337-345 Montgomery Street and 94 Selkirk Street

Transportation Impact Assessment

Step 1 Screening Report

Step 2 Scoping Report

Step 3 Forecasting Report

Step 4 Strategy Report

DRAFT

Prepared for:

SerCo Realty Group
9 Capella Court, Unit 200
Ottawa ON K2E 8A7

Prepared by:

CGH TRANSPORTATION
13 Markham Avenue
Ottawa, ON K2G 3Z1

September 2021

PN: 2021-092

Table of Contents

1 Screening 1
2 Existing and Planned Conditions 1
2.1 Proposed Development 1
2.2 Existing Conditions 3
2.2.1 Area Road Network 3
2.2.2 Existing Intersections 4
2.2.3 Existing Driveways 6
2.2.4 Cycling and Pedestrian Facilities 6
2.2.5 Existing Transit 10
2.2.6 Existing Area Traffic Management Measures 12
2.2.7 Existing Peak Hour Travel Demand 12
2.2.8 Collision Analysis 16
2.3 Planned Conditions 19
2.3.1 Changes to the Area Transportation Network 19
2.3.2 Other Study Area Developments 19
3 Study Area and Time Periods 20
3.1 Study Area 20
3.2 Time Periods 21
3.3 Horizon Years 21
4 Exemption Review 21
5 Development-Generated Travel Demand 21
5.1 Mode Shares 21
5.2 Trip Generation 22
5.3 Trip Distribution 22
5.4 Trip Assignment 23
6 Background Network Travel Demands 24
6.1 Transportation Network Plans 24
6.2 Background Growth 24
6.3 Other Developments 24
7 Demand Rationalization 24
7.1 2026 Future Background Operations 24
7.2 2031 Future Background Operations 27
7.3 Modal Share Sensitivity and Demand Rationalization Conclusions 30
8 Transportation Demand Management 31
8.1 Context for TDM 31
8.2 Need and Opportunity 31
8.3 TDM Program 31
9 Neighbourhood Traffic Management 31
10 Transit 31
10.1 Route Capacity 31
10.2 Transit Priority 32
11 Network Intersection Design 32

DRAFT

11.1 Network Intersection Control 32
11.2 Network Intersection Design 32
11.2.1 2026 Future Total Network Intersection Operations 32
11.2.2 2031 Future Total Network Intersection Operations 35
11.2.3 Network Intersection MMLOS 38
11.2.4 Recommended Design Elements 39
12 Summary of Improvements Indicated and Modifications Options 39
13 Next Steps 41

List of Figures

Figure 1: Area Context Plan 1
Figure 2: Concept Plan 2
Figure 3: Existing Driveways 6
Figure 4: Study Area Pedestrian Facilities 7
Figure 5: Study Area Cycling Facilities 8
Figure 6: Existing Pedestrian Volumes 9
Figure 7: Existing Cyclist Volumes 10
Figure 8: Existing Study Area Transit Service 11
Figure 9: Existing Study Area Transit Stops 11
Figure 10: Existing Traffic Counts 13
Figure 11: Study Area Collision Records – Representation of 2015-2019 17
Figure 12: Montreal Road Revitalization 19
Figure 13: New Site Generation Auto Volumes 23
Figure 14: 2026 Future Background Volumes 25
Figure 15: 2031 Future Background Volumes 28
Figure 16: 2026 Future Total Volumes 33
Figure 17: 2031 Future Total Volumes 36
Figure 18: 2031 Future Total Network Intersection Operations 36

Table of Tables

Table 1: Intersection Count Date 12
Table 2: Existing Intersection Operations 14
Table 3: Study Area Collision Summary, 2015-2019 16
Table 4: Summary of Collision Locations, 2015-2019 17
Table 5: McArthur Avenue at Vanier Parkway Collision Summary 18
Table 6: Montreal Road at Montgomery Street Collision Summary 18
Table 7: Exemption Review 21
Table 8: Mode Shares – Ottawa East 22
Table 9: Residential Trip Generation Person Trip Rates by Peak Period 22
Table 10: Total Residential Person Trip Generation by Peak Period 22
Table 11: Total Trip Generation by Mode 22
Table 12: OD Survey Distribution – Ottawa East 23

DRAFT

Table 13: Trip Assignment 23
Table 14: TRANS Regional Model Projections – Study Area Growth Rates 24
Table 15: 2026 Future Background Intersection Operations 25
Table 16: 2031 Future Background Intersection Operations 28
Table 17: Trip Generation by Transit Mode 32
Table 18: 2026 Future Total Network Intersection Operations 33
Table 19: Study Area Intersection MMLOS Analysis 38

List of Appendices

Appendix A – TIA Screening Form and Certification Form
Appendix B – Turning Movement Count Data
Appendix C – Synchro Intersection Worksheets – Existing Conditions
Appendix D – Collision Data
Appendix E – Synchro Intersection Worksheets – 2026 Future Background Conditions
Appendix F – Synchro Intersection Worksheets – 2031 Future Background Conditions
Appendix G – MMLOS Analysis
Appendix H – Synchro Intersection Worksheets – 2026 Future Total Conditions
Appendix I –Synchro Intersection Worksheets – 2031 Future Total Conditions
Appendix J – TDM Checklist

DRAFT

1 Screening

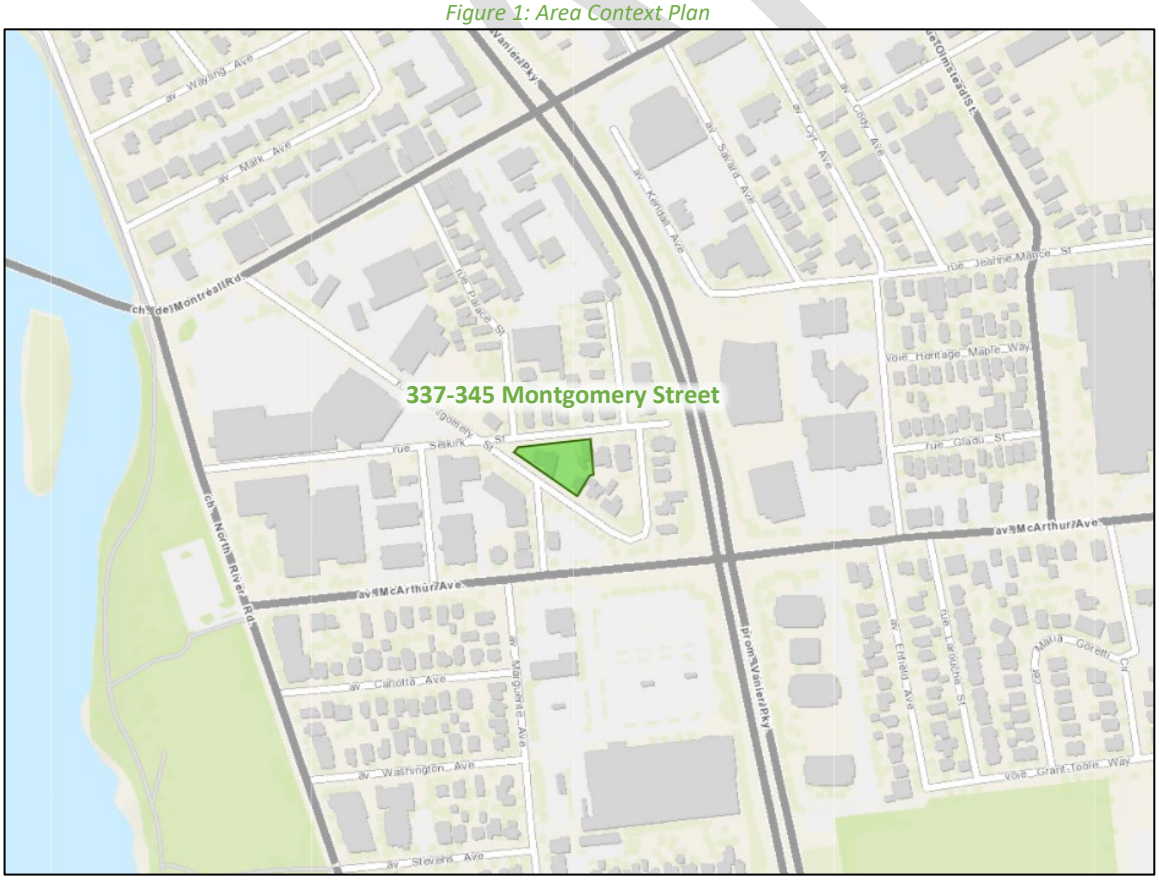
This study has been prepared according to the City of Ottawa's 2017 Transportation Impact Assessment (TIA) Guidelines. Accordingly, a Step 1 Screening Form has been prepared and is included as Appendix A, along with the Certification Form for the TIA Study PM. As shown in the Screening Form, a TIA is required including the Design Review component and the Network Impact Component. This study has been prepared to support an Official Plan amendment/zoning by-law amendment.

2 Existing and Planned Conditions

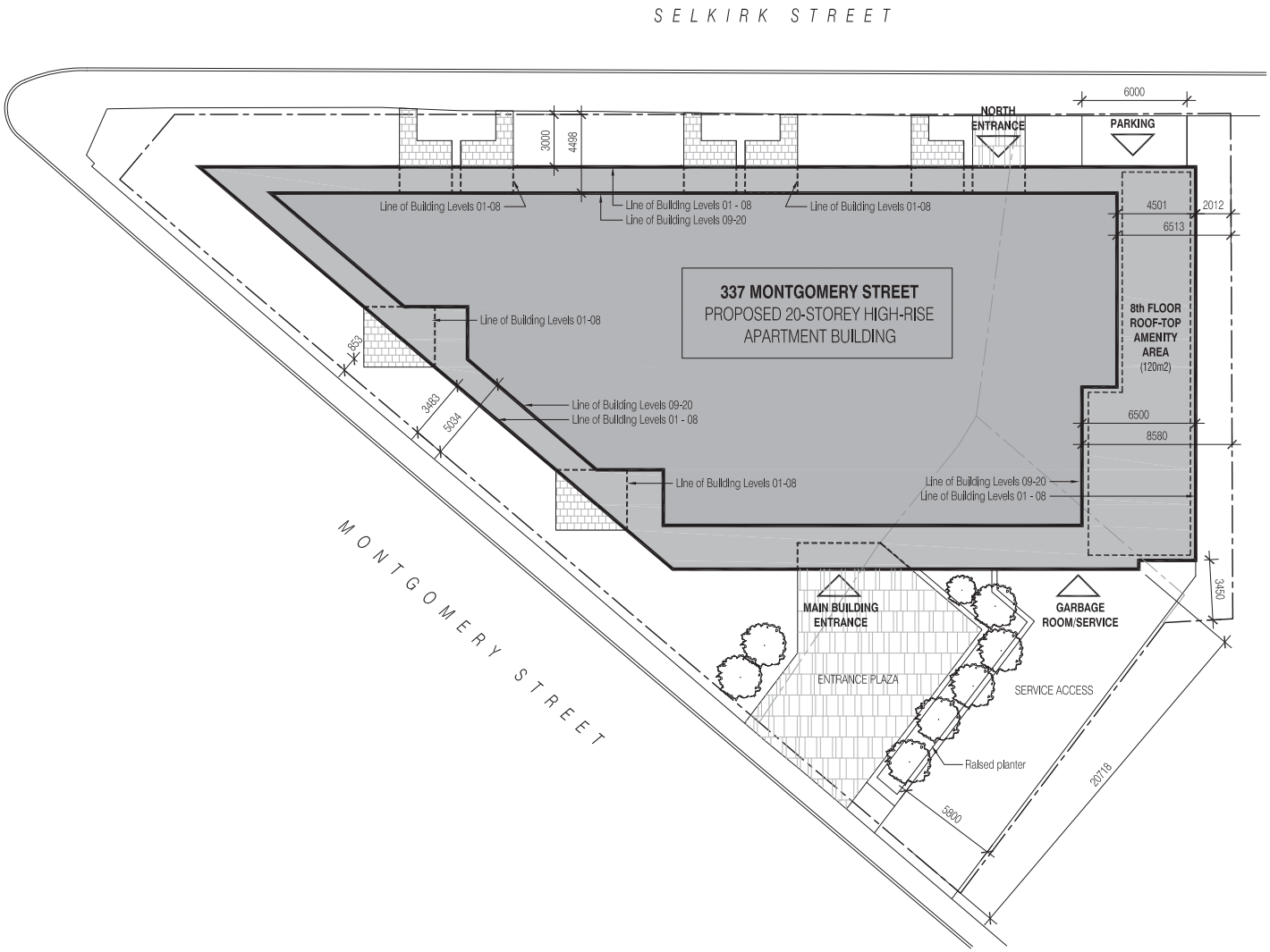
2.1 Proposed Development

The existing site, located at 337-345 Montgomery Street and 94 Selkirk Street, is zoned as Residential Fifth Density Zone (R5C H(25)) and includes a residential building and attached restaurant with a surface parking lot. The proposed redevelopment consists of a 20-storey high-rise apartment building on an eight-storey podium, with a total of 204 units, 78 underground vehicle parking spaces and 102 underground bicycle parking spaces. The anticipated full build-out and occupancy horizon is 2026 with construction occurring in a single phase. Along with the removal of two existing residential driveway accesses, the concept plan proposes the relocation of an existing full-movements access onto Montgomery Street as a garbage/service access, and at the relocation of an existing full-movements access onto Selkirk Street for the underground parking. The site is located within the Montreal Road District Secondary Plan area. Figure 1 illustrates the study area context. Figure 2 illustrates the proposed concept plan.

