0.1		20.6
Queue Delay		0.0		0.0	0.0	0.0	0.0		0.0
Total Delay		41.3		49.4	20.1	20.0	0.1		20.6
Queue Length 50th (m)		15.2		15.7	1.7	0.1	0.0		1.5
Queue Length 95th (m)		30.3		30.5	6.0	1.2	0.0		6.6
Internal Link Dist (m)		59.4		95.8		20.6			32.1
Turn Bay Length (m)									
Base Capacity (vph)		639		543	625	657	612		502
Starvation Cap Reductn		0		0	0	0	0		0
Spillback Cap Reductn		0		0	0	0	0		0
Storage Cap Reductn		0		0	0	0	0		0
Reduced v/c Ratio		0.16		0.17	0.02	0.00	0.04		0.03

Intersection Summary
Cycle Length: 117.7
Actuated Cycle Length: 94.2
Natural Cycle: 85
Control Type: Semi Act-Uncoord

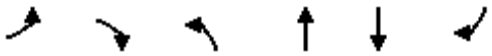
Splits and Phases: 8: Hiram Street & Blondin Avenue



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	72	18	34	49	1	14	1	21	1	10	5
Future Volume (vph)	2	72	18	34	49	1	14	1	21	1	10	5
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Lane Util. Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Frpb, ped/bikes		1.00			1.00		1.00	1.00	0.99		0.99	
Flpb, ped/bikes		1.00			1.00		1.00	1.00	1.00		1.00	
Frt		0.97			1.00		1.00	1.00	0.85		0.96	
Flt Protected		1.00			0.98		0.95	1.00	1.00		1.00	
Satd. Flow (prot)		1713			1672		1681	1769	1484		1683	
Flt Permitted		0.99			0.86		0.95	1.00	1.00		0.99	
Satd. Flow (perm)		1701			1461		1681	1769	1484		1677	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	78	20	37	53	1	15	1	23	1	11	5
RTOR Reduction (vph)	0	10	0	0	0	0	0	0	14	0	4	0
Lane Group Flow (vph)	0	90	0	0	91	0	15	1	9	0	13	0
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Heavy Vehicles (%)	0%	0%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		4			4		2	2			6	
Permitted Phases	4			4					2	6		
Actuated Green, G (s)		11.4			11.4		35.0	35.0	35.0		28.0	
Effective Green, g (s)		11.4			11.4		35.0	35.0	35.0		28.0	
Actuated g/C Ratio		0.12			0.12		0.37	0.37	0.37		0.30	
Clearance Time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)		206			176		625	657	551		499	
v/s Ratio Prot							c0.01	0.00				
v/s Ratio Perm		0.05			c0.06				0.01		c0.01	
v/c Ratio		0.44			0.52		0.02	0.00	0.02		0.03	
Uniform Delay, d1		38.4			38.8		18.7	18.6	18.7		23.4	
Progression Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		1.5			2.6		0.1	0.0	0.1		0.1	
Delay (s)		39.9			41.3		18.8	18.6	18.7		23.5	
Level of Service		D			D		B	B	B		C	
Approach Delay (s)		39.9			41.3			18.7			23.5	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	35.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.10		
Actuated Cycle Length (s)	94.1	Sum of lost time (s)	19.7
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

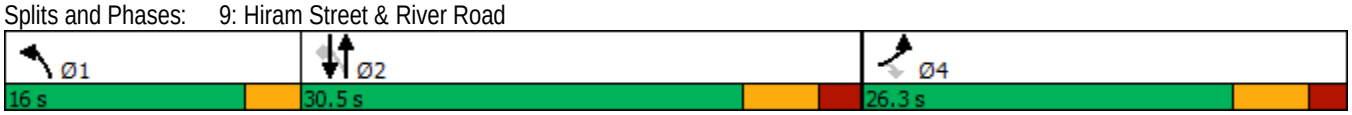
c Critical Lane Group

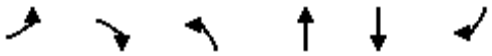


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	78	55	100	111	37
Future Volume (vph)	5	78	55	100	111	37
Lane Group Flow (vph)	5	85	60	109	121	40
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Detector Phase	4	4	1	2	2	2
Switch Phase						
Minimum Initial (s)	8.0	8.0	6.0	10.0	10.0	10.0
Minimum Split (s)	23.3	23.3	9.0	27.5	27.5	27.5
Total Split (s)	26.3	26.3	16.0	30.5	30.5	30.5
Total Split (%)	36.1%	36.1%	22.0%	41.9%	41.9%	41.9%
Yellow Time (s)	4.1	4.1	3.0	4.1	4.1	4.1
All-Red Time (s)	2.2	2.2	0.0	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lead/Lag			Lead	Lag	Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Max	Max	Max
v/c Ratio	0.02	0.28	0.07	0.11	0.12	0.05
Control Delay	20.0	8.8	3.2	8.8	8.8	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.0	8.8	3.2	8.8	8.8	3.6
Queue Length 50th (m)	0.4	0.0	1.5	5.9	6.6	0.0
Queue Length 95th (m)	2.8	9.3	3.9	13.0	14.2	3.9
Internal Link Dist (m)	95.8			80.7	33.4	
Turn Bay Length (m)						
Base Capacity (vph)	634	620	994	1007	1037	842
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.14	0.06	0.11	0.12	0.05

Intersection Summary
Cycle Length: 72.8
Actuated Cycle Length: 53.4
Natural Cycle: 60
Control Type: Actuated-Uncoordinated

Splits and Phases: 9: Hiram Street & River Road

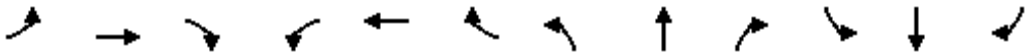




Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	78	55	100	111	37
Future Volume (vph)	5	78	55	100	111	37
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1681	1504	1670	1685	1735	1387
Flt Permitted	0.95	1.00	0.68	1.00	1.00	1.00
Satd. Flow (perm)	1681	1504	1194	1685	1735	1387
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	85	60	109	121	40
RTOR Reduction (vph)	0	76	0	0	0	18
Lane Group Flow (vph)	5	9	60	109	121	22
Confl. Peds. (#/hr)	3		9			9
Heavy Vehicles (%)	0%	0%	0%	5%	2%	5%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Actuated Green, G (s)	6.2	6.2	34.0	30.4	30.4	30.4
Effective Green, g (s)	6.2	6.2	34.0	30.4	30.4	30.4
Actuated g/C Ratio	0.11	0.11	0.61	0.54	0.54	0.54
Clearance Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Vehicle Extension (s)	2.2	2.2	2.2	2.2	2.2	2.2
Lane Grp Cap (vph)	186	166	755	914	941	752
v/s Ratio Prot	0.00		c0.01	0.06	c0.07	
v/s Ratio Perm		c0.01	0.04			0.02
v/c Ratio	0.03	0.06	0.08	0.12	0.13	0.03
Uniform Delay, d1	22.2	22.3	4.5	6.3	6.3	5.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0	0.1	0.0	0.3	0.3	0.1
Delay (s)	22.2	22.4	4.5	6.5	6.6	6.0
Level of Service	C	C	A	A	A	A
Approach Delay (s)	22.3			5.8	6.4	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.11		
Actuated Cycle Length (s)	56.0	Sum of lost time (s)	15.8
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

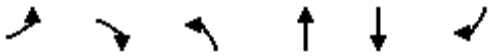


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	0	17	16	0	26	33	43	32	22	26	21
Future Volume (Veh/h)	27	0	17	16	0	26	33	43	32	22	26	21
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	0	18	17	0	28	36	47	35	24	28	23
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								48				
pX, platoon unblocked												
vC, conflicting volume	252	242	40	242	236	64	51			82		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	252	242	40	242	236	64	51			82		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	100	98	97	100	97	98			98		
cM capacity (veh/h)	662	635	1032	679	639	1000	1555			1515		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	47	45	118	75
Volume Left	29	17	36	24
Volume Right	18	28	35	23
cSH	767	848	1555	1515
Volume to Capacity	0.06	0.05	0.02	0.02
Queue Length 95th (m)	1.5	1.3	0.5	0.4
Control Delay (s)	10.0	9.5	2.4	2.5
Lane LOS	A	A	A	A
Approach Delay (s)	10.0	9.5	2.4	2.5
Approach LOS	A	A		

Intersection Summary				
Average Delay	4.8			
Intersection Capacity Utilization	19.7%	ICU Level of Service	A	
Analysis Period (min)	15			

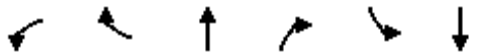
2030 Future Total PM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	326	588	329	277
Future Volume (Veh/h)	0	0	326	588	329	277
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	354	639	358	301
Pedestrians					1	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				118		
pX, platoon unblocked	0.73					
vC, conflicting volume	1856	508	659			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1992	508	659			
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	62			
cM capacity (veh/h)	30	569	939			

Direction, Lane #	NB 1	NB 2	SB 1
Volume Total	354	639	659
Volume Left	354	0	0
Volume Right	0	0	301
cSH	939	1700	1700
Volume to Capacity	0.38	0.38	0.39
Queue Length 95th (m)	13.5	0.0	0.0
Control Delay (s)	11.1	0.0	0.0
Lane LOS	B		
Approach Delay (s)	4.0		0.0
Approach LOS			

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	83	46	870	0	0	340
Future Volume (Veh/h)	83	46	870	0	0	340
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)	90	50	946	0	0	370
Pedestrians	40					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	4					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			53			
pX, platoon unblocked	0.52	0.52			0.52	
vC, conflicting volume	1356	986			986	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1225	517			517	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	10	82			100	
cM capacity (veh/h)	100	278			533	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	140	946	370
Volume Left	90	0	0
Volume Right	50	0	0
cSH	130	1700	1700
Volume to Capacity	1.08	0.56	0.22
Queue Length 95th (m)	60.0	0.0	0.0
Control Delay (s)	166.7	0.0	0.0
Lane LOS	F		
Approach Delay (s)	166.7	0.0	0.0
Approach LOS	F		