Figure 1: Area Context Plan



Source: http://maps.ottawa.ca/geoOttawa/ Accessed: August 6, 2021



ZONING & STATISTICS

ZONING DESIGNATION:	R5C H(25)
Proposed Front Yard Setback:	3m (3m Required)
Proposed Int. Side Yard Setback:	2m (1.5m Required)
Proposed Building Height:	62m
Proposed Number of Units:	204

BICYCLE PARKING CALCULATION

As per Table 111A

Dwelling Units:	204
Required Parking:	102 spaces
0.5sp/dwelling unit [111A(b)(i)]	
Total Parking Provided:	**102 spaces**

PARKING CALCULATION

As per Section 101 & Section 102

Parking Space Rate Area:	Area X
Residential Units:	204 units
Required Parking:	96 spaces
0.5 spaces/unit beyond 12 units	
Parking Provided:	59 spaces
Visitor Parking:	
Required Parking:	19 spaces
0.1 spaces/unit beyond 12 units	
Parking Provided:	19 spaces
Total Required Parking:	115 spaces
Total Parking Provided:	**78 spaces**

337 MONTGOMERY STREET PROPOSED SITE PLAN

| 2106 | SCALE 1:250

Project1 Studio Incorporated | mail@project1studio.ca | project1studio.ca

project1 studio

2.2 Existing Conditions

2.2.1 Area Road Network

Vanier Parkway: Vanier Parkway is a City of Ottawa arterial road with a divided, four-lane urban cross-section, sidewalks on both sides of the road, and a posted speed limit of 60 km/h within the study area. A shared bike lane is provided in the northbound direction between McArthur Avenue and Montreal Road with physical separation at the bus stop. The existing right of way throughout the study area varies along adjacent properties.

Montreal Road: Montreal Road is a City of Ottawa arterial road with a four-lane urban cross-section with sidewalks on both sides of the road. The curbside lanes serve as peak hour bus/taxi lanes in the eastbound direction where on-street parking is restricted between 7:00-9:00AM and the westbound direction where on-street parking is restricted side between 3:30-5:30PM. The posted speed limit is 40 km/h and the city-protected right of way is 23.0 metres east of North River Road. Montreal Road is designated a truck route.

McArthur Avenue: McArthur Avenue is a City of Ottawa arterial road with a two-lane urban cross-section west of Vanier Parkway and a two-lane urban cross-section east of Vanier Parkway. Sidewalks and bike lanes are on both sides of the road. The unposted speed limit is assumed to be 50 km/h and the existing right of way provided is 20.0 metres west of Vanier Parkway and 23.5 metres east of Vanier Parkway. McArthur Avenue is designated a truck route.

North River Road: North River Road is a City of Ottawa local road north of Montreal Road, an arterial road between Montreal Road and McArthur Avenue, and a collector road south of McArthur Avenue, each with a two-lane urban cross-section. A MUP and sidewalk are provided north of Montreal Road on the west and east sides of the road respectively, sidewalks on both sides of the road are provided between Montreal Road and McArthur Avenue and a single sidewalk on the east side of the road is provide south of McArthur Avenue. On-street parking is permitted on the east side of the road south of McArthur Avenue. The unposted speed limit is assumed to be 50 km/h and the existing right-of-way provided is 13.0 metres north of Montreal Road, varies from 19.0 metres to 27.0 metres between Montreal Road and McArthur Avenue, and 17.5 metres south of McArthur Avenue. North River Road is designated a truck route between Montreal Road and McArthur Avenue.

Montgomery Street: Montgomery Street is a City of Ottawa local road with a two-lane urban cross-section. A sidewalk is provided on the east side of the road and a sidewalk is provided on the west side of the road between Selkirk Street and Mayfield Street. Parking is permitted on both sides of the road with restrictions at the school for loading and bus zones. The posted speed limit is 40 km/h and a school zone is signed between Montreal Road and Selkirk Street. The existing right-of-way provided is 18.5 metres.

Palace Street: Palace Street is a one-way southbound City of Ottawa local road with an unposted speed limit of 50km/h. The existing right of way is 8.0 metres to the north of the s-bend and 11.5 metres south of that point.

Gardner Street: Gardner Street is a City of Ottawa local road with a two-lane urban cross-section, on-street parking permitted on the east side of the road between 7:00AM and 6:00PM, and a sidewalk on the east side of the road south of the site. The road alignment sits approximately 10 metres east on the south side of Selkirk Street. The unposted speed limit is assumed to be 50 km/h and the existing right of way provided is 12.0 metres.

Selkirk Street: Selkirk Street is a City of Ottawa local road with a two-lane urban cross section. West of Dundas Street, Selkirk Street is one-way westbound and has a sidewalk, permits on-street parking for 60 metres, and has a taxi stand for 60 metres each on the south side of the road. East of Gardner Street, Selkirk Street is no-exit. The unposted speed limit is assumed to be 50 km/h and the existing right-of-way provided is 13.5 metres.

DRAFT

Dundas Street: Dundas Street is a City of Ottawa local road with a two-lane urban cross-section and a sidewalk on the west side of the road. The unposted speed limit is assumed to be 50 km/h and the existing right of way provided is 12.0 metres. No on-street parking is permitted.

Mayfield Street: Mayfield Street is a one-way southbound City of Ottawa local road with a sidewalk of the west side of the road. The unposted speed limit is assumed to be 50 km/h and the existing right of way provided is 12.0 metres. No on-street parking is permitted.

Marguerite Avenue: Marguerite Avenue is a City of Ottawa local road with a two-lane urban cross-section, a sidewalk on the west side of the road and on-street parking permitted on the east side of the road. The posted speed limit is 40 km/h and the existing right of way within the study area provided is 15.0 metres.

2.2.2 Existing Intersections

The existing signalized area intersections within 400 metre of the site have been summarized below:

Montreal Road and North River Road	The intersection of Montreal Road and North River Road is a signalized intersection. The northbound approach consists of an auxiliary left-turn lane and a shared through/right-turn lane, and the southbound approach consists of a shared all-movements lane. The eastbound approach consists of a shared left-turn/through lane and a shared through/right-turn lane, and the westbound approach consists of a through lane and a shared through/right-turn lane. Eastbound left turns are prohibited during weekdays between 7:00-9:00 AM and 3:30-5:30 PM, eastbound right turns on red are prohibited, and westbound left turns are prohibited.
Montreal Road and Montgomery	The intersection of Montreal Road and Montgomery Street is signalized intersection. The northbound approach consists of a left-turn lane and a right-turn lane. The eastbound approach consists of a through lane and a shared through/right-turn lane and the westbound approach consists of a shared left-turn/through lane and a through lane. No turn restrictions are noted.
Montreal Road and Vanier Parkway	The intersection of Montreal Road and Vanier Parkway is a signalized intersection. The northbound and southbound approaches each consist of an auxiliary left-turn lane, three through lanes, and an auxiliary, channelized right-turn lane. The eastbound approach consists of an auxiliary left-turn lane, a through lane, and a shared through/right-turn lane and the westbound approach consists of an auxiliary left-turn lane, a through lane, and a shared through/channelized right-turn lane. Trucks are restricted from turning onto Vanier Parkway.
Selkirk Street and North River Road	The intersection of Selkirk Street and North River Road is a stop-controlled T-intersection on the minor approach of Selkirk Street. The northbound and southbound approaches consist of a single through lane each. The westbound approach consists of a left-turn lane and a right-turn lane. No turn restrictions are noted.

DRAFT

Selkirk Street and Dundas Street	The intersection of Selkirk Street and Dundas Street is a stop-controlled T-intersection on the minor approach of Dundas Street. The northbound approach consists of a shared left-turn/right-turn lane. The westbound approach consists of a shared left-turn/through lane, and the one-way west leg of the intersection is inbound only. No turn restrictions are noted.
Selkirk Street and Montgomery Street	The intersection of Selkirk Street and Montgomery Street is a stop-controlled intersection on the minor approaches of Selkirk Street. The northbound and southbound approaches of Montgomery Street each consist of a shared all-movements lane, as do the eastbound and westbound approaches. No turn restrictions are noted.
Selkirk Street and Palace Street	The intersection of Selkirk Street and Palace Street is a stop-controlled T-intersection on the minor approach of Palace Street. The southbound approach consists of a shared left-turn/right-turn lane. The westbound and eastbound approaches each consists of a through lane. No turn restrictions are noted.
McArthur Avenue and North River Road	The intersection of McArthur Avenue and North River Road is a signalized intersection. The northbound and eastbound approaches each consist of shared all-movements lane. The southbound approach consists of an auxiliary left-turn lane and a shared through/right-turn lane. The westbound approach consists of a shared left-turn/through lane and an auxiliary right-turn lane. The eastbound and westbound approaches each additionally include a bike lane. Northbound right turns on red are prohibited.
McArthur Avenue and Dundas Street	The intersection of McArthur Avenue and Dundas Street is a stop-controlled intersection on the minor approach of Dundas. The southbound approach consists of a shared left-turn/right-turn lane. The eastbound approach consists of a shared left-turn/through lane, and the westbound approach consists of a shared through/right-turn lane. No turn restrictions are noted.
McArthur Avenue and Marguerite Avenue	The intersection of McArthur Avenue and Marguerite Avenue is a signalized intersection. The northbound approach consists of an auxiliary left-turn lane and a right-turn lane. The eastbound approach consists of a shared through/right-turn lane and the westbound approach consists of a shared left-turn/through lane. No turn restrictions are noted.
McArthur Avenue and Mayfield Street	The intersection of McArthur Avenue and Mayfield Street is a stop-controlled intersection on the minor approach of Mayfield Street. The southbound approach consists of a shared left-turn/right-turn lane and the eastbound and westbound approaches each consist of a through lane. No turn restrictions are noted.

DRAFT

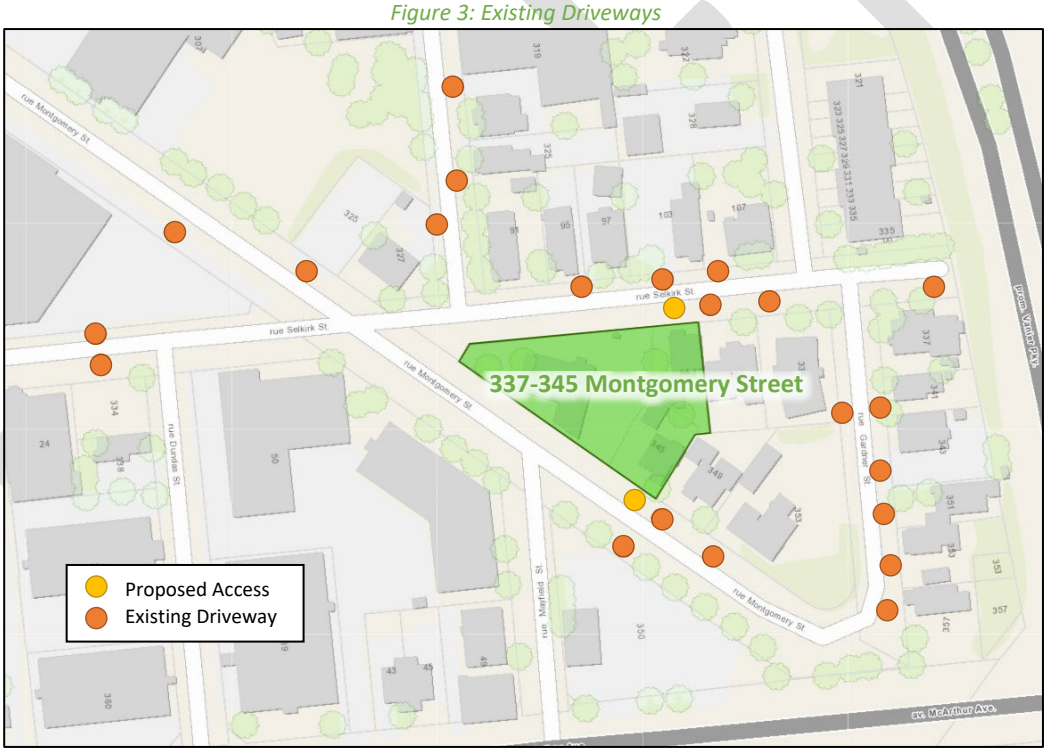
McArthur Avenue and Vanier Parkway

The intersection of McArthur Avenue and Vanier Parkway is a signalized intersection. The northbound and southbound approaches each consist of an auxiliary left-turn lane, two through lanes and an auxiliary, channelized right turn lane. The eastbound approach consists of an auxiliary left-turn lane, a through lane, and an auxiliary, channelized right turn lane. The westbound approach consists of two auxiliary left-turn lanes, a through lane, and an auxiliary, channelized right-turn lane. All U-turn movements are prohibited at this intersection. Trucks are restricted from making through and right-turn movements on southbound approach.

2.2.3 Existing Driveways

Within 200 metres, driveways to two detached dwellings, a rowhouse, one retail parking area, and three surface parking lots are located on Selkirk Street, and two driveways to a surface parking lot, and one to a low-rise apartment building are present on Palace Street. Driveways to two detached dwellings, a mid-rise residential building, a retail parking area, and a vacant lot are present on Montgomery Street. Driveways also present on Gardner Street to five detached dwellings and a rowhouse. Figure 3 illustrates the existing driveways.

Figure 3: Existing Driveways



Source: http://maps.ottawa.ca/geoOttawa/ Accessed: June 21, 2021

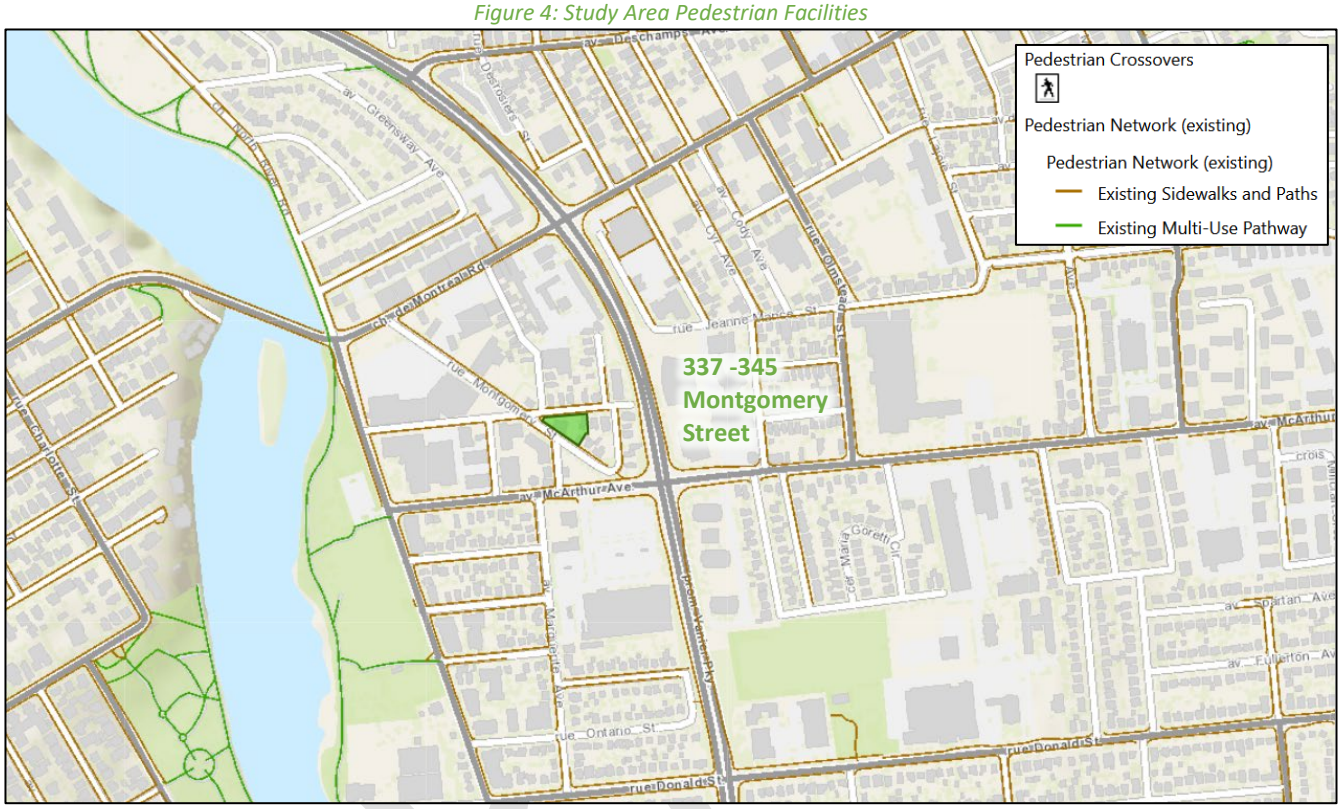
2.2.4 Cycling and Pedestrian Facilities

Figure 4 illustrates the pedestrian facilities in the study area and Figure 5 illustrates the cycling facilities.

Sidewalks are provided on both sides of Selkirk Street between Montgomery Street and Gardner Street, along the east side of Montgomery Street and on the west side of Montgomery Street between Mayfield Street and Selkirk Street. Sidewalks are also provided on the east side of Gardner Street, and along the west side of Dundas Street, Mayfield Street and Marguerite Avenue. Sidewalks are provided along both sides on North River Road, Vanier Parkway, Montreal Road, and McArthur Avenue.

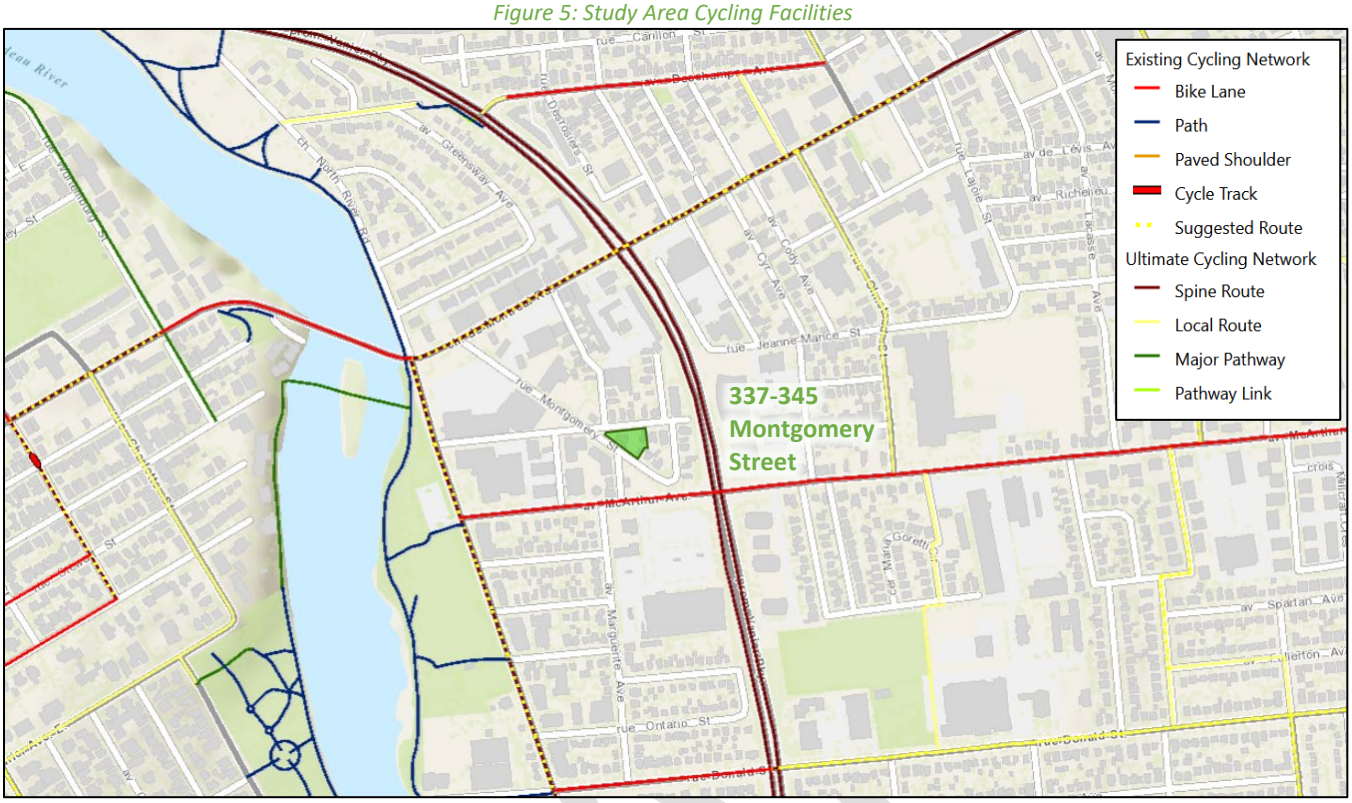
Cycle lanes are provided along both sides of McArthur Avenue, on the north side of Montreal Road west of North River Road, and along both side of Donald Street between North River Road and Vanier Parkway. A shared cycle lane is on the south side of Montreal Road west of North River Road. Along the west side of North River Road is the Rideau River Eastern Pathway. North River Road, Vanier Parkway, and Montreal Road are spine routes.

Figure 4: Study Area Pedestrian Facilities



Source: http://maps.ottawa.ca/geoOttawa/ Accessed: August 6, 2021

Figure 5: Study Area Cycling Facilities



Source: http://maps.ottawa.ca/geoOttawa/ Accessed: August 6, 2021

DRAFT

Pedestrian and cyclist volumes included in study area intersection counts, presented in Section 2.2.7, have been compiled and are illustrated in Figure 6 and Figure 7 respectively.