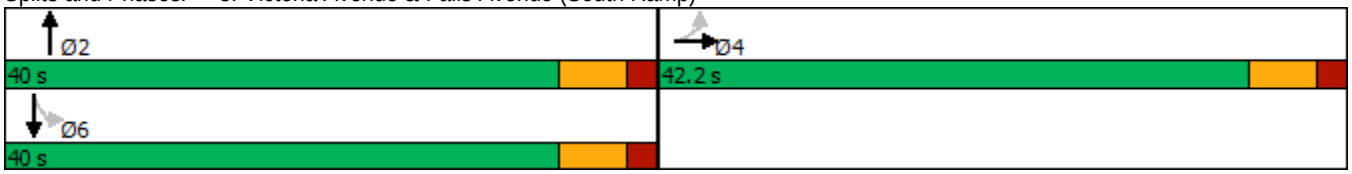
Intersection Summary			
Average Delay	16.0		
Intersection Capacity Utilization	111.5%	ICU Level of Service	H
Analysis Period (min)	15		

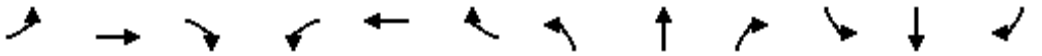
Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	209	2	656	54	362
Future Volume (vph)	209	2	656	54	362
Lane Group Flow (vph)	227	549	725	59	393
Turn Type	Perm	NA	NA	Perm	NA
Protected Phases		4	2		6
Permitted Phases	4			6	
Detector Phase	4	4	2	6	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	28.1	28.1	24.1	24.1	24.1
Total Split (s)	42.2	42.2	40.0	40.0	40.0
Total Split (%)	51.3%	51.3%	48.7%	48.7%	48.7%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	Max	Max	Max
v/c Ratio	0.41	0.89	0.86	0.39	0.47
Control Delay	19.3	30.9	32.6	25.8	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	19.3	30.9	32.6	25.8	16.8
Queue Length 50th (m)	22.3	43.7	82.2	4.8	33.5
Queue Length 95th (m)	38.0	84.7	#186.4	#20.1	71.6
Internal Link Dist (m)		82.5	171.2		29.4
Turn Bay Length (m)				10.0	
Base Capacity (vph)	843	834	839	150	842
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.27	0.66	0.86	0.39	0.47

Intersection Summary

Cycle Length: 82.2
Actuated Cycle Length: 71
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Victoria Avenue & Falls Avenue (South Ramp)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	209	2	503	0	0	0	0	656	11	54	362	0
Future Volume (vph)	209	2	503	0	0	0	0	656	11	54	362	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.1	6.1						6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.96						1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00						1.00		1.00	1.00	
Frt	1.00	0.85						1.00		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1632	1430						1728		1616	1735	
Flt Permitted	0.95	1.00						1.00		0.18	1.00	
Satd. Flow (perm)	1632	1430						1728		310	1735	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	227	2	547	0	0	0	0	713	12	59	393	0
RTOR Reduction (vph)	0	133	0	0	0	0	0	1	0	0	0	0
Lane Group Flow (vph)	227	416	0	0	0	0	0	724	0	59	393	0
Confl. Peds. (#/hr)			13	13			69		47	47		69
Heavy Vehicles (%)	3%	0%	1%	0%	0%	0%	0%	2%	0%	4%	2%	0%
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	24.1	24.1						34.5		34.5	34.5	
Effective Green, g (s)	24.1	24.1						34.5		34.5	34.5	
Actuated g/C Ratio	0.34	0.34						0.49		0.49	0.49	
Clearance Time (s)	6.1	6.1						6.1		6.1	6.1	
Vehicle Extension (s)	2.1	2.1						2.1		2.1	2.1	
Lane Grp Cap (vph)	555	486						842		151	845	
v/s Ratio Prot		c0.29						c0.42			0.23	
v/s Ratio Perm	0.14									0.19		
v/c Ratio	0.41	0.86						0.86		0.39	0.47	
Uniform Delay, d1	17.9	21.7						16.0		11.5	12.0	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	0.2	13.4						11.2		7.4	1.8	
Delay (s)	18.1	35.1						27.2		18.9	13.9	
Level of Service	B	D						C		B	B	
Approach Delay (s)		30.1			0.0			27.2			14.5	
Approach LOS		C			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	70.8	Sum of lost time (s)	12.2
Intersection Capacity Utilization	111.5%	ICU Level of Service	H
Analysis Period (min)	15		

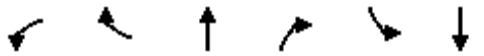
c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	120	271	361	245	420	431
Future Volume (vph)	120	271	361	245	420	431
Lane Group Flow (vph)	130	295	392	266	457	468
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	6.0	8.0
Minimum Split (s)	26.3	26.3	30.3	30.3	9.0	30.3
Total Split (s)	36.3	36.3	41.3	41.3	28.0	69.3
Total Split (%)	34.4%	34.4%	39.1%	39.1%	26.5%	65.6%
Yellow Time (s)	4.1	4.1	4.1	4.1	3.0	4.1
All-Red Time (s)	2.2	2.2	2.2	2.2	0.0	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	Max	Max	None	Max
v/c Ratio	0.62	0.64	0.46	0.39	0.65	0.37
Control Delay	48.8	11.0	19.0	9.8	9.1	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.8	11.0	19.0	9.8	9.1	6.5
Queue Length 50th (m)	21.0	0.0	39.4	10.1	21.2	25.8
Queue Length 95th (m)	38.3	21.2	87.3	37.3	44.2	50.8
Internal Link Dist (m)	12.9		86.7			171.2
Turn Bay Length (m)	30.0			25.0	15.0	
Base Capacity (vph)	492	693	852	674	800	1249
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.43	0.46	0.39	0.57	0.37

Intersection Summary

Cycle Length: 105.6
Actuated Cycle Length: 88.5
Natural Cycle: 70
Control Type: Actuated-Uncoordinated

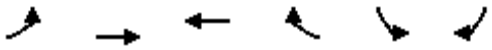
Splits and Phases: 4: Victoria Avenue & Bender Street



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	120	271	361	245	420	431
Future Volume (vph)	120	271	361	245	420	431
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.98	1.00	0.85	1.00	1.00
Flpb, ped/bikes	0.88	1.00	1.00	1.00	0.97	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1488	1471	1701	1236	1621	1752
Flt Permitted	0.95	1.00	1.00	1.00	0.43	1.00
Satd. Flow (perm)	1488	1471	1701	1236	734	1752
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	295	392	266	457	468
RTOR Reduction (vph)	0	252	0	74	0	0
Lane Group Flow (vph)	130	43	392	192	457	468
Confl. Peds. (#/hr)	52	1		74	74	
Heavy Vehicles (%)	0%	0%	4%	3%	1%	1%
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Actuated Green, G (s)	12.8	12.8	44.4	44.4	63.1	63.1
Effective Green, g (s)	12.8	12.8	44.4	44.4	63.1	63.1
Actuated g/C Ratio	0.14	0.14	0.50	0.50	0.71	0.71
Clearance Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Vehicle Extension (s)	2.5	2.5	3.5	3.5	3.0	3.5
Lane Grp Cap (vph)	215	212	853	620	680	1249
v/s Ratio Prot			0.23		c0.12	0.27
v/s Ratio Perm	c0.09	0.03		0.16	c0.36	
v/c Ratio	0.60	0.20	0.46	0.31	0.67	0.37
Uniform Delay, d1	35.5	33.3	14.3	13.0	6.0	5.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.0	0.3	1.8	1.3	2.6	0.9
Delay (s)	39.5	33.7	16.1	14.3	8.6	5.8
Level of Service	D	C	B	B	A	A
Approach Delay (s)	35.5		15.4			7.2
Approach LOS	D		B			A

Intersection Summary			
HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	88.5	Sum of lost time (s)	15.6
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	206	385	236	22	27	148
Future Volume (Veh/h)	206	385	236	22	27	148
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)	224	418	257	24	29	161
Pedestrians		14	13		35	
Lane Width (m)		3.7	3.7		3.7	
Walking Speed (m/s)		1.1	1.1		1.1	
Percent Blockage		1	1		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		37	79			
pX, platoon unblocked						
vC, conflicting volume	316				1183	318
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	316				1183	318
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	82				82	77
cM capacity (veh/h)	1215				165	694

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	224	418	281	190
Volume Left	224	0	0	29
Volume Right	0	0	24	161
cSH	1215	1700	1700	466
Volume to Capacity	0.18	0.25	0.17	0.41
Queue Length 95th (m)	5.1	0.0	0.0	14.9
Control Delay (s)	8.6	0.0	0.0	18.0
Lane LOS	A			C
Approach Delay (s)	3.0		0.0	18.0
Approach LOS				C

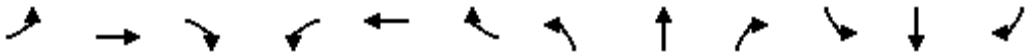
Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Configurations								
Traffic Volume (vph)	203	162	130	14	28	18	47	20
Future Volume (vph)	203	162	130	14	28	18	47	20
Lane Group Flow (vph)	0	397	141	0	50	127	51	244
Turn Type	Perm	NA	Over	Perm	NA	NA	Perm	NA
Protected Phases		8	6		8	6		2
Permitted Phases	8			8			6	
Detector Phase	8	8	6	8	8	6	6	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	26.3	42.1	42.1	26.3	26.3	14.3
Total Split (s)	42.1	42.1	41.3	42.1	42.1	41.3	41.3	34.3
Total Split (%)	35.8%	35.8%	35.1%	35.8%	35.8%	35.1%	35.1%	29.1%
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	2.2	3.0	3.0	2.2	2.2	2.2
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		7.1	6.3		7.1	6.3	6.3	6.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	Min	None	None	Min	Min	Min
v/c Ratio		0.72	0.37		0.08	0.52	0.20	0.73
Control Delay		31.3	35.7		16.2	41.8	3.2	35.5
Queue Delay		0.3	0.0		0.0	0.0	0.0	0.0
Total Delay		31.6	35.7		16.2	41.8	3.2	35.5
Queue Length 50th (m)		48.8	11.3		4.0	18.5	0.0	25.0
Queue Length 95th (m)		#118.3	22.4		13.1	38.1	2.3	51.9
Internal Link Dist (m)		54.9			36.6	34.4		24.4
Turn Bay Length (m)			40.0					
Base Capacity (vph)		549	1138		589	730	567	562
Starvation Cap Reductn		12	0		0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0
Reduced v/c Ratio		0.74	0.12		0.08	0.17	0.09	0.43