Figure 6: Existing Pedestrian Volumes

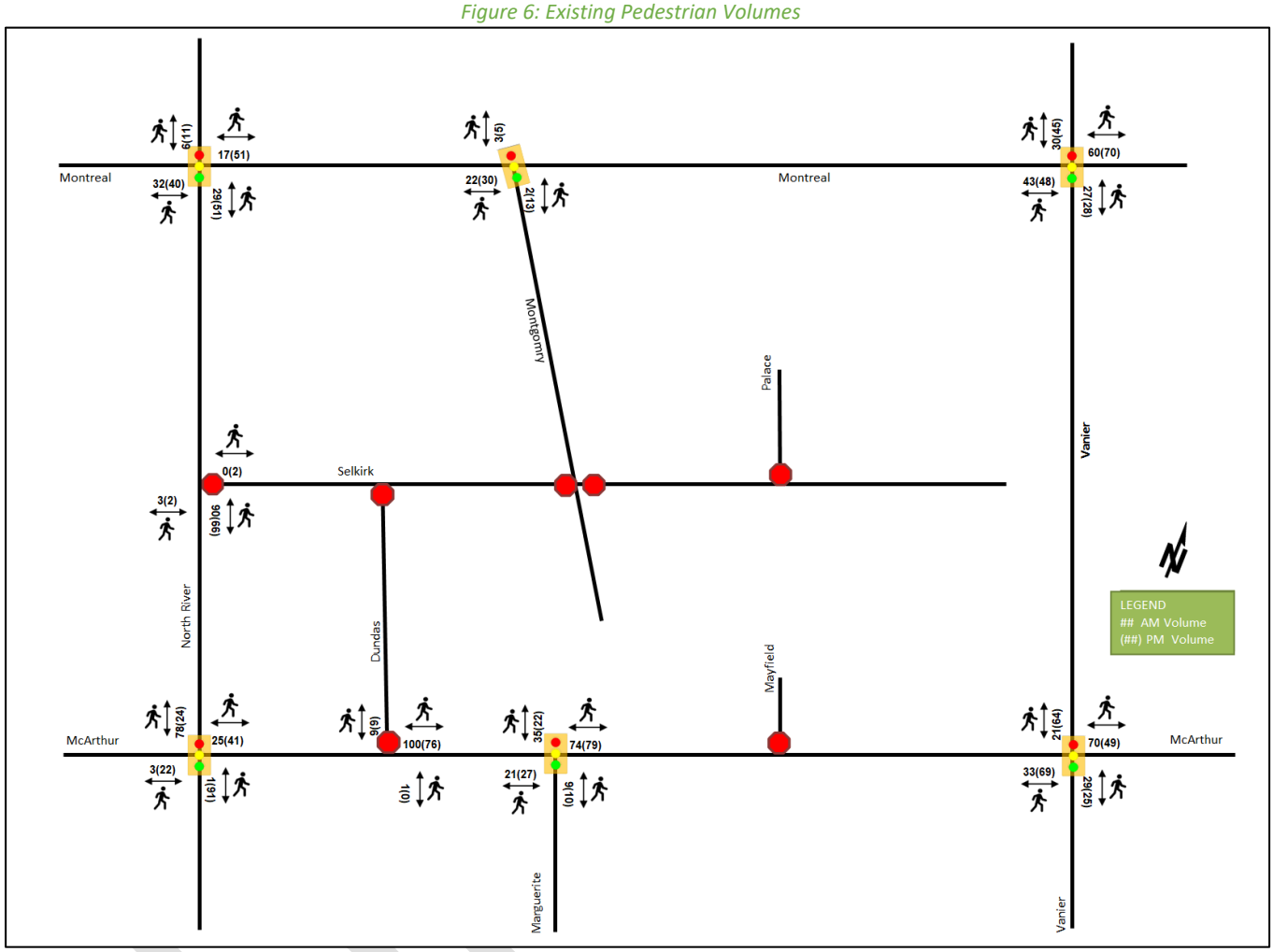
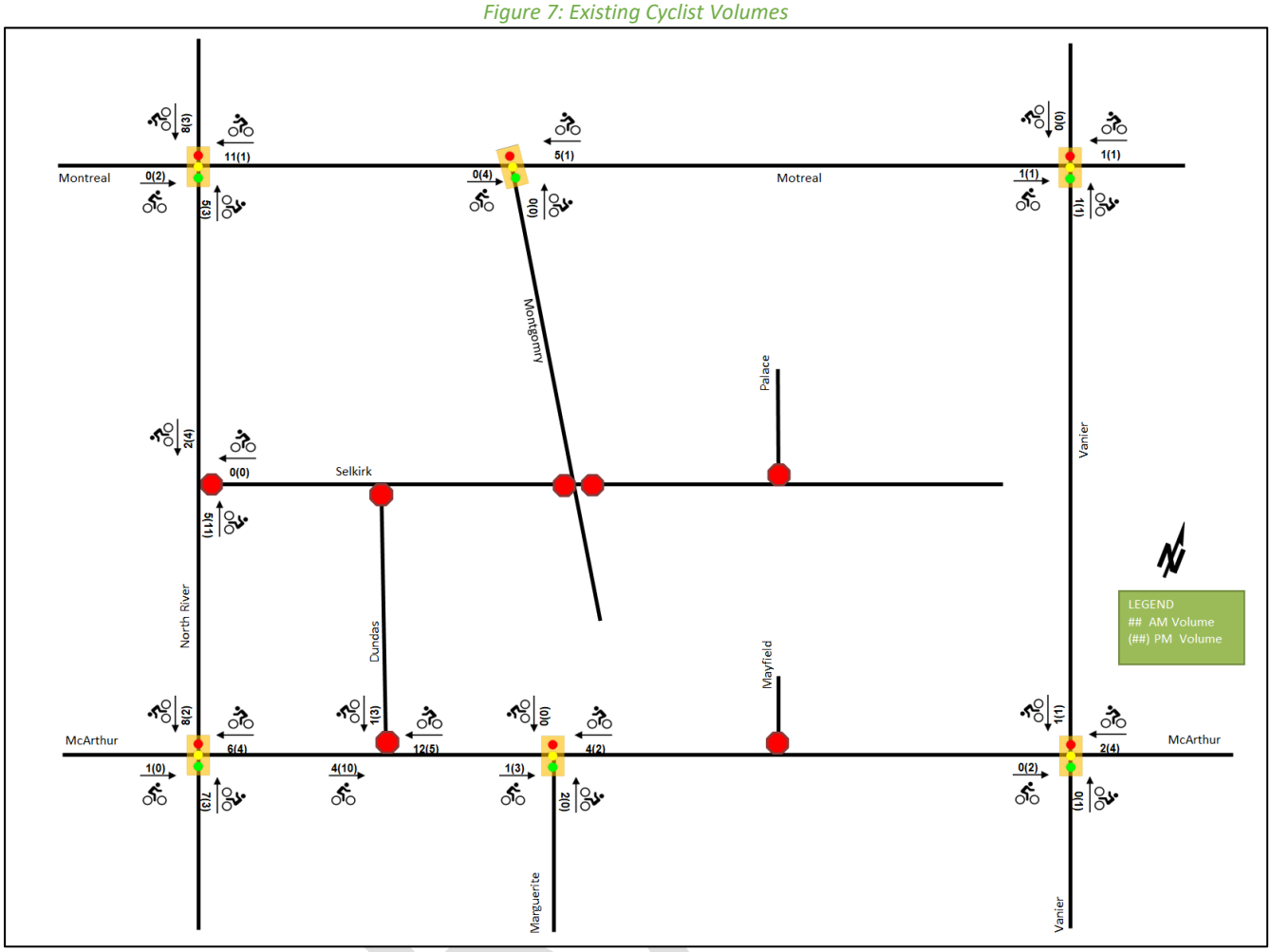


Figure 7: Existing Cyclist Volumes



2.2.5 Existing Transit

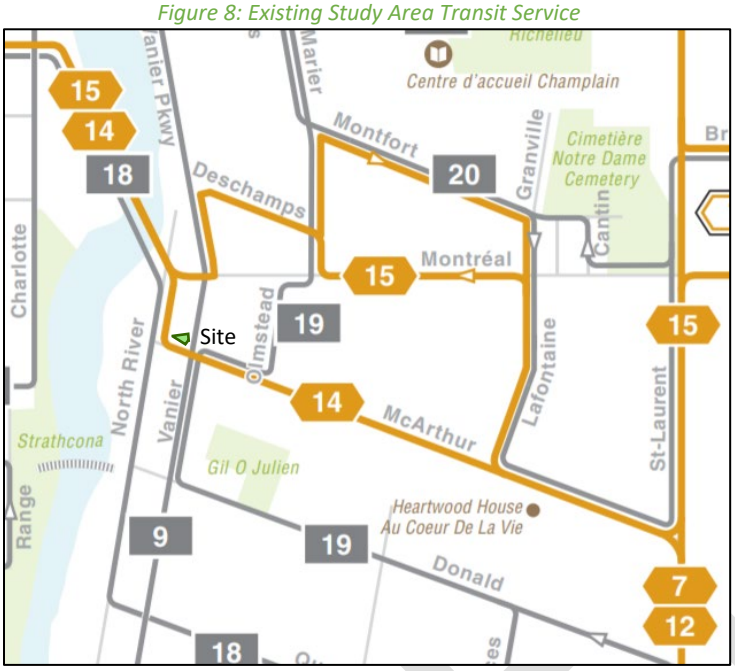
Within the study area, the route #18 travels along North River Road, the routes #9 and #19 travel along Vanier Parkway, the route #14 travels along McArthur Avenue, and the routes #15 travels along Montreal Road. At the time of preparing this report, the routes #7, #9, #12, and #15 were detoured due to construction activities associated with the Montreal Road Revitalization Project. It is assumed that these bus routes will return to the typical route and schedule after construction is done.

Primary stops are located at the McArthur Avenue at Vanier Parkway and McArthur Avenue at Mayfield Street intersections. The frequency of these routes within proximity of the proposed site currently are:

- Route # 9 – 15-minute service in peak direction/period, 30-minute service all day
- Route # 14 – 15-minute service all day, 30-minute service before 7:00AM and after 7:00PM
- Route # 15 – 10-minute service all day, 30-minute service after 8:00PM
- Route # 18 – 30-minute service all day
- Route # 19 – 30-minute service all day

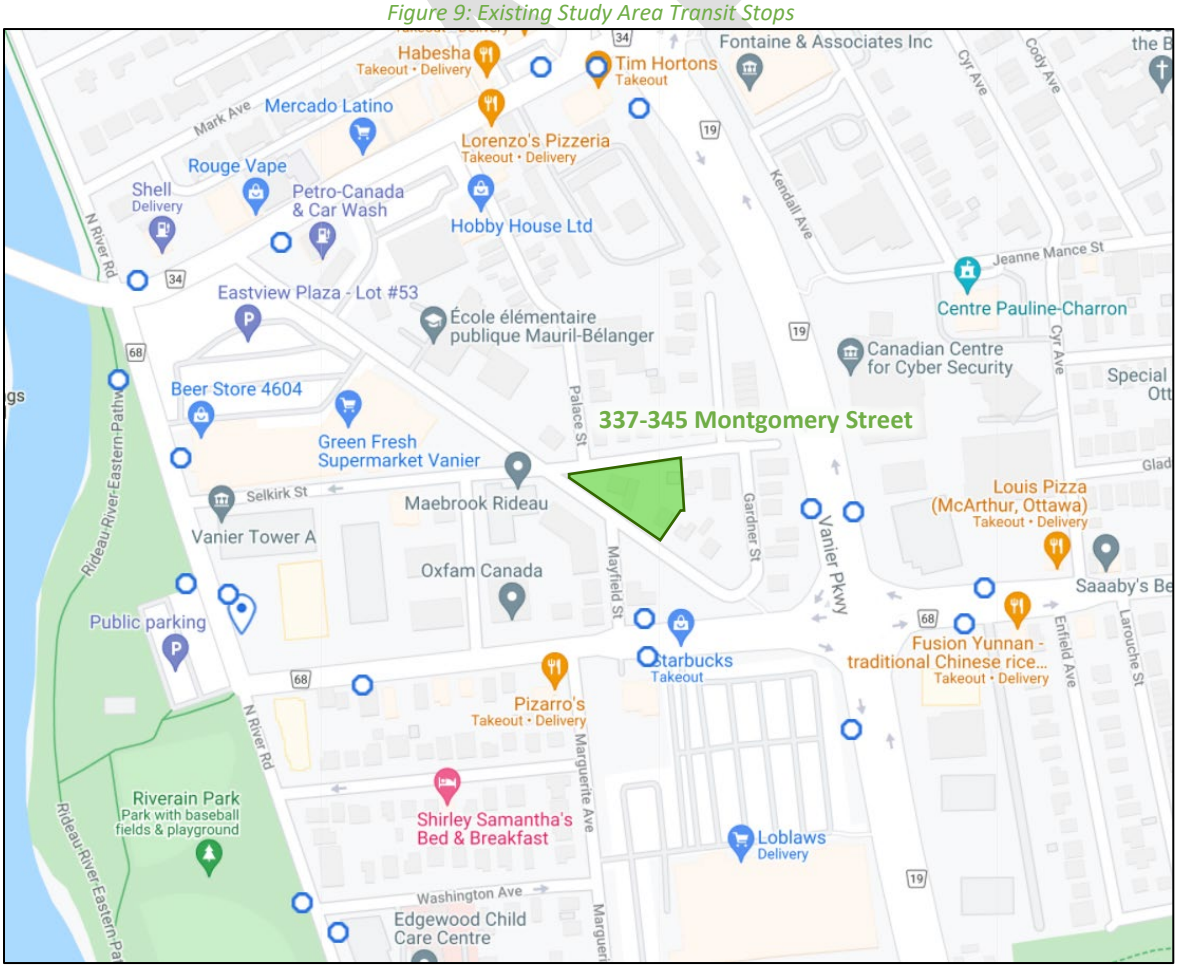
Figure 8 illustrates the transit system map in the study area and Figure 9 illustrates nearby transit stops.

Figure 8: Existing Study Area Transit Service



Source: http://www.octranspo.com/ Accessed: August 6, 2021

Figure 9: Existing Study Area Transit Stops



Source: http://www.octranspo.com/ Accessed: August 6, 2021

2.2.6 Existing Area Traffic Management Measures

There are no existing area traffic management measures within the Study Area.

2.2.7 Existing Peak Hour Travel Demand

Existing turning movement counts were acquired from the City of Ottawa and The Traffic Specialist for the existing study area intersections. Table 1 summarizes the intersection count dates and sources.

Table 1: Intersection Count Date

Intersection	Count Date	Source
Montreal Road & North River Road	Tuesday, March 10, 2020	City of Ottawa
Montreal Road & Montgomery	Wednesday, February 19, 2020	City of Ottawa
Montreal Road & Palace Street	Tuesday, November 26, 2019	The Traffic Specialist
Montreal Road & Vanier Parkway	Tuesday, March 26, 2019	City of Ottawa
Selkirk Street & North River Road	Tuesday, November 26, 2019	The Traffic Specialist
McArthur Avenue & North River Road	Tuesday, March 19, 2019	City of Ottawa
McArthur Avenue & Dundas Street	Tuesday, November 26, 2019	The Traffic Specialist
McArthur Avenue & Marguerite Avenue	Tuesday, March 26, 2019	City of Ottawa
McArthur Avenue & Vanier Parkway	Tuesday, March 26, 2019	City of Ottawa

Figure 10 illustrates the existing traffic counts and Table 2 summarizes the existing intersection operations, balanced throughout the network. The internal intersections of Selkirk Street at Dunas Street, Selkirk Street at Montgomery Street, and McArthur Avenue at Mayfield Street have been estimated from the volumes entering and exiting the area. The intersection of Montreal Road and Palace Street, while not analysed, is the basis for estimation of the volumes on the southbound approach of the intersection of Selkirk Street and Palace Street. The level of service for signalized intersections is based on HCM 2010 v/c calculations for individual lane movements and HCM 2000 v/c calculations for the overall intersection, and HCM average delay for unsignalized intersections. Detailed turning movement count data is included in Appendix B and the Synchro worksheets are provided in Appendix C.

DRAFT

Figure 10: Existing Traffic Counts

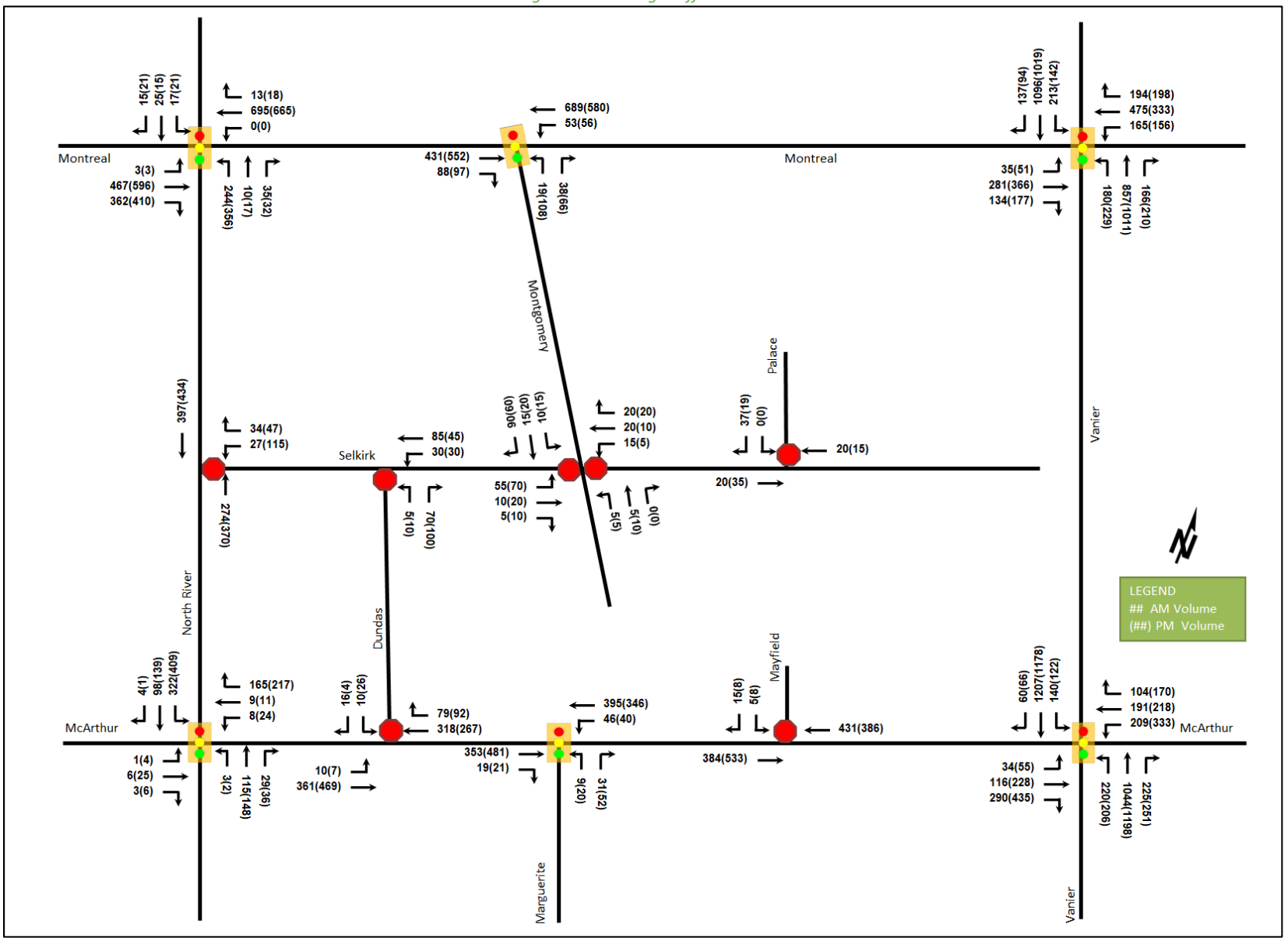


Table 2: Existing Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Montreal Road at North River Road ***Signalized***	EBT/R	C	0.77	28.8	#115.3	F	1.04	73.1	#183.4
	WBT/R	A	0.56	51.6	79.0	A	0.58	83.2	88.2
	NBL	B	0.70	43.0	68.3	B	0.69	42.0	119.4
	NBT/R	A	0.14	12.2	9.8	A	0.10	13.8	12.4
	SB	F	1.16	207.6	#37.8	F	1.24	236.8	#43.4
	Overall	**D**	**0.83**	**44.3**	-	**E**	**0.94**	**74.1**	-
Montreal Road at Montgomery Street ***Signalized***	EBT/R	A	0.22	3.2	19.5	A	0.30	5.6	29.1
	WBT/L	A	0.36	3.9	35.2	A	0.35	4.8	32.8
	NBL	A	0.09	30.6	8.6	A	0.58	51.9	37.9
	NBR	A	0.19	12.2	8.1	A	0.31	12.7	11.6
	Overall	**A**	**0.36**	**4.3**	-	**A**	**0.38**	**9.0**	-
Montreal Road at Vanier Parkway ***Signalized***	EBL	A	0.33	53.3	20.6	A	0.38	53.4	27.3
	EBT/R	B	0.67	48.9	71.8	D	0.84	58.5	98.6
	WBL	C	0.77	56.5	#61.6	F	1.14	153.6	#88.1
	WBT/R	C	0.73	42.8	109.4	B	0.61	36.9	80.1
	NBL	D	0.82	87.7	m73.6	D	0.86	84.0	m81.5
	NBT	A	0.53	35.4	64.5	A	0.55	28.5	m61.5
	NBR	A	0.29	11.1	m20.2	A	0.32	7.0	m14.7
	SBL	D	0.90	92.1	#110.5	C	0.72	75.6	63.4
	SBT	B	0.65	38.3	124.7	B	0.63	38.4	115.3
	SBR	A	0.24	7.3	17.7	A	0.18	4.3	9.4
	Overall	**C**	**0.78**	**43.4**	-	**D**	**0.87**	**44.6**	-
Selkirk Street & North River Road ***Unsignalized***	WBL	C	0.08	15.5	2.3	C	0.41	24.5	14.3
	WBR	B	0.05	10.2	1.5	B	0.08	11.1	2.3
	NBT	-	-	-	0.0	-	-	-	0.0
	SBT	-	-	-	1.5	-	-	-	2.3
	Overall	**A**	**-**	**1.0**	-	**A**	**-**	**3.5**	-
Selkirk Street & Dundas Street ***Unsignalized***	Low volumes at intersection return LOS A and zero second delay for intersection								
	Overall	**A**	**-**	**0.0**	-	**A**	**-**	**0.0**	-
Selkirk Street & Montgomery Street ***Unsignalized***	EB	A	0.10	9.9	2.3	B	0.14	10.1	3.8
	WB	A	0.07	9.5	1.5	A	0.04	9.1	0.8
	NB	A	0.00	7.5	0.0	A	0.00	7.4	0.0
	SB	A	0.01	7.2	0.0	A	0.01	7.3	0.0
	Overall	**A**	**-**	**5.3**	-	**A**	**-**	**6.0**	-
McArthur Avenue & North River Road ***Signalized***	EB	A	0.03	17.0	4.0	A	0.11	19.2	10.1
	WBL/T	A	0.06	16.5	m5.1	A	0.14	21.6	12.4
	WBR	A	0.44	10.5	27.6	A	0.51	14.3	35.6
	NB	A	0.16	5.9	16.6	A	0.20	6.5	20.5
	SBL	A	0.60	15.1	#67.0	C	0.74	21.1	#103.6
	SBT/R	A	0.11	6.7	13.3	A	0.14	7.1	17.2
	Overall	**A**	**0.49**	**11.3**	-	**A**	**0.60**	**15.0**	-
McArthur Avenue & Dundas Street ***Unsignalized***	EBL/T	A	0.01	9.0	0.0	A	0.01	8.5	0.0
	WBT/R	-	-	-	0.0	-	-	-	0.0
	SBL/R	C	0.08	15.6	2.3	C	0.13	20.7	3.0
	Overall	**A**	**-**	**0.6**	-	**A**	**-**	**0.8**	-

DRAFT

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
McArthur Avenue & Marguerite Street ***Signalized***	EBT/R	A	0.31	4.4	27.1	A	0.44	6.7	m34.2
	WBL/T	A	0.40	8.1	m55.9	A	0.37	7.2	48.7
	NBL	A	0.04	20.2	4.1	A	0.08	23.6	7.5
	NBR	A	0.11	8.4	5.9	A	0.19	8.3	8.1
	Overall	**A**	**0.37**	**6.7**	**-**	**A**	**0.39**	**7.4**	**-**
McArthur Avenue & Mayfield Street ***Unsignalized***	EBT	-	-	-	0.0	-	-	-	0.0
	WBT	-	-	-	0.0	-	-	-	0.0
	SBL/R	B	0.05	12.9	0.8	C	0.05	15.2	1.5
	Overall	**A**	**-**	**0.3**	**-**	**A**	**-**	**0.3**	**-**
McArthur Avenue & Vanier Parkway ***Signalized***	EBL	A	0.29	68.7	22.8	A	0.48	74.6	31.3
	EBT	A	0.41	46.4	44.0	B	0.69	61.7	95.6
	EBR	C	0.71	23.2	49.9	E	0.99	63.4	**#144.1**
	WBL	C	0.77	79.1	**#48.7**	**F**	**1.40**	**244.7**	**#101.9**
	WBT	A	0.59	57.5	80.0	A	0.59	55.6	91.5
	WBR	A	0.31	9.3	15.0	A	0.40	8.7	20.4
	NBL	E	0.95	**102.2**	**#132.7**	D	0.85	**84.3**	**#99.1**
	NBT	D	0.82	42.9	**#200.7**	E	0.96	56.7	**#242.0**
	NBR	A	0.36	7.0	24.7	A	0.40	8.5	31.2
	SBL	C	0.80	**86.9**	**m#72.9**	C	0.76	77.1	m55.6
	SBT	**F**	**1.04**	**70.0**	**#246.0**	**F**	**1.09**	**88.3**	**m#244.6**
	SBR	A	0.11	2.8	m2.8	A	0.13	2.1	m2.7
	Overall	**E**	**0.91**	**54.3**	**-**	**F**	**1.06**	**76.6**	**-**
Selkirk Street & Palace Street ***Unsignalized***	EBT	-	-	-	0.0	-	-	-	0.0
	WBT	-	-	-	0.0	-	-	-	0.0
	SBL/R	A	0.04	8.6	0.8	A	0.02	8.5	0.8
	Overall	**A**	**-**	**4.1**	**-**	**A**	**-**	**2.3**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
PHF = 0.90
m = metered queue
# = queue exceeds storage or mid-block length

During both the AM and PM peak hours, the study area intersections are subject to queuing issues generally and capacity issues on various movements.