Intersection Summary

Cycle Length: 117.7
Actuated Cycle Length: 82.3
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Bender Street & Ontario Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	162	130	14	28	5	98	18	47	60	20	144
Future Volume (vph)	203	162	130	14	28	5	98	18	47	60	20	144
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Lane Util. Factor		1.00	0.88		1.00			1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		0.99			1.00	0.85		0.95	
Flpb, ped/bikes		0.95	1.00		0.99			1.00	1.00		1.00	
Frt		1.00	0.85		0.99			1.00	0.85		0.91	
Flt Protected		0.97	1.00		0.99			0.96	1.00		0.99	
Satd. Flow (prot)		1593	2647		1563			1698	1281		1484	
Flt Permitted		0.80	1.00		0.86			0.96	1.00		0.99	
Satd. Flow (perm)		1309	2647		1372			1698	1281		1484	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	221	176	141	15	30	5	107	20	51	65	22	157
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	44	0	59	0
Lane Group Flow (vph)	0	397	141	0	47	0	0	127	7	0	185	0
Confl. Peds. (#/hr)	79		109	109		79	23		113	113		23
Heavy Vehicles (%)	2%	4%	0%	25%	0%	0%	0%	0%	0%	7%	0%	0%
Turn Type	Perm	NA	Over	Perm	NA		Split	NA	Perm	Split	NA	
Protected Phases		8	6		8		6	6		2	2	
Permitted Phases	8			8					6			
Actuated Green, G (s)		35.4	11.8		35.4			11.8	11.8		15.2	
Effective Green, g (s)		35.4	11.8		35.4			11.8	11.8		15.2	
Actuated g/C Ratio		0.43	0.14		0.43			0.14	0.14		0.19	
Clearance Time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Vehicle Extension (s)		3.5	3.0		3.5			3.0	3.0		3.0	
Lane Grp Cap (vph)		564	380		591			244	184		274	
v/s Ratio Prot			0.05					c0.07			c0.12	
v/s Ratio Perm		c0.30			0.03				0.01			
v/c Ratio		0.70	0.37		0.08			0.52	0.04		0.68	
Uniform Delay, d1		19.1	31.8		13.8			32.5	30.3		31.2	
Progression Factor		1.00	1.00		1.00			1.00	1.00		1.00	
Incremental Delay, d2		4.1	0.6		0.1			2.0	0.1		6.5	
Delay (s)		23.2	32.4		13.8			34.5	30.4		37.6	
Level of Service		C	C		B			C	C		D	
Approach Delay (s)		25.6			13.8			33.3			37.6	
Approach LOS		C			B			C			D	

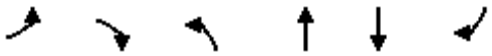
Intersection Summary			
HCM 2000 Control Delay	29.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	82.1	Sum of lost time (s)	19.7
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBR	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	263	39	83	497
Future Volume (vph)	263	39	83	497
Lane Group Flow (vph)	286	42	90	541
Turn Type	Perm	Prot	NA	NA
Protected Phases		5	2	6
Permitted Phases	4			
Detector Phase	4	5	2	6
Switch Phase				
Minimum Initial (s)	1.0	8.0	10.0	10.0
Minimum Split (s)	3.0	13.0	17.0	17.0
Total Split (s)	3.0	25.0	72.0	47.0
Total Split (%)	4.0%	33.3%	96.0%	62.7%
Yellow Time (s)	2.0	3.0	5.0	5.0
All-Red Time (s)	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	2.0	5.0	7.0	7.0
Lead/Lag		Lead		Lag
Lead-Lag Optimize?				
Recall Mode	None	None	Max	Max
v/c Ratio	0.56	0.25	0.06	0.22
Control Delay	4.5	34.4	0.8	3.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	4.5	34.4	0.8	3.7
Queue Length 50th (m)	0.0	5.6	0.8	12.3
Queue Length 95th (m)	0.0	14.1	1.7	19.0
Internal Link Dist (m)			45.6	34.5
Turn Bay Length (m)		20.0		
Base Capacity (vph)	507	407	1446	2453
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.56	0.10	0.06	0.22

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Natural Cycle: 40
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Falls Avenue & Bender Street



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	263	39	83	497	1
Future Volume (vph)	0	263	39	83	497	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)		2.0	5.0	7.0	7.0	
Lane Util. Factor		1.00	1.00	1.00	0.95	
Frpb, ped/bikes		0.59	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	
Frt		0.86	1.00	1.00	1.00	
Flt Protected		1.00	0.95	1.00	1.00	
Satd. Flow (prot)		861	1528	1669	3232	
Flt Permitted		1.00	0.95	1.00	1.00	
Satd. Flow (perm)		861	1528	1669	3232	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	286	42	90	540	1
RTOR Reduction (vph)	0	282	0	0	0	0
Lane Group Flow (vph)	0	4	42	90	541	0
Confl. Peds. (#/hr)	37	37	67			67
Heavy Vehicles (%)	0%	4%	10%	6%	4%	0%
Turn Type		Perm	Prot	NA	NA	
Protected Phases			5	2	6	
Permitted Phases		4				
Actuated Green, G (s)		1.0	5.1	67.0	56.9	
Effective Green, g (s)		1.0	5.1	67.0	56.9	
Actuated g/C Ratio		0.01	0.07	0.87	0.74	
Clearance Time (s)		2.0	5.0	7.0	7.0	
Vehicle Extension (s)		0.2	2.0	4.5	4.5	
Lane Grp Cap (vph)		11	101	1452	2388	
v/s Ratio Prot			c0.03	0.05	c0.17	
v/s Ratio Perm		c0.00				
v/c Ratio		0.34	0.42	0.06	0.23	
Uniform Delay, d1		37.7	34.5	0.7	3.2	
Progression Factor		1.00	1.00	1.00	1.00	
Incremental Delay, d2		6.5	1.0	0.1	0.2	
Delay (s)		44.2	35.5	0.8	3.4	
Level of Service		D	D	A	A	
Approach Delay (s)	44.2			11.8	3.4	
Approach LOS	D			B	A	

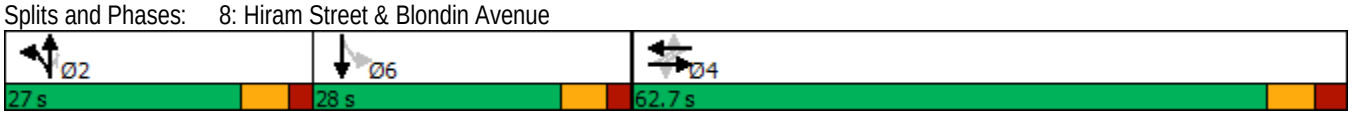
Intersection Summary			
HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	77.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	45.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	11	167	94	124	65	5	150	1	225
Future Volume (vph)	11	167	94	124	65	5	150	1	225
Lane Group Flow (vph)	0	237	0	244	71	5	163	0	278
Turn Type	Perm	NA	Perm	NA	Split	NA	Perm	Perm	NA
Protected Phases		4		4	2	2			6
Permitted Phases	4		4				2	6	
Detector Phase	4	4	4	4	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	42.1	42.1	26.3	26.3	26.3	14.3	14.3
Total Split (s)	62.7	62.7	62.7	62.7	27.0	27.0	27.0	28.0	28.0
Total Split (%)	53.3%	53.3%	53.3%	53.3%	22.9%	22.9%	22.9%	23.8%	23.8%
Yellow Time (s)	4.1	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	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		7.1		7.1	6.3	6.3	6.3		6.3
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio		0.56		0.84	0.17	0.01	0.33		0.61
Control Delay		30.5		53.4	28.0	26.8	7.1		34.5
Queue Delay		0.0		0.0	0.0	0.0	0.0		0.0
Total Delay		30.5		53.4	28.0	26.8	7.1		34.5
Queue Length 50th (m)		30.8		36.2	8.7	0.6	0.0		37.6
Queue Length 95th (m)		51.5		62.3	21.6	3.6	15.3		71.6
Internal Link Dist (m)		59.4		95.8		20.6			32.1
Turn Bay Length (m)									
Base Capacity (vph)		1123		784	420	442	487		458
Starvation Cap Reductn		0		0	0	0	0		0
Spillback Cap Reductn		0		0	0	0	0		0
Storage Cap Reductn		0		0	0	0	0		0
Reduced v/c Ratio		0.21		0.31	0.17	0.01	0.33		0.61

Intersection Summary
Cycle Length: 117.7
Actuated Cycle Length: 83.1
Natural Cycle: 85
Control Type: Semi Act-Uncoord

Splits and Phases: 8: Hiram Street & Blondin Avenue



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	167	40	94	124	6	65	5	150	1	225	29
Future Volume (vph)	11	167	40	94	124	6	65	5	150	1	225	29
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Lane Util. Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Frpb, ped/bikes		0.99			1.00		1.00	1.00	0.98		1.00	
Flpb, ped/bikes		1.00			0.99		1.00	1.00	1.00		1.00	
Frt		0.98			1.00		1.00	1.00	0.85		0.98	
Flt Protected		1.00			0.98		0.95	1.00	1.00		1.00	
Satd. Flow (prot)		1706			1648		1681	1769	1462		1736	
Flt Permitted		0.97			0.70		0.95	1.00	1.00		1.00	
Satd. Flow (perm)		1668			1171		1681	1769	1462		1736	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	182	43	102	135	7	71	5	163	1	245	32
RTOR Reduction (vph)	0	10	0	0	2	0	0	0	122	0	4	0
Lane Group Flow (vph)	0	227	0	0	242	0	71	5	41	0	274	0
Confl. Peds. (#/hr)	2		25	25		3	3		5	5		3
Heavy Vehicles (%)	0%	0%	0%	0%	7%	0%	0%	0%	1%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		4			4		2	2			6	
Permitted Phases	4			4					2	6		
Actuated Green, G (s)		20.7			20.7		20.8	20.8	20.8		21.8	
Effective Green, g (s)		20.7			20.7		20.8	20.8	20.8		21.8	
Actuated g/C Ratio		0.25			0.25		0.25	0.25	0.25		0.26	
Clearance Time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)		415			292		421	443	366		455	
v/s Ratio Prot							c0.04	0.00				
v/s Ratio Perm		0.14			c0.21				0.03		0.16	
v/c Ratio		0.55			0.83		0.17	0.01	0.11		0.60	
Uniform Delay, d1		27.1			29.5		24.3	23.4	24.0		26.8	
Progression Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		1.5			17.8		0.9	0.0	0.6		5.8	
Delay (s)		28.6			47.3		25.2	23.4	24.6		32.6	
Level of Service		C			D		C	C	C		C	
Approach Delay (s)		28.6			47.3			24.7			32.6	
Approach LOS		C			D			C			C	