At the intersection of Montreal Road at North River Road, the eastbound shared through/right-turn movement during PM peak hour and the southbound movement during AM and PM peak hours are over theoretical capacity and may subject to high delays and extended queues. Extended queues may be exhibited on the eastbound shared through/right-turn movement during AM peak hour, and high delays on westbound shared through/right-turn movement during PM peak hour.

The intersection of the Montreal Road at Vanier Parkway may be subject to extended queues on the westbound left-turn movement, high delay on the northbound left-turn movement, and both extended queues and high delay on the southbound left-turn during the AM peak hour. It may also be subject to high delay on the northbound left-turn movement during PM peak hour. The westbound left-turn movement is over theoretical capacity during PM peak hour and may subject to high delays and extended queues.

The southbound left-turn movements at the intersection of McArthur Avenue and North River Road may exhibit extended queues during both peak hours.

During the AM peak hour, the intersection of McArthur Avenue and Vanier Parkway's southbound through movement is over theoretical capacity and may exhibit extended queues, the northbound left-turn and

DRAFT

southbound left-turn movements may be subject to high delays and extended queues, and the westbound left-turn and northbound through movement may exhibit extended queues. During the PM peak hour, the overall intersection is over theoretical capacity and may be subject to high delays and have extended queues. The westbound left-turn and southbound through movements are over theoretical capacity and may be subject to high delays and have extended queues, the northbound left-turn movement may be subject to high delays and extended queues, and the eastbound right-turn and northbound through movement may exhibit extended queues during PM peak hour.

Given the Montreal Road Revitalization project, no improvements are recommended for the existing conditions as the area will be undergoing reconstruction, traffic detours and ultimately have a new lane configuration at Montreal Road and Vanier Parkway and signal timing plans in place around 2022.

2.2.8 Collision Analysis

Collision data have been acquired from the City of Ottawa open data website (data.ottawa.ca) for five years prior to the commencement of this TIA for the surrounding study are road network. Table 3 summarizes the collisions types and conditions in the study area, Figure 11 illustrates the intersections and segments analyzed, and Table 4 summarizes the total collisions for each of these locations. Collision data are included in Appendix D.

Table 3: Study Area Collision Summary, 2015-2019

		Number	%
Total Collisions		**152**	**100%**
Classification	**Fatality**	1	1%
	Non-Fatal Injury	32	21%
	Property Damage Only	119	78%
Initial Impact Type	**Angle**	30	20%
	Rear end	76	50%
	Sideswipe	25	16%
	Turning Movement	11	7%
	SMV Other	7	5%
	Other	3	2%
Road Surface Condition	**Dry**	99	65%
	Wet	31	20%
	Loose Snow	7	5%
	Slush	4	3%
	Packed Snow	7	5%
	Ice	4	3%
Pedestrian Involved		4	3%
Cyclists Involved		4	3%

DRAFT

Figure 11: Study Area Collision Records – Representation of 2015-2019

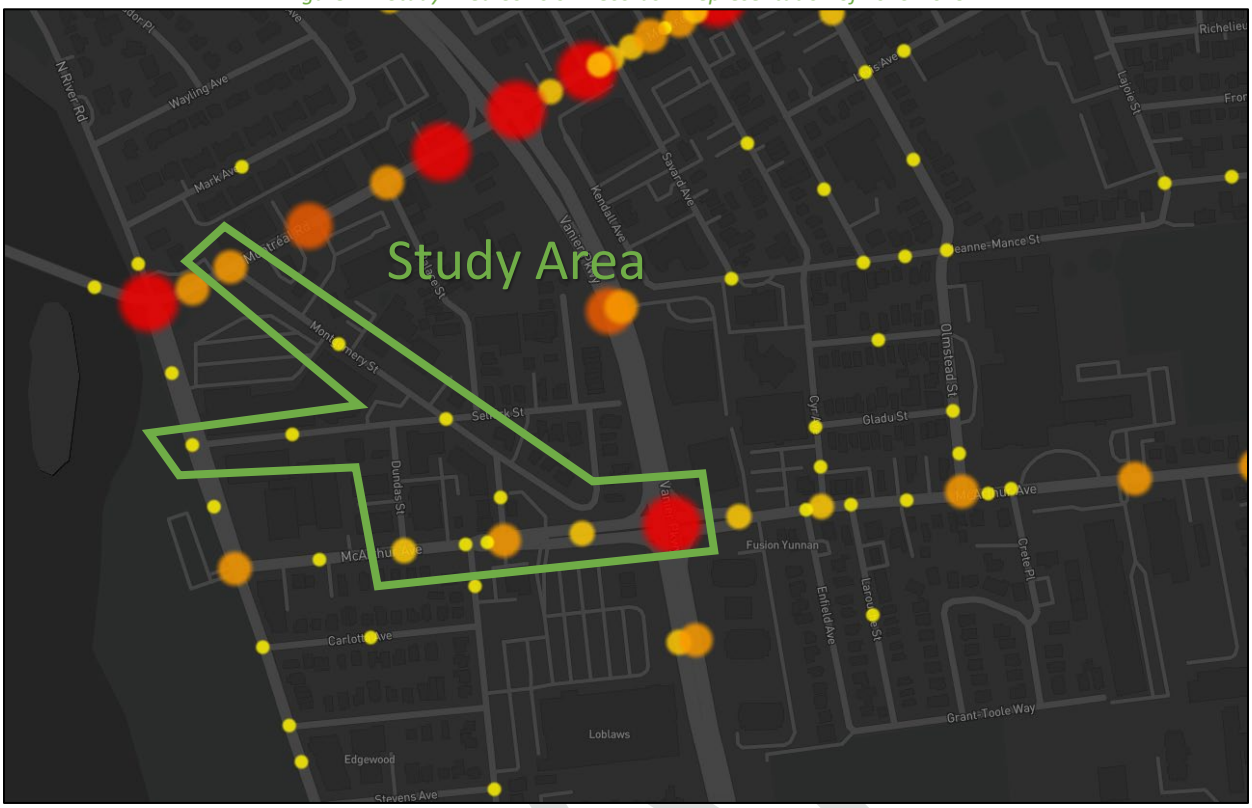


Table 4: Summary of Collision Locations, 2015-2019

	Number	%
Intersections / Segments	**152**	**100%**
Montgomery St @ Montreal Rd	12	8%
North River Rd @ Selkirk St	2	1%
Montgomery St @ Selkirk St	1	1%
Dundas St @ McArthur Ave	6	4%
Marguerite Ave @ McArthur Ave	3	2%
Mayfield St @ McArthur Ave	10	7%
McArthur Ave @ Vanier Pkwy	105	69%
Montgomery St btwn Montreal Rd & Selkirk St	2	1%
Mayfield St btwn Montgomery St & McArthur Ave	1	1%
Selkirk St btwn North River Rd & Dundas St	2	1%
McArthur Ave btwn Mayfield St & Vanier Pkwy	8	5%

Within the study area, the intersections of McArthur Avenue at Vanier Parkway and Montreal Road at Montgomery Road are noted to have experienced higher collisions than other locations. Table 5 and Table 6 summarizes the collision types and conditions for the location.

Table 5: McArthur Avenue at Vanier Parkway Collision Summary

		Number	%
Total Collisions		**105**	**100%**
Classification	**Fatality**	1	1%
	Non-Fatal Injury	21	20%
	Property Damage Only	83	79%
Initial Impact Type	**Angle**	9	9%
	Rear end	70	67%
	Sideswipe	20	19%
	Turning Movement	1	1%
	SMV Other	3	3%
	Other	2	2%
Road Surface Condition	**Dry**	65	62%
	Wet	24	23%
	Loose Snow	4	4%
	Slush	3	3%
	Packed Snow	6	6%
	Ice	3	3%
Pedestrian Involved		1	1%
Cyclists Involved		1	1%

The McArthur Avenue at Vanier Parkway intersection had a total of 105 collisions during the 2015-2019 time period, including one angle collision involving a fatality. The fatality occurred during the night at 1:17 am in wet driving conditions in April of 2016, where a vehicle that was the subject of a police chase struck another vehicle, killing one occupant and injuring the other. Eighty-three collisions had property damage only and the remaining 21 collisions had non-fatal injuries. Rear end comprised the majority of collision types at this intersection with 70 collisions, followed by 20 sideswipe and nine angle collisions, with the remaining collision types represented by turning movement, SMV other and other. Rear end and sideswipe collisions are typical of congested areas, such as on Vanier Parkway. Weather conditions are not considered to have influenced collisions at this location. No mitigation is proposed as part of this study.

Table 6: Montreal Road at Montgomery Street Collision Summary

		Number	%
Total Collisions		**12**	**100%**
Classification	**Fatality**	0	0%
	Non-Fatal Injury	4	33%
	Property Damage Only	8	67%
Initial Impact Type	**Angle**	1	8%
	Rear end	3	25%
	Sideswipe	4	33%
	Turning Movement	2	17%
	SMV Other	2	17%
Road Surface Condition	**Dry**	8	67%
	Wet	3	25%
	Slush	1	8%
Pedestrian Involved		2	17%
Cyclists Involved		2	17%

DRAFT

The Montreal Road at Montgomery Street intersection had a total of 12 collisions during the 2015-2019 time period, with eight involving property damage only and the remaining four having non-fatal injuries. The collision types are most represented by sideswipe with four collisions, followed by rear end with three collisions, two collisions each for turning movement and SMV other with the remaining one angle collision. Rear end and sideswipe collisions are typical of congested areas, and no other patterns are observed. Weather conditions are not considered to have influenced collisions at this location. No mitigation is proposed as part of this study and the nature of the collisions are likely to change due to the Montreal Road Revitalization.