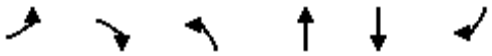
Intersection Summary			
HCM 2000 Control Delay	33.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	83.0	Sum of lost time (s)	19.7
Intersection Capacity Utilization	90.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	152	145	299	375	294	83
Future Volume (vph)	152	145	299	375	294	83
Lane Group Flow (vph)	165	158	325	408	320	90
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Detector Phase	4	4	1	2	2	2
Switch Phase						
Minimum Initial (s)	8.0	8.0	6.0	10.0	10.0	10.0
Minimum Split (s)	23.3	23.3	9.0	27.5	27.5	27.5
Total Split (s)	26.3	26.3	16.0	30.5	30.5	30.5
Total Split (%)	36.1%	36.1%	22.0%	41.9%	41.9%	41.9%
Yellow Time (s)	4.1	4.1	3.0	4.1	4.1	4.1
All-Red Time (s)	2.2	2.2	0.0	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lead/Lag			Lead	Lag	Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Max	Max	Max
v/c Ratio	0.55	0.41	0.50	0.60	0.46	0.16
Control Delay	30.2	8.0	7.7	20.4	17.6	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.2	8.0	7.7	20.4	17.6	4.8
Queue Length 50th (m)	16.8	0.0	11.8	33.9	24.8	0.0
Queue Length 95th (m)	34.1	12.8	27.9	72.3	54.0	8.2
Internal Link Dist (m)	95.8			80.7	33.4	
Turn Bay Length (m)						
Base Capacity (vph)	558	578	724	677	691	558
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.27	0.45	0.60	0.46	0.16

Intersection Summary
Cycle Length: 72.8
Actuated Cycle Length: 60.6
Natural Cycle: 60
Control Type: Actuated-Uncoordinated

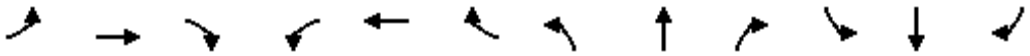
Splits and Phases: 9: Hiram Street & River Road



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	152	145	299	375	294	83
Future Volume (vph)	152	145	299	375	294	83
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.95	1.00	1.00	1.00	0.88
Flpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1681	1432	1578	1701	1735	1295
Flt Permitted	0.95	1.00	0.53	1.00	1.00	1.00
Satd. Flow (perm)	1681	1432	889	1701	1735	1295
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	165	158	325	408	320	90
RTOR Reduction (vph)	0	130	0	0	0	54
Lane Group Flow (vph)	165	28	325	408	320	36
Confl. Peds. (#/hr)	10	16	72			72
Heavy Vehicles (%)	0%	0%	3%	4%	2%	2%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Actuated Green, G (s)	10.9	10.9	33.8	24.2	24.2	24.2
Effective Green, g (s)	10.9	10.9	33.8	24.2	24.2	24.2
Actuated g/C Ratio	0.18	0.18	0.56	0.40	0.40	0.40
Clearance Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Vehicle Extension (s)	2.2	2.2	2.2	2.2	2.2	2.2
Lane Grp Cap (vph)	302	257	605	680	694	518
v/s Ratio Prot	c0.10		c0.09	c0.24	0.18	
v/s Ratio Perm		0.02	0.21			0.03
v/c Ratio	0.55	0.11	0.54	0.60	0.46	0.07
Uniform Delay, d1	22.6	20.7	7.4	14.3	13.4	11.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	0.1	0.6	3.9	2.2	0.3
Delay (s)	23.8	20.8	8.0	18.2	15.6	11.5
Level of Service	C	C	A	B	B	B
Approach Delay (s)	22.4			13.7	14.7	
Approach LOS	C			B	B	

Intersection Summary			
HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	60.5	Sum of lost time (s)	15.8
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

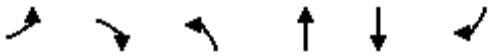


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	0	43	41	0	24	26	70	25	44	116	42
Future Volume (Veh/h)	25	0	43	41	0	24	26	70	25	44	116	42
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	0	47	45	0	26	28	76	27	48	126	46
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								48				
pX, platoon unblocked												
vC, conflicting volume	416	404	149	438	414	90	172			103		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	416	404	149	438	414	90	172			103		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	100	95	91	100	97	98			97		
cM capacity (veh/h)	511	508	898	482	502	968	1405			1489		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	74	71	131	220
Volume Left	27	45	28	48
Volume Right	47	26	27	46
cSH	703	591	1405	1489
Volume to Capacity	0.11	0.12	0.02	0.03
Queue Length 95th (m)	2.7	3.1	0.5	0.8
Control Delay (s)	10.7	11.9	1.8	1.8
Lane LOS	B	B	A	A
Approach Delay (s)	10.7	11.9	1.8	1.8
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.6			
Intersection Capacity Utilization	29.7%	ICU Level of Service	A	
Analysis Period (min)	15			

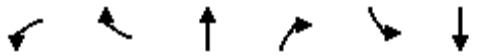
2030 Future Total SAT



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	368	445	352	154
Future Volume (Veh/h)	0	0	368	445	352	154
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	400	484	383	167
Pedestrians	92				1	
Lane Width (m)	0.0				3.7	
Walking Speed (m/s)	1.1				1.1	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				118		
pX, platoon unblocked						
vC, conflicting volume	1844	558	642			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1844	558	642			
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	58			
cM capacity (veh/h)	48	533	947			

Direction, Lane #	NB 1	NB 2	SB 1
Volume Total	400	484	550
Volume Left	400	0	0
Volume Right	0	0	167
cSH	947	1700	1700
Volume to Capacity	0.42	0.28	0.32
Queue Length 95th (m)	16.2	0.0	0.0
Control Delay (s)	11.5	0.0	0.0
Lane LOS	B		
Approach Delay (s)	5.2		0.0
Approach LOS			

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	120	44	777	0	0	353
Future Volume (Veh/h)	120	44	777	0	0	353
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)	130	48	845	0	0	384
Pedestrians	78					1
Lane Width (m)	3.7					3.7
Walking Speed (m/s)	1.1					1.1
Percent Blockage	7					0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			53			
pX, platoon unblocked	0.57	0.57			0.57	
vC, conflicting volume	1307	924			923	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1162	491			489	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	84			100	
cM capacity (veh/h)	115	308			574	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	178	845	384
Volume Left	130	0	0
Volume Right	48	0	0
cSH	139	1700	1700
Volume to Capacity	1.29	0.50	0.23
Queue Length 95th (m)	83.6	0.0	0.0
Control Delay (s)	233.5	0.0	0.0
Lane LOS	F		
Approach Delay (s)	233.5	0.0	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	29.5		
Intersection Capacity Utilization	123.8%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	124	2	612	30	440
Future Volume (vph)	124	2	612	30	440
Lane Group Flow (vph)	135	739	687	33	478
Turn Type	Perm	NA	NA	Perm	NA
Protected Phases		4	2		6
Permitted Phases	4			6	
Detector Phase	4	4	2	6	6
Switch Phase					
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	28.1	28.1	24.1	24.1	24.1
Total Split (s)	43.2	43.2	39.0	39.0	39.0
Total Split (%)	52.6%	52.6%	47.4%	47.4%	47.4%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	Max	Max	Max
v/c Ratio	0.18	1.00	0.99	0.38	0.68
Control Delay	14.3	54.2	57.7	33.3	26.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	14.3	54.2	57.7	33.3	26.1
Queue Length 50th (m)	12.1	~95.9	103.6	3.6	59.9
Queue Length 95th (m)	22.6	#173.4	#175.3	13.1	92.7
Internal Link Dist (m)		82.5	171.2		29.4
Turn Bay Length (m)				10.0	
Base Capacity (vph)	751	737	696	86	708
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.18	1.00	0.99	0.38	0.68

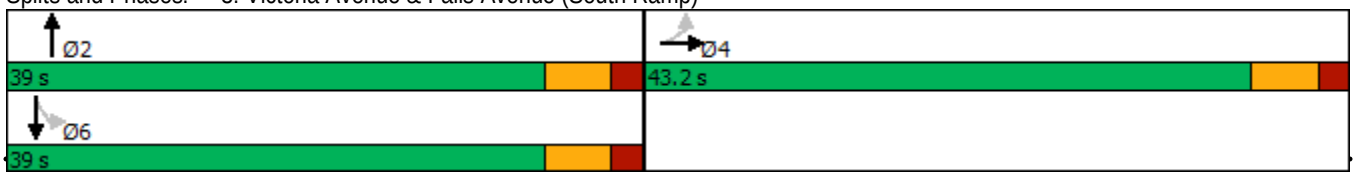
Intersection Summary

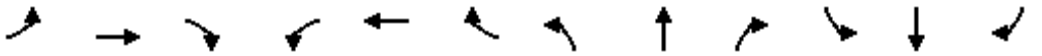
Cycle Length: 82.2
Actuated Cycle Length: 82.2
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Splits and Phases: 3: Victoria Avenue & Falls Avenue (South Ramp)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	2	678	0	0	0	0	612	20	30	440	0
Future Volume (vph)	124	2	678	0	0	0	0	612	20	30	440	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.1	6.1						6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97						1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00						1.00		1.00	1.00	
Frt	1.00	0.85						1.00		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1664	1453						1736		1681	1769	
Flt Permitted	0.95	1.00						1.00		0.12	1.00	
Satd. Flow (perm)	1664	1453						1736		215	1769	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	135	2	737	0	0	0	0	665	22	33	478	0
RTOR Reduction (vph)	0	82	0	0	0	0	0	1	0	0	0	0
Lane Group Flow (vph)	135	657	0	0	0	0	0	686	0	33	478	0
Confl. Peds. (#/hr)			8	8			63		33	33		63
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	0%	1%	6%	0%	0%	0%
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	37.1	37.1						32.9		32.9	32.9	
Effective Green, g (s)	37.1	37.1						32.9		32.9	32.9	
Actuated g/C Ratio	0.45	0.45						0.40		0.40	0.40	
Clearance Time (s)	6.1	6.1						6.1		6.1	6.1	
Vehicle Extension (s)	2.1	2.1						2.1		2.1	2.1	
Lane Grp Cap (vph)	751	655						694		86	708	
v/s Ratio Prot		c0.45						c0.39			0.27	
v/s Ratio Perm	0.08									0.15		
v/c Ratio	0.18	1.00						0.99		0.38	0.68	
Uniform Delay, d1	13.5	22.6						24.5		17.5	20.3	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	0.1	35.8						31.4		12.5	5.1	
Delay (s)	13.5	58.4						55.9		29.9	25.4	
Level of Service	B	E						E		C	C	
Approach Delay (s)		51.4			0.0			55.9			25.7	
Approach LOS		D			A			E			C	

Intersection Summary			
HCM 2000 Control Delay	46.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	82.2	Sum of lost time (s)	12.2
Intersection Capacity Utilization	123.8%	ICU Level of Service	H
Analysis Period (min)	15		

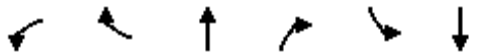
c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	161	241	342	253	622	496
Future Volume (vph)	161	241	342	253	622	496
Lane Group Flow (vph)	175	262	372	275	676	539
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	6.0	8.0
Minimum Split (s)	26.3	26.3	30.3	30.3	9.0	30.3
Total Split (s)	36.3	36.3	41.3	41.3	28.0	69.3
Total Split (%)	34.4%	34.4%	39.1%	39.1%	26.5%	65.6%
Yellow Time (s)	4.1	4.1	4.1	4.1	3.0	4.1
All-Red Time (s)	2.2	2.2	2.2	2.2	0.0	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	Max	Max	None	Max
v/c Ratio	0.68	0.64	0.55	0.46	0.89	0.44
Control Delay	49.5	12.1	26.4	11.8	25.3	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.5	12.1	26.4	11.8	25.3	8.0
Queue Length 50th (m)	29.0	0.0	49.3	12.9	47.6	34.9
Queue Length 95th (m)	49.4	21.3	85.2	37.2	#133.3	67.9
Internal Link Dist (m)	12.9		86.7			171.2
Turn Bay Length (m)	30.0			25.0	15.0	
Base Capacity (vph)	523	564	672	601	760	1233
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.46	0.55	0.46	0.89	0.44

Intersection Summary

Cycle Length: 105.6
Actuated Cycle Length: 90.5
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

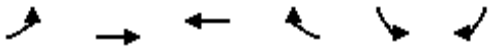
Splits and Phases: 4: Victoria Avenue & Bender Street



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	161	241	342	253	622	496
Future Volume (vph)	161	241	342	253	622	496
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.81	1.00	0.89	1.00	1.00
Flpb, ped/bikes	0.95	1.00	1.00	1.00	0.98	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1589	1217	1735	1319	1655	1769
Flt Permitted	0.95	1.00	1.00	1.00	0.38	1.00
Satd. Flow (perm)	1589	1217	1735	1319	666	1769
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	175	262	372	275	676	539
RTOR Reduction (vph)	0	219	0	99	0	0
Lane Group Flow (vph)	175	43	372	176	676	539
Confl. Peds. (#/hr)	20	77		51	51	
Heavy Vehicles (%)	1%	0%	2%	1%	0%	0%
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Actuated Green, G (s)	14.8	14.8	35.1	35.1	63.2	63.2
Effective Green, g (s)	14.8	14.8	35.1	35.1	63.2	63.2
Actuated g/C Ratio	0.16	0.16	0.39	0.39	0.70	0.70
Clearance Time (s)	6.3	6.3	6.3	6.3	3.0	6.3
Vehicle Extension (s)	2.5	2.5	3.5	3.5	3.0	3.5
Lane Grp Cap (vph)	259	198	672	511	738	1234
v/s Ratio Prot			0.21		c0.25	0.30
v/s Ratio Perm	c0.11	0.04		0.13	c0.39	
v/c Ratio	0.68	0.22	0.55	0.34	0.92	0.44
Uniform Delay, d1	35.6	32.9	21.6	19.6	9.7	6.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.2	0.4	3.3	1.8	16.0	1.1
Delay (s)	41.8	33.3	24.9	21.4	25.7	7.1
Level of Service	D	C	C	C	C	A
Approach Delay (s)	36.7		23.4			17.5
Approach LOS	D		C			B

Intersection Summary			
HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	90.6	Sum of lost time (s)	15.6
Intersection Capacity Utilization	87.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	209	571	223	27	37	172
Future Volume (Veh/h)	209	571	223	27	37	172
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)	227	621	242	29	40	187
Pedestrians		2	2		53	
Lane Width (m)		3.7	3.7		3.7	
Walking Speed (m/s)		1.1	1.1		1.1	
Percent Blockage		0	0		5	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		37	79			
pX, platoon unblocked						
vC, conflicting volume	324				1386	312
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	324				1386	312
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	81				67	73
cM capacity (veh/h)	1185				122	696

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	227	621	271	227
Volume Left	227	0	0	40
Volume Right	0	0	29	187
cSH	1185	1700	1700	381
Volume to Capacity	0.19	0.37	0.16	0.60
Queue Length 95th (m)	5.4	0.0	0.0	28.2
Control Delay (s)	8.8	0.0	0.0	27.5
Lane LOS	A			D
Approach Delay (s)	2.3		0.0	27.5
Approach LOS				D

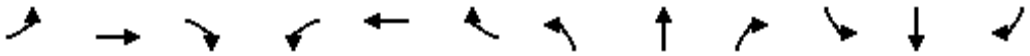
Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Configurations								
Traffic Volume (vph)	276	262	175	9	30	23	67	23
Future Volume (vph)	276	262	175	9	30	23	67	23
Lane Group Flow (vph)	0	585	190	0	60	108	73	243
Turn Type	Perm	NA	Over	Perm	NA	NA	Perm	NA
Protected Phases		8	6		8	6		2
Permitted Phases	8			8			6	
Detector Phase	8	8	6	8	8	6	6	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	26.3	42.1	42.1	26.3	26.3	14.3
Total Split (s)	72.9	72.9	26.3	72.9	72.9	26.3	26.3	18.5
Total Split (%)	61.9%	61.9%	22.3%	61.9%	61.9%	22.3%	22.3%	15.7%
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	2.2	3.0	3.0	2.2	2.2	2.2
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		7.1	6.3		7.1	6.3	6.3	6.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	Min	None	None	Min	Min	Min
v/c Ratio		0.89	0.53		0.08	0.47	0.27	0.90
Control Delay		37.6	45.1		8.8	47.1	7.5	63.9
Queue Delay		0.5	0.0		0.0	0.0	0.0	0.0
Total Delay		38.1	45.1		8.8	47.1	7.5	63.9
Queue Length 50th (m)		84.7	17.6		3.6	17.5	0.0	27.9
Queue Length 95th (m)		149.7	35.1		10.0	39.7	8.2	#93.1
Internal Link Dist (m)		54.9			36.6	34.4		24.4
Turn Bay Length (m)			40.0					
Base Capacity (vph)		988	605		1081	389	384	270
Starvation Cap Reductn		124	0		0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0
Reduced v/c Ratio		0.68	0.31		0.06	0.28	0.19	0.90

Intersection Summary

Cycle Length: 117.7
Actuated Cycle Length: 90.8
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Bender Street & Ontario Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	276	262	175	9	30	16	76	23	67	41	23	159
Future Volume (vph)	276	262	175	9	30	16	76	23	67	41	23	159
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Lane Util. Factor		1.00	0.88		1.00			1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		0.96			1.00	0.92		0.93	
Flpb, ped/bikes		0.94	1.00		1.00			1.00	1.00		1.00	
Frt		1.00	0.85		0.96			1.00	0.85		0.90	
Flt Protected		0.97	1.00		0.99			0.96	1.00		0.99	
Satd. Flow (prot)		1617	2647		1581			1704	1386		1450	
Flt Permitted		0.81	1.00		0.91			0.96	1.00		0.99	
Satd. Flow (perm)		1338	2647		1448			1704	1386		1450	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	300	285	190	10	33	17	83	25	73	45	25	173
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	63	0	72	0
Lane Group Flow (vph)	0	585	190	0	52	0	0	108	10	0	171	0
Confl. Peds. (#/hr)	96		60	60		96	23		50	50		23
Heavy Vehicles (%)	0%	1%	0%	0%	4%	0%	0%	0%	0%	0%	15%	0%
Turn Type	Perm	NA	Over	Perm	NA		Split	NA	Perm	Split	NA	
Protected Phases		8	6		8		6	6		2	2	
Permitted Phases	8			8					6			
Actuated Green, G (s)		45.4	12.3		45.4			12.3	12.3		12.7	
Effective Green, g (s)		45.4	12.3		45.4			12.3	12.3		12.7	
Actuated g/C Ratio		0.50	0.14		0.50			0.14	0.14		0.14	
Clearance Time (s)		7.1	6.3		7.1			6.3	6.3		6.3	
Vehicle Extension (s)		3.5	3.0		3.5			3.0	3.0		3.0	
Lane Grp Cap (vph)		674	361		729			232	189		204	
v/s Ratio Prot			c0.07					0.06			c0.12	
v/s Ratio Perm		c0.44			0.04				0.01			
v/c Ratio		0.87	0.53		0.07			0.47	0.05		0.84	
Uniform Delay, d1		19.7	36.2		11.5			35.9	33.8		37.7	
Progression Factor		1.00	1.00		1.00			1.00	1.00		1.00	
Incremental Delay, d2		11.7	1.4		0.0			1.5	0.1		24.7	
Delay (s)		31.4	37.6		11.5			37.3	33.9		62.4	
Level of Service		C	D		B			D	C		E	
Approach Delay (s)		32.9			11.5			36.0			62.4	
Approach LOS		C			B			D			E	