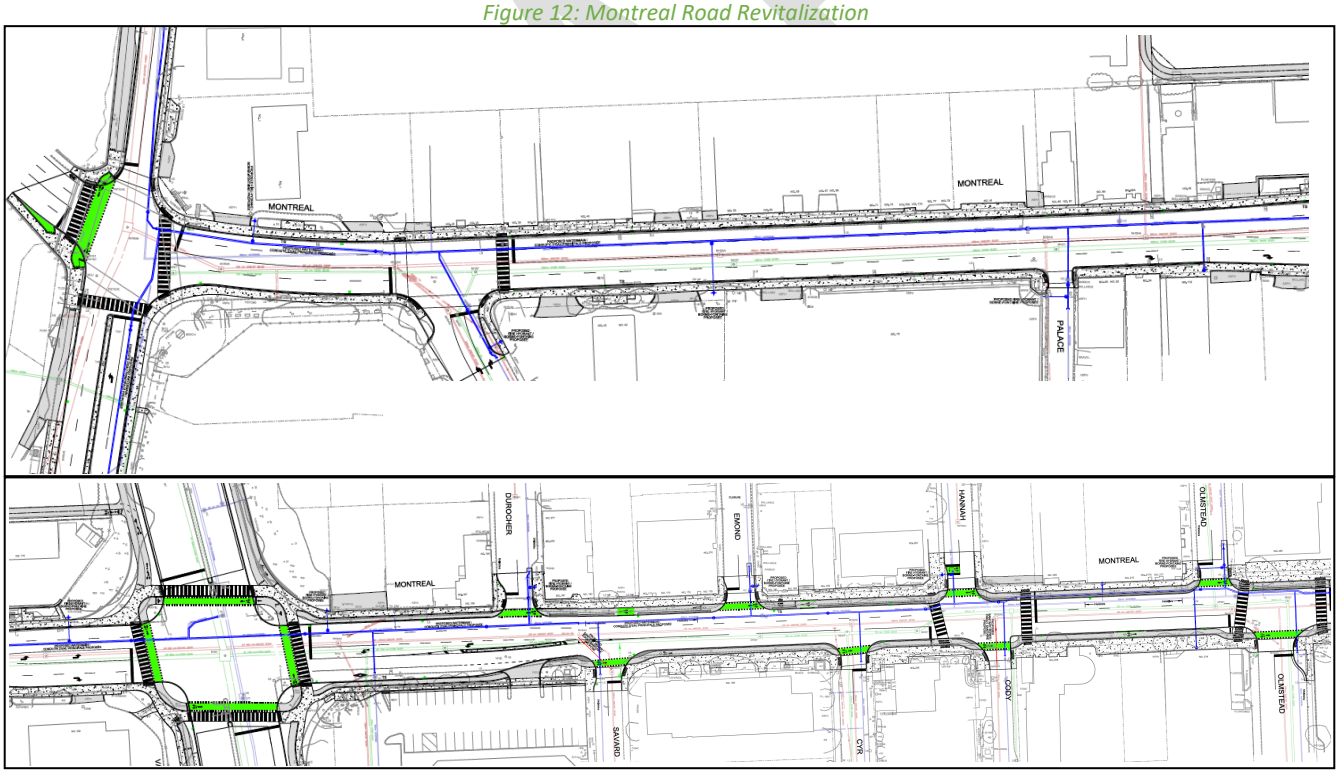
2.3 Planned Conditions

2.3.1 Changes to the Area Transportation Network

The Transportation Master Plan identifies continuous bus lanes along Montreal Road within the Affordable and Ultimate Network Concepts. In the Ultimate Network Concept, isolated transit priority measures are identified as along North River Road between Montreal Road and McArthur Avenue, and along McArthur Avenue.

The Montreal Road Revitalization is a project that is currently underway and is scheduled to be completed sometime during 2022. Major transportation-related changes contained in this plan include changes to the cross-section of Montreal Road, east of Vanier Parkway as well as a review of transit stops and the addition of shelters along the arterial. The newly planned cross-section includes two westbound lanes, one eastbound lane and cycling tacks/lanes in both directions. Figure 12 illustrates examples of the changes anticipated to the area intersections.

Figure 12: Montreal Road Revitalization



2.3.2 Other Study Area Developments

29 Selkirk Street

The proposed development includes 1,003 residential units and approximately 26,100 ft^2 commercial space. The development was anticipated to construct Phases 1 and 2 by 2022 and phase 3 constructed by 2025 and is anticipated to generate 279 new AM and 187 new PM peak hour two-way auto trips. (PARSONS, 2020)

112 Montreal Road & 314 Gardner Street

The proposed development includes 870 apartment units and 2,757 ft^2 of commercial space across three residential buildings. The development was anticipated to be built-out by 2024 with construction occurring in a single phase and to generate 256 AM and 240 PM new peak hour two-way vehicle trips. (CGH Transportation, 2021)

353 Gardner Street & 357 Gardner Street

The proposed development includes a site plan proposing the construction of a nine-storey rental apartment building with 61 dwelling units. No TIA is available as part of this application.

10 McArthur Avenue

The application includes a site plan proposing the construction of a three-storey, ten residential unit building. No TIA is available as part of this application.

26 McArthur Avenue

The proposed development includes a site plan proposing the construction of a 3-store rental building with 10 dwelling units. No TIA is available as part of this application.

191 Heritage Maple Way

The application includes a site plan proposing the construction of a 3 ½ storey, 8 unit stacked townhouse. No TIA is available as part of this application.

14 Stevens Avenue

The application includes a site plan for a 3.5-store building with 8 residential units. No TIA is available as part of this application.

3 Study Area and Time Periods

3.1 Study Area

The study area will include the intersections of:

- Montreal Road at:
  - North River Road
  - Montgomery Street
  - Vanier Parkway
- Selkirk Street at:
  - North River Road
  - Montgomery Street
  - Palace Street
  - Site Access (Future Conditions)
- McArthur Avenue at:
  - North River Road
  - Dundas Street
  - Marguerite Avenue
  - Mayfield Street
  - Vanier Parkway

The boundary road will be Selkirk Street and Montgomery Street, and screenline SL33 is located along the Rideau River to the west of the subject site but will not be analyzed as part of this study.

DRAFT

3.2 Time Periods

As the proposed development is composed entirely of residential units the AM and PM peak hours will be examined.

3.3 Horizon Years

The anticipated build-out year is 2026. As a result, the full build-out plus five years horizon year is 2031.

4 Exemption Review

Table 7 summarizes the exemptions for this TIA.

Table 7: Exemption Review

Module	Element	Explanation	Exempt/Required
Design Review Component			
4.1 Development Design	4.1.2 Circulation and Access	Only required for site plans	Required at Site Plan Application
	4.2.3 New Street Networks	Only required for plans of subdivision	Exempt
4.2 Parking	4.2.1 Parking Supply	Only required for site plans	Required at Site Plan Application
	4.2.2 Spillover Parking	Only required for site plans where parking supply is 15% below unconstrained demand	Exempt. May be required at Site Plan Application
Network Impact Component			
4.5 Transportation Demand Management	All Elements	Not required for site plans expected to have fewer than 60 employees and/or students on location at any given time	Required
4.6 Neighbourhood Traffic Management	4.6.1 Adjacent Neighbourhoods	Only required when the development relies on local or collector streets for access and total volumes exceed ATM capacity thresholds	Required
4.8 Network Concept		Only required when proposed development generates more than 200 person-trips during the peak hour in excess of equivalent volume permitted by established zoning	Exempt

5 Development-Generated Travel Demand

5.1 Mode Shares

Examining the mode shares presented in the TRANS Trip Generation Manual (2020) for Ottawa East district derived from the most recent National Capital Region Origin-Destination survey (OD Survey), the existing mode shares by land use and peak period for Ottawa East have been summarized in Table 8.

DRAFT

Table 8: Mode Shares – Ottawa East

Travel Mode	Multi-Unit (High-Rise)	
	AM	PM
Auto Driver	39%	40%
Auto Passenger	7%	14%
Transit	38%	28%
Cycling	2%	3%
Walking	13%	15%
Total	**100%**	**100%**

5.2 Trip Generation

This TIA has been prepared using the vehicle and person trip rates for the residential dwellings using the TRANS Trip Generation Manual (2020). Table 9 summarizes the person trip rates for the proposed residential land uses for each peak period.

Table 9: Residential Trip Generation Person Trip Rates by Peak Period

Land Use	Land Use Code	Peak Period	Person Trip Rates
Multi-Unit High-Rise	221 & 222 (TRANS)	AM	0.80
		PM	0.90

Using the above person trip rates, the total person trip generation has been estimated. Table 10 summarizes the total person trip generation for the residential land uses.

Table 10: Total Residential Person Trip Generation by Peak Period

Land Use	Units	AM Peak Period			PM Peak Period		
		In	Out	Total	In	Out	Total
Multi-Unit (High-Rise)	204	51	112	163	107	77	184

Using the above mode share targets for the person trip rates, the person trips by mode have been projected. Table 11 summarizes the residential trip generation by mode and peak hour using peak hour adjustment factor.

Table 11: Total Trip Generation by Mode

Travel Mode		AM Peak Hour				PM Peak Hour			
		Mode Share	In	Out	Total	Mode Share	In	Out	Total
Multi-Unit (High-Rise)	**Auto Driver**	39%	10	21	31	40%	19	14	33
	Auto Passenger	7%	2	4	5	14%	7	5	11
	Transit	38%	10	24	34	28%	14	10	24
	Cycling	2%	1	1	2	3%	1	1	3
	Walking	13%	4	9	12	15%	8	6	15
	Total	**100%**	**26**	**56**	**82**	**100%**	**47**	**34**	**81**

As shown above, a total of 31 AM and 33 PM new peak hour two-way vehicle trips are projected as a result of the proposed development.

5.3 Trip Distribution

To understand the travel patterns of the subject development, the OD Survey has been reviewed to determine the travel for the residential component, and these patterns were applied based on the build-out of Ottawa East Table 12 below summarizes the distributions.

DRAFT

Table 12: OD Survey Distribution – Ottawa East

To/From	Residential % of Trips
North	10%
South	30%
East	25%
West	35%
Total	**100%**

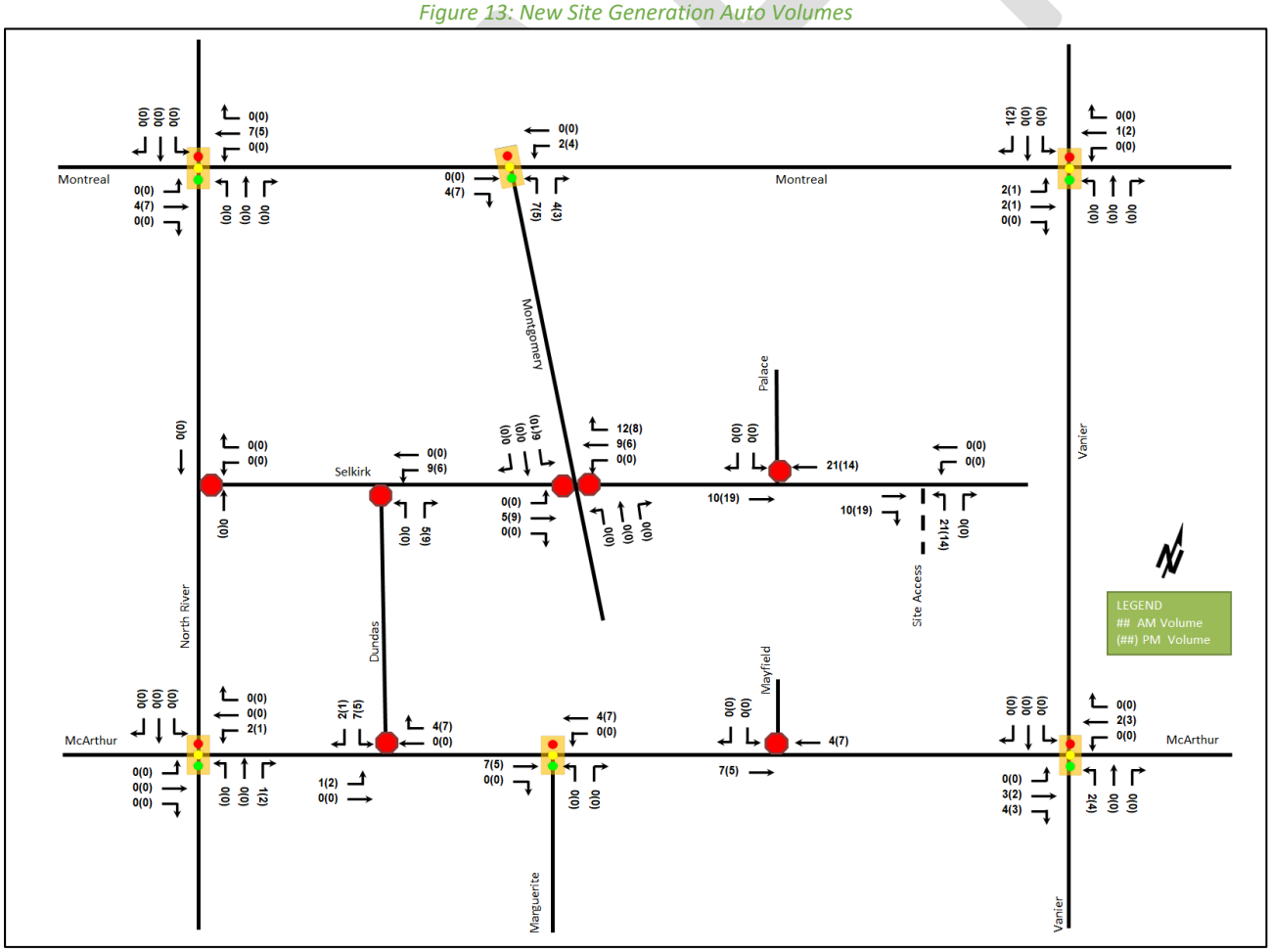
5.4 Trip Assignment

Using the distribution outlined above, turning movement splits, and access to major transportation infrastructure, the trips generated by the site have been assigned to the study area road network. Table 13 summarizes the proportional assignment to the study area roadways, and Figure 13 illustrates the new site generated volumes.