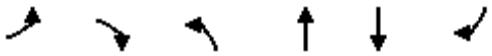
Intersection Summary			
HCM 2000 Control Delay	38.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	90.1	Sum of lost time (s)	19.7
Intersection Capacity Utilization	79.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBR	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	328	42	98	835
Future Volume (vph)	328	42	98	835
Lane Group Flow (vph)	357	46	107	909
Turn Type	Perm	Prot	NA	NA
Protected Phases		5	2	6
Permitted Phases	4			
Detector Phase	4	5	2	6
Switch Phase				
Minimum Initial (s)	1.0	8.0	10.0	10.0
Minimum Split (s)	3.0	13.0	17.0	17.0
Total Split (s)	3.0	25.0	72.0	47.0
Total Split (%)	4.0%	33.3%	96.0%	62.7%
Yellow Time (s)	2.0	3.0	5.0	5.0
All-Red Time (s)	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	2.0	5.0	7.0	7.0
Lead/Lag		Lead		Lag
Lead-Lag Optimize?				
Recall Mode	None	None	Max	Max
v/c Ratio	0.81	0.26	0.07	0.36
Control Delay	18.1	34.3	0.8	4.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	18.1	34.3	0.8	4.3
Queue Length 50th (m)	0.0	6.1	1.0	23.5
Queue Length 95th (m)	#23.6	15.1	2.0	34.4
Internal Link Dist (m)			45.6	34.5
Turn Bay Length (m)		20.0		
Base Capacity (vph)	439	435	1518	2553
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.81	0.11	0.07	0.36

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Natural Cycle: 55
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Falls Avenue & Bender Street



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	328	42	98	835	1
Future Volume (vph)	0	328	42	98	835	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)		2.0	5.0	7.0	7.0	
Lane Util. Factor		1.00	1.00	1.00	0.95	
Frpb, ped/bikes		0.58	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	
Frt		0.86	1.00	1.00	1.00	
Flt Protected		1.00	0.95	1.00	1.00	
Satd. Flow (prot)		873	1632	1752	3361	
Flt Permitted		1.00	0.95	1.00	1.00	
Satd. Flow (perm)		873	1632	1752	3361	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	357	46	107	908	1
RTOR Reduction (vph)	0	352	0	0	0	0
Lane Group Flow (vph)	0	5	46	107	909	0
Confl. Peds. (#/hr)	18	39	16			16
Heavy Vehicles (%)	0%	1%	3%	1%	0%	0%
Turn Type		Perm	Prot	NA	NA	
Protected Phases			5	2	6	
Permitted Phases		4				
Actuated Green, G (s)		1.0	5.0	67.0	57.0	
Effective Green, g (s)		1.0	5.0	67.0	57.0	
Actuated g/C Ratio		0.01	0.06	0.87	0.74	
Clearance Time (s)		2.0	5.0	7.0	7.0	
Vehicle Extension (s)		0.2	2.0	4.5	4.5	
Lane Grp Cap (vph)		11	105	1524	2488	
v/s Ratio Prot			c0.03	0.06	c0.27	
v/s Ratio Perm		c0.01				
v/c Ratio		0.42	0.44	0.07	0.37	
Uniform Delay, d1		37.7	34.6	0.7	3.6	
Progression Factor		1.00	1.00	1.00	1.00	
Incremental Delay, d2		9.2	1.1	0.1	0.4	
Delay (s)		46.9	35.7	0.8	4.0	
Level of Service		D	D	A	A	
Approach Delay (s)	46.9			11.3	4.0	
Approach LOS	D			B	A	

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	77.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		

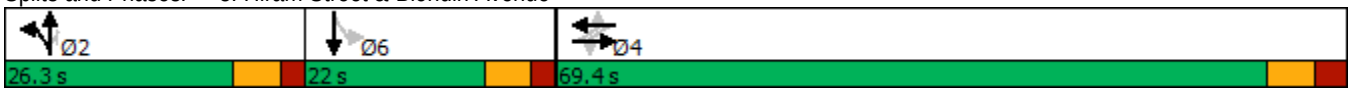
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	10	242	99	168	41	3	159	2	255
Future Volume (vph)	10	242	99	168	41	3	159	2	255
Lane Group Flow (vph)	0	316	0	302	45	3	173	0	309
Turn Type	Perm	NA	Perm	NA	Split	NA	Perm	Perm	NA
Protected Phases		4		4	2	2			6
Permitted Phases	4		4				2	6	
Detector Phase	4	4	4	4	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	42.1	42.1	26.3	26.3	26.3	14.3	14.3
Total Split (s)	69.4	69.4	69.4	69.4	26.3	26.3	26.3	22.0	22.0
Total Split (%)	59.0%	59.0%	59.0%	59.0%	22.3%	22.3%	22.3%	18.7%	18.7%
Yellow Time (s)	4.1	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	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		7.1		7.1	6.3	6.3	6.3		6.3
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio		0.62		0.89	0.11	0.01	0.35		0.89
Control Delay		28.2		54.7	26.5	26.0	7.1		61.2
Queue Delay		0.0		0.0	0.0	0.0	0.0		0.0
Total Delay		28.2		54.7	26.5	26.0	7.1		61.2
Queue Length 50th (m)		39.1		42.6	5.1	0.4	0.0		44.5
Queue Length 95th (m)		62.3		73.2	15.1	2.6	15.5		#106.5
Internal Link Dist (m)		59.4		95.8		20.6			32.1
Turn Bay Length (m)									
Base Capacity (vph)		1340		890	425	447	492		348
Starvation Cap Reductn		0		0	0	0	0		0
Spillback Cap Reductn		0		0	0	0	0		0
Storage Cap Reductn		0		0	0	0	0		0
Reduced v/c Ratio		0.24		0.34	0.11	0.01	0.35		0.89

Intersection Summary

Cycle Length: 117.7
Actuated Cycle Length: 79.6
Natural Cycle: 85
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 8: Hiram Street & Blondin Avenue



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	242	39	99	168	10	41	3	159	2	255	28
Future Volume (vph)	10	242	39	99	168	10	41	3	159	2	255	28
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Lane Util. Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Frpb, ped/bikes		1.00			1.00		1.00	1.00	0.97		1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00	1.00		1.00	
Frt		0.98			1.00		1.00	1.00	0.85		0.99	
Flt Protected		1.00			0.98		0.95	1.00	1.00		1.00	
Satd. Flow (prot)		1727			1648		1681	1769	1447		1740	
Flt Permitted		0.98			0.67		0.95	1.00	1.00		1.00	
Satd. Flow (perm)		1699			1130		1681	1769	1447		1739	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	263	42	108	183	11	45	3	173	2	277	30
RTOR Reduction (vph)	0	7	0	0	1	0	0	0	129	0	3	0
Lane Group Flow (vph)	0	309	0	0	301	0	45	3	44	0	306	0
Confl. Peds. (#/hr)	16		9	9		16	4		14	14		4
Heavy Vehicles (%)	0%	0%	0%	5%	4%	11%	0%	0%	1%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		4			4		2	2			6	
Permitted Phases	4			4					2	6		
Actuated Green, G (s)		23.8			23.8		20.2	20.2	20.2		15.8	
Effective Green, g (s)		23.8			23.8		20.2	20.2	20.2		15.8	
Actuated g/C Ratio		0.30			0.30		0.25	0.25	0.25		0.20	
Clearance Time (s)		7.1			7.1		6.3	6.3	6.3		6.3	
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)		508			338		427	449	367		345	
v/s Ratio Prot							0.03	0.00				
v/s Ratio Perm		0.18			c0.27				c0.03		c0.18	
v/c Ratio		0.61			0.89		0.11	0.01	0.12		0.89	
Uniform Delay, d1		23.9			26.6		22.7	22.2	22.8		31.0	
Progression Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		2.1			23.5		0.5	0.0	0.7		26.7	
Delay (s)		25.9			50.1		23.2	22.2	23.5		57.7	
Level of Service		C			D		C	C	C		E	
Approach Delay (s)		25.9			50.1			23.4			57.7	
Approach LOS		C			D			C			E	

Intersection Summary			
HCM 2000 Control Delay	40.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	79.5	Sum of lost time (s)	19.7
Intersection Capacity Utilization	92.4%	ICU Level of Service	F
Analysis Period (min)	15		

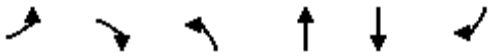
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	176	153	456	336	377	134
Future Volume (vph)	176	153	456	336	377	134
Lane Group Flow (vph)	191	166	496	365	410	146
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Detector Phase	4	4	1	2	2	2
Switch Phase						
Minimum Initial (s)	8.0	8.0	6.0	10.0	10.0	10.0
Minimum Split (s)	23.3	23.3	9.0	27.5	27.5	27.5
Total Split (s)	26.3	26.3	16.0	30.5	30.5	30.5
Total Split (%)	36.1%	36.1%	22.0%	41.9%	41.9%	41.9%
Yellow Time (s)	4.1	4.1	3.0	4.1	4.1	4.1
All-Red Time (s)	2.2	2.2	0.0	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lead/Lag			Lead	Lag	Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	Max	Max	Max
v/c Ratio	0.64	0.40	0.85	0.60	0.67	0.25
Control Delay	34.6	7.2	24.5	22.9	25.5	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.6	7.2	24.5	22.9	25.5	4.7
Queue Length 50th (m)	21.6	0.0	24.2	35.0	40.7	0.0
Queue Length 95th (m)	39.6	12.7	#82.4	68.3	#86.8	10.9
Internal Link Dist (m)	95.8			80.7	33.4	
Turn Bay Length (m)						
Base Capacity (vph)	466	553	586	610	610	578
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.30	0.85	0.60	0.67	0.25

Intersection Summary

Cycle Length: 72.8
Actuated Cycle Length: 65.8
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

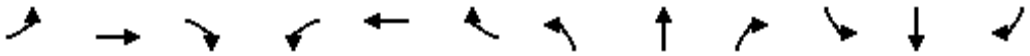
Splits and Phases: 9: Hiram Street & River Road



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	176	153	456	336	377	134
Future Volume (vph)	176	153	456	336	377	134
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.96	1.00	1.00	1.00	0.90
Flpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1528	1440	1578	1669	1669	1341
Flt Permitted	0.95	1.00	0.40	1.00	1.00	1.00
Satd. Flow (perm)	1528	1440	659	1669	1669	1341
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	191	166	496	365	410	146
RTOR Reduction (vph)	0	134	0	0	0	92
Lane Group Flow (vph)	191	32	496	365	410	54
Confl. Peds. (#/hr)	4	12	52			52
Heavy Vehicles (%)	10%	0%	5%	6%	6%	1%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Actuated Green, G (s)	12.8	12.8	37.1	24.1	24.1	24.1
Effective Green, g (s)	12.8	12.8	37.1	24.1	24.1	24.1
Actuated g/C Ratio	0.19	0.19	0.56	0.37	0.37	0.37
Clearance Time (s)	6.3	6.3	3.0	6.5	6.5	6.5
Vehicle Extension (s)	2.2	2.2	2.2	2.2	2.2	2.2
Lane Grp Cap (vph)	297	280	553	612	612	491
v/s Ratio Prot	c0.12		c0.18	0.22	0.25	
v/s Ratio Perm		0.02	c0.33			0.04
v/c Ratio	0.64	0.12	0.90	0.60	0.67	0.11
Uniform Delay, d1	24.3	21.8	9.7	16.9	17.5	13.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.8	0.1	16.8	4.2	5.7	0.4
Delay (s)	28.1	21.9	26.6	21.1	23.2	14.2
Level of Service	C	C	C	C	C	B
Approach Delay (s)	25.2			24.2	20.8	
Approach LOS	C			C	C	

Intersection Summary			
HCM 2000 Control Delay	23.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	65.7	Sum of lost time (s)	15.8
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	0	35	33	0	27	37	106	35	44	129	43
Future Volume (Veh/h)	29	0	35	33	0	27	37	106	35	44	129	43
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	32	0	38	36	0	29	40	115	38	48	140	47
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								48				
pX, platoon unblocked												
vC, conflicting volume	502	492	164	512	497	134	187			153		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	502	492	164	512	497	134	187			153		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	93	100	96	92	100	97	97			97		
cM capacity (veh/h)	442	448	881	431	445	915	1387			1428		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	70	65	193	235
Volume Left	32	36	40	48
Volume Right	38	29	38	47
cSH	606	564	1387	1428
Volume to Capacity	0.12	0.12	0.03	0.03
Queue Length 95th (m)	3.0	2.9	0.7	0.8
Control Delay (s)	11.7	12.2	1.8	1.8
Lane LOS	B	B	A	A
Approach Delay (s)	11.7	12.2	1.8	1.8
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.2			
Intersection Capacity Utilization	29.0%	ICU Level of Service	A	
Analysis Period (min)	15			

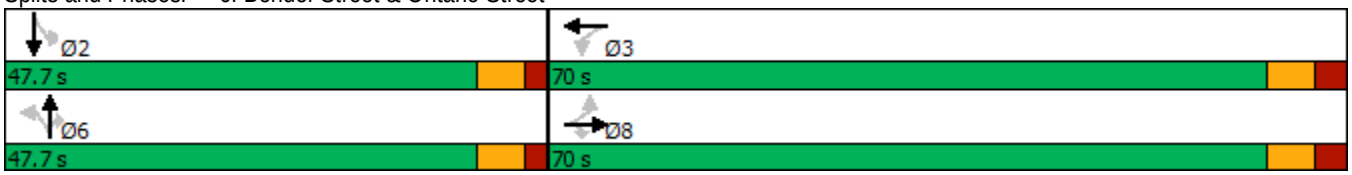
2030 Future Total AM - Optimized Geometry

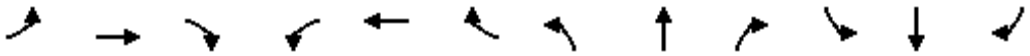
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	96	46	116	3	1	14	3	20	13	2
Future Volume (vph)	96	46	116	3	1	14	3	20	13	2
Lane Group Flow (vph)	104	50	126	0	13	0	18	22	0	64
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	Perm	NA
Protected Phases		8			3		6			2
Permitted Phases	8		8	3		6		6	2	
Detector Phase	8	8	8	3	3	6	6	6	2	2
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	42.1	42.1	42.1	26.3	26.3	26.3	26.3	26.3
Total Split (s)	70.0	70.0	70.0	70.0	70.0	47.7	47.7	47.7	47.7	47.7
Total Split (%)	59.5%	59.5%	59.5%	59.5%	59.5%	40.5%	40.5%	40.5%	40.5%	40.5%
Yellow Time (s)	4.1	4.1	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	3.0	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0
Total Lost Time (s)	7.1	7.1	7.1		7.1		6.3	6.3		6.3
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	None	None	None	None
v/c Ratio	0.15	0.06	0.16		0.02		0.03	0.03		0.10
Control Delay	4.9	4.4	2.1		4.2		5.9	2.7		3.7
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0
Total Delay	4.9	4.4	2.1		4.2		5.9	2.7		3.7
Queue Length 50th (m)	0.5	0.2	0.0		0.1		0.3	0.0		0.3
Queue Length 95th (m)	9.4	5.2	5.3		1.8		2.9	1.8		4.9
Internal Link Dist (m)		54.9			36.6		34.4			24.4
Turn Bay Length (m)			40.0							
Base Capacity (vph)	1299	1609	1402		1308		1640	1447		1475
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	0.03	0.09		0.01		0.01	0.02		0.04

Intersection Summary

Cycle Length: 117.7
Actuated Cycle Length: 20
Natural Cycle: 70
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Bender Street & Ontario Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	46	116	3	1	8	14	3	20	13	2	44
Future Volume (vph)	96	46	116	3	1	8	14	3	20	13	2	44
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	7.1	7.1	7.1		7.1			6.3	6.3		6.3	
Lane Util. Factor	1.00	1.00	1.00		1.00			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.98		0.98			1.00	0.98		0.98	
Flpb, ped/bikes	1.00	1.00	1.00		1.00			1.00	1.00		1.00	
Frt	1.00	1.00	0.85		0.91			1.00	0.85		0.90	
Flt Protected	0.95	1.00	1.00		0.99			0.96	1.00		0.99	
Satd. Flow (prot)	1675	1609	1426		1448			1589	1479		1478	
Flt Permitted	0.75	1.00	1.00		0.91			1.00	1.00		1.00	
Satd. Flow (perm)	1321	1609	1426		1327			1655	1479		1494	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	104	50	126	3	1	9	15	3	22	14	2	48
RTOR Reduction (vph)	0	0	84	0	6	0	0	0	21	0	46	0
Lane Group Flow (vph)	104	50	42	0	7	0	0	18	1	0	18	0
Confl. Peds. (#/hr)	12		12	12		12	5		15	15		5
Heavy Vehicles (%)	0%	10%	3%	33%	0%	0%	8%	0%	0%	0%	0%	6%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		8			3			6			2	
Permitted Phases	8		8	3			6		6	2		
Actuated Green, G (s)	7.2	7.2	7.2		7.2			1.0	1.0		1.0	
Effective Green, g (s)	7.2	7.2	7.2		7.2			1.0	1.0		1.0	
Actuated g/C Ratio	0.33	0.33	0.33		0.33			0.05	0.05		0.05	
Clearance Time (s)	7.1	7.1	7.1		7.1			6.3	6.3		6.3	
Vehicle Extension (s)	3.5	3.5	3.5		3.5			3.0	3.0		3.0	
Lane Grp Cap (vph)	440	536	475		442			76	68		69	
v/s Ratio Prot		0.03										
v/s Ratio Perm	c0.08		0.03		0.01			0.01	0.00		c0.01	
v/c Ratio	0.24	0.09	0.09		0.02			0.24	0.01		0.26	
Uniform Delay, d1	5.2	5.0	4.9		4.8			9.9	9.8		9.9	
Progression Factor	1.00	1.00	1.00		1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.3	0.1	0.1		0.0			1.6	0.1		2.0	
Delay (s)	5.5	5.0	5.0		4.8			11.5	9.9		12.0	
Level of Service	A	A	A		A			B	A		B	
Approach Delay (s)		5.2			4.8			10.6			12.0	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	21.6	Sum of lost time (s)	13.4
Intersection Capacity Utilization	55.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

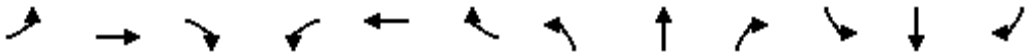
2030 Future Total PM - Optimized Geometry

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	203	162	130	14	28	98	18	47	60	20
Future Volume (vph)	203	162	130	14	28	98	18	47	60	20
Lane Group Flow (vph)	221	176	141	0	50	0	127	51	0	244
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	Perm	NA
Protected Phases		8			3		6			2
Permitted Phases	8		8	3		6		6	2	
Detector Phase	8	8	8	3	3	6	6	6	2	2
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	42.1	42.1	42.1	26.3	26.3	26.3	14.3	14.3
Total Split (s)	47.7	47.7	47.7	47.7	47.7	70.0	70.0	70.0	70.0	70.0
Total Split (%)	40.5%	40.5%	40.5%	40.5%	40.5%	59.5%	59.5%	59.5%	59.5%	59.5%
Yellow Time (s)	4.1	4.1	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	3.0	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0
Total Lost Time (s)	7.1	7.1	7.1		7.1		6.3	6.3		6.3
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	Min	Min	Min	Min	Min
v/c Ratio	0.57	0.29	0.27		0.14		0.36	0.13		0.52
Control Delay	17.7	11.3	4.0		12.3		15.5	5.4		11.5
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0
Total Delay	17.7	11.3	4.0		12.3		15.5	5.4		11.5
Queue Length 50th (m)	10.8	7.6	0.0		2.3		6.2	0.0		6.0
Queue Length 95th (m)	32.4	22.1	8.0		7.8		20.0	5.5		24.5
Internal Link Dist (m)		54.9			36.6		34.4			24.4
Turn Bay Length (m)			40.0							
Base Capacity (vph)	1024	1584	1131		1252		1180	1192		1279
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	0.22	0.11	0.12		0.04		0.11	0.04		0.19