Table 13: Trip Assignment

To/From	Via
North	10% Vanier Pkwy (N)
South	10% North River Rd (S), 20% Vanier Pkwy (S)
East	10% Montreal Rd (E), 15% McArthur Ave (E)
West	35% Montreal Rd (W)
Total	**100%**

Figure 13: New Site Generation Auto Volumes



6 Background Network Travel Demands

6.1 Transportation Network Plans

The transportation network plans were discussed in Section 2.3. and have been incorporated into the road network analysis.

6.2 Background Growth

A review of the background projections from the City's TRANS Regional Model for the 2011 and 2031 horizons was completed to determine the background growth for each of the study area roadways. Table 14 summarizes the results of the model and the projections are provided in Appendix E.

Table 14: TRANS Regional Model Projections – Study Area Growth Rates

Street	Direction Growth Percentage	
	Eastbound	**Westbound**
Montreal Road	0.66%	-0.30%
McArthur Avenue	1.15%	0.02%
	Northbound	**Southbound**
North River Road	-2.05%	1.80%
Vanier Parkway	0.37%	0.68%

In general, the TRANS projections forecast growth rates within the range of -2.0% to 1.8% in the study area. Historically, it is shown that rates of contraction of -4% to -2% for volumes at the intersection of Montreal Road at North River Road and of -2% to -0.2% at the intersection of Montreal Road at Vanier Parkway have been observed between 2000 and 2016 in both the AM and PM peak hours. Additionally, with the reduction in lanes on McArthur Avenue and on Montreal Road east of Vanier Parkway, it is not anticipated that these roadways can accommodate future growth. Therefore, a growth rate of 0.5% will be applied to the mainline volumes on Vanier Parkway.

6.3 Other Developments

The background developments explicitly considered in the background conditions (Section 6.2) are noted below and the remaining developments are assumed to be included in the background growth assumptions.

- 29 Selkirk Street
- 112 Montreal Road & 314 Gardner Street

The background development volumes within the study area have been provided in Appendix G.

7 Demand Rationalization

7.1 2026 Future Background Operations

Figure 14 illustrates the 2026 background volumes and Table 15 summarizes the 2026 background intersection operations. The level of service for signalized intersections is based on HCM 2010 v/c calculations for individual lane movements and HCM 2000 v/c calculations for the overall intersection, and HCM average delay for unsignalized intersections. The synchro worksheets for the 2026 future background horizon are provided in Appendix E.

DRAFT

Figure 14: 2026 Future Background Volumes

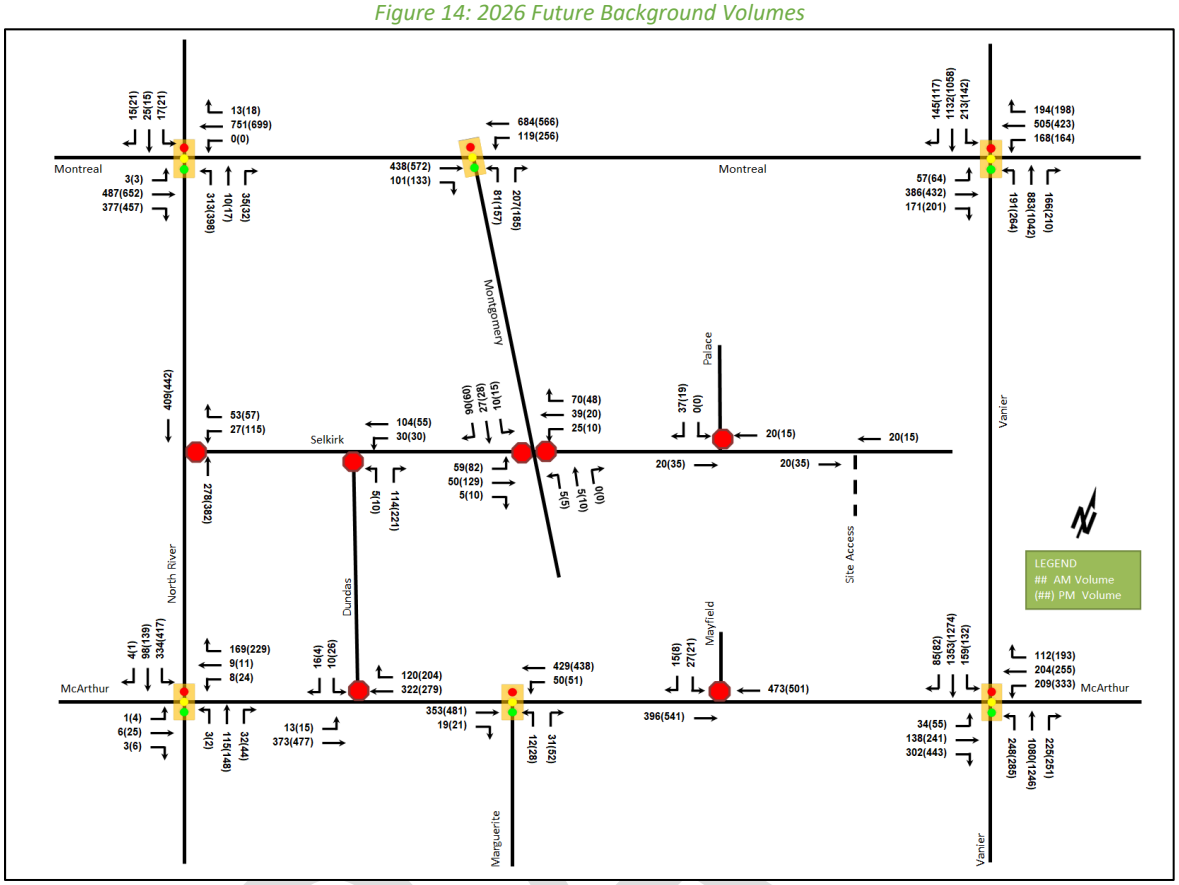


Table 15: 2026 Future Background Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Montreal Road at North River Road *Signalized*	EBT/R	D	0.82	34.6	**#109.3**	**F**	**1.04**	**73.2**	**#181.4**
	WBT/R	B	0.63	78.5	79.4	A	0.55	**83.0**	82.3
	NBL	B	0.66	37.0	77.2	B	0.69	41.8	119.8
	NBT/R	A	0.11	11.3	8.9	A	0.09	14.2	11.5
	SB	**F**	**1.04**	**169.4**	**#33.4**	**F**	**1.12**	**198.9**	**#38.9**
	Overall	**D**	**0.82**	**54.6**	-	**E**	**0.92**	**72.7**	-
Montreal Road at Montgomery Street *Signalized*	EBT/R	A	0.24	4.5	17.7	A	0.30	5.9	28.3
	WBT/L	A	0.45	5.8	36.5	A	0.55	7.7	51.8
	NBL	A	0.36	35.6	22.8	B	0.65	53.0	47.6
	NBR	A	0.56	11.3	17.0	A	0.52	11.3	17.7
	Overall	**A**	**0.44**	**7.6**	-	**A**	**0.57**	**11.2**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Montreal Road at Vanier Parkway ***Signalized***	EBL	A	0.38	53.6	27.7	A	0.42	55.2	30.8
	EBT	E	0.96	**89.9**	**#168.2**	**F**	**1.07**	**114.4**	**#196.9**
	EBR	A	0.38	9.4	20.0	A	0.44	12.4	27.8
	WBL	D	0.88	75.4	**#67.1**	**F**	**1.32**	**222.9**	**#90.6**
	WBT/R	B	0.64	38.7	101.1	B	0.62	39.2	89.8
	NBL	D	0.81	**91.1**	m74.7	D	0.87	**89.3**	m89.9
	NBT/R	B	0.62	33.7	68.2	B	0.65	27.2	70.5
	SBL	D	0.86	**87.8**	**#96.3**	B	0.70	75.9	58.2
	SBT	B	0.64	38.6	113.9	B	0.62	39.2	106.1
	SBR	A	0.24	5.6	14.4	A	0.21	5.9	12.6
	Overall	**C**	**0.80**	**46.3**	**-**	**E**	**0.97**	**52.6**	**-**
Selkirk Street & North River Road ***Unsignalized***	WBL	B	0.05	12.4	1.5	C	0.26	15.9	7.5
	WBR	B	0.07	10.1	1.5	B	0.09	11.0	2.3
	NBT	-	-	-	0.0	-	-	-	0.0
	SBT	-	-	-	1.5	-	-	-	2.3
	Overall	**A**	**-**	**1.1**	**-**	**A**	**-**	**2.5**	**-**
Selkirk Street & Dundas Street ***Unsignalized***	Low volumes at intersection return LOS A and zero second delay for intersection								
	Overall								
Selkirk Street & Montgomery Street ***Unsignalized***	EB	B	0.15	10.7	3.8	B	0.28	11.5	9.0
	WB	A	0.15	9.7	3.8	A	0.09	9.4	2.3
	NB	A	0.00	7.5	0.0	A	0.00	7.4	0.0
	SB	A	0.01	7.2	0.0	A	0.01	7.3	0.0
	Overall	**A**	**-**	**6.8**	**-**	**A**	**-**	**8.2**	**-**
McArthur Avenue & North River Road ***Signalized***	EB	A	0.03	16.8	3.7	A	0.10	19.2	9.4
	WBL/T	A	0.03	16.8	3.7	A	0.13	19.9	m10.3
	WBR	A	0.05	17.1	m4.7	A	0.49	12.7	32.7
	NB	A	0.42	9.9	15.0	A	0.19	6.2	18.8
	SBL	A	0.15	5.7	15.0	B	0.67	17.6	**#90.2**
	SBT/R	A	0.50	11.7	50.8	A	0.13	7.0	15.7
	Overall	**A**	**0.41**	**9.7**	**-**	**A**	**0.55**	**13.2**	**-**
McArthur Avenue & Dundas Street ***Unsignalized***	EBL/T	A	0.01	9.0	0.0	A	0.02	8.8	0.0
	WBT/R	-	-	-	0.0	-	-	-	0.0
	SBL/R	C	0.07	15.1	1.5	C	0.12	20.7	3.0
	Overall	**A**	**-**	**0.6**	**-**	**A**	**-**	**0.8**	**-**
McArthur Avenue & Marguerite Street ***Signalized***	EBT/R	A	0.28	3.5	24.6	A	0.40	6.3	m32.9
	WBL/T	A	0.39	7.4	m51.0	A	0.42	7.8	58.2
	NBL	A	0.04	20.4	4.7	A	0.10	24.1	8.8
	NBR	A	0.10	8.5	5.5	A	0.17	8.4	7.7
	Overall	**A**	**0.36**	**6.0**	**-**	**A**	**0.38**	**7.5**	**-**
McArthur Avenue & Mayfield Street ***Unsignalized***	EBT	-	-	-	0.0	-	-	-	0.0
	WBT	-	-	-	0.0	-	-	-	0.0
	SBL