Intersection Summary

Cycle Length: 117.7
Actuated Cycle Length: 40.1
Natural Cycle: 70
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Bender Street & Ontario Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	162	130	14	28	5	98	18	47	60	20	144
Future Volume (vph)	203	162	130	14	28	5	98	18	47	60	20	144
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	7.1	7.1	7.1		7.1			6.3	6.3		6.3	
Lane Util. Factor	1.00	1.00	1.00		1.00			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.92		0.99			1.00	0.92		0.96	
Flpb, ped/bikes	0.96	1.00	1.00		0.99			0.99	1.00		0.99	
Frt	1.00	1.00	0.85		0.99			1.00	0.85		0.91	
Flt Protected	0.95	1.00	1.00		0.99			0.96	1.00		0.99	
Satd. Flow (prot)	1579	1701	1383		1567			1675	1387		1485	
Flt Permitted	0.72	1.00	1.00		0.88			0.69	1.00		0.87	
Satd. Flow (perm)	1204	1701	1383		1396			1207	1387		1305	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	221	176	141	15	30	5	107	20	51	65	22	157
RTOR Reduction (vph)	0	0	90	0	3	0	0	0	36	0	84	0
Lane Group Flow (vph)	221	176	51	0	47	0	0	127	15	0	160	0
Confl. Peds. (#/hr)	79		109	109		79	23		113	113		23
Heavy Vehicles (%)	2%	4%	0%	25%	0%	0%	0%	0%	0%	7%	0%	0%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		8			3			6			2	
Permitted Phases	8		8	3			6		6	2		
Actuated Green, G (s)	14.2	14.2	14.2		14.2			11.9	11.9		11.9	
Effective Green, g (s)	14.2	14.2	14.2		14.2			11.9	11.9		11.9	
Actuated g/C Ratio	0.36	0.36	0.36		0.36			0.30	0.30		0.30	
Clearance Time (s)	7.1	7.1	7.1		7.1			6.3	6.3		6.3	
Vehicle Extension (s)	3.5	3.5	3.5		3.5			3.0	3.0		3.0	
Lane Grp Cap (vph)	432	611	497		501			363	417		393	
v/s Ratio Prot		0.10										
v/s Ratio Perm	c0.18		0.04		0.03			0.11	0.01		c0.12	
v/c Ratio	0.51	0.29	0.10		0.09			0.35	0.04		0.41	
Uniform Delay, d1	9.9	9.0	8.4		8.4			10.8	9.8		11.0	
Progression Factor	1.00	1.00	1.00		1.00			1.00	1.00		1.00	
Incremental Delay, d2	1.2	0.3	0.1		0.1			0.6	0.0		0.7	
Delay (s)	11.1	9.3	8.5		8.5			11.4	9.8		11.7	
Level of Service	B	A	A		A			B	A		B	
Approach Delay (s)		9.9			8.5			10.9			11.7	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	39.5	Sum of lost time (s)	13.4
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		

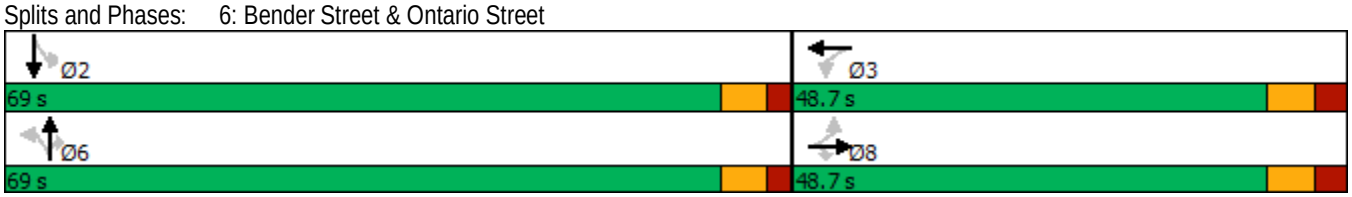
c Critical Lane Group

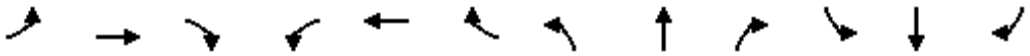
2030 Future Total SAT - Optimized Geometry

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	276	262	175	9	30	76	23	67	41	23
Future Volume (vph)	276	262	175	9	30	76	23	67	41	23
Lane Group Flow (vph)	300	285	190	0	60	0	108	73	0	243
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	Perm	NA
Protected Phases		8			3		6			2
Permitted Phases	8		8	3		6		6	2	
Detector Phase	8	8	8	3	3	6	6	6	2	2
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	42.1	42.1	42.1	42.1	42.1	26.3	26.3	26.3	14.3	14.3
Total Split (s)	48.7	48.7	48.7	48.7	48.7	69.0	69.0	69.0	69.0	69.0
Total Split (%)	41.4%	41.4%	41.4%	41.4%	41.4%	58.6%	58.6%	58.6%	58.6%	58.6%
Yellow Time (s)	4.1	4.1	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	3.0	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0
Total Lost Time (s)	7.1	7.1	7.1		7.1		6.3	6.3		6.3
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	Min	Min	Min	Min	Min
v/c Ratio	0.64	0.37	0.28		0.16		0.36	0.18		0.52
Control Delay	17.2	10.2	2.8		10.9		19.4	6.3		10.9
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0
Total Delay	17.2	10.2	2.8		10.9		19.4	6.3		10.9
Queue Length 50th (m)	16.3	13.4	0.0		2.8		6.6	0.0		4.8
Queue Length 95th (m)	41.7	30.5	7.8		6.9		20.9	7.7		23.2
Internal Link Dist (m)		54.9			36.6		34.4			24.4
Turn Bay Length (m)			40.0							
Base Capacity (vph)	969	1569	1206		1304		1181	1356		1370
Starvation Cap Reductn	0	36	0		0		0	0		0
Spillback Cap Reductn	0	0	0		0		0	0		0
Storage Cap Reductn	0	0	0		0		0	0		0
Reduced v/c Ratio	0.31	0.19	0.16		0.05		0.09	0.05		0.18

Intersection Summary
Cycle Length: 117.7
Actuated Cycle Length: 45.1
Natural Cycle: 70
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Bender Street & Ontario Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	276	262	175	9	30	16	76	23	67	41	23	159
Future Volume (vph)	276	262	175	9	30	16	76	23	67	41	23	159
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	7.1	7.1	7.1		7.1			6.3	6.3		6.3	
Lane Util. Factor	1.00	1.00	1.00		1.00			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.94		0.98			1.00	0.96		0.95	
Flpb, ped/bikes	0.94	1.00	1.00		1.00			0.99	1.00		0.99	
Frt	1.00	1.00	0.85		0.96			1.00	0.85		0.90	
Flt Protected	0.95	1.00	1.00		0.99			0.96	1.00		0.99	
Satd. Flow (prot)	1586	1752	1418		1607			1681	1437		1482	
Flt Permitted	0.72	1.00	1.00		0.93			0.69	1.00		0.91	
Satd. Flow (perm)	1199	1752	1418		1506			1205	1437		1359	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	300	285	190	10	33	17	83	25	73	45	25	173
RTOR Reduction (vph)	0	0	106	0	9	0	0	0	54	0	120	0
Lane Group Flow (vph)	300	285	84	0	51	0	0	108	19	0	123	0
Confl. Peds. (#/hr)	96		60	60		96	23		50	50		23
Heavy Vehicles (%)	0%	1%	0%	0%	4%	0%	0%	0%	0%	0%	15%	0%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		8			3			6			2	
Permitted Phases	8		8	3			6		6	2		
Actuated Green, G (s)	19.7	19.7	19.7		19.7			11.5	11.5		11.5	
Effective Green, g (s)	19.7	19.7	19.7		19.7			11.5	11.5		11.5	
Actuated g/C Ratio	0.44	0.44	0.44		0.44			0.26	0.26		0.26	
Clearance Time (s)	7.1	7.1	7.1		7.1			6.3	6.3		6.3	
Vehicle Extension (s)	3.5	3.5	3.5		3.5			3.0	3.0		3.0	
Lane Grp Cap (vph)	529	773	626		665			310	370		350	
v/s Ratio Prot		0.16										
v/s Ratio Perm	c0.25		0.06		0.03			0.09	0.01		c0.09	
v/c Ratio	0.57	0.37	0.13		0.08			0.35	0.05		0.35	
Uniform Delay, d1	9.3	8.3	7.4		7.2			13.5	12.4		13.5	
Progression Factor	1.00	1.00	1.00		1.00			1.00	1.00		1.00	
Incremental Delay, d2	1.5	0.4	0.1		0.1			0.7	0.1		0.6	
Delay (s)	10.8	8.7	7.5		7.2			14.2	12.5		14.1	
Level of Service	B	A	A		A			B	B		B	
Approach Delay (s)		9.2			7.2			13.5			14.1	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	44.6	Sum of lost time (s)	13.4
Intersection Capacity Utilization	88.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

APPENDIX E

LEFT TURN LANE WARRANT

Intersection	Left-Turn Warrant	Advancing Traffic Volume (V_A)		Opposing Traffic Volume (V_O)		Left Turn Traffic Volume (V_L)		% of Left Turning Traffic		Warrant
		PM	SAT	PM	SAT	PM	SAT	PM	SAT	
Ontario / Site Accesses	NBL	121	178	202	216	26	37	21%	21%	No
Ontario / Site Accesses	SBL	202	216	121	178	44	44	22%	20%	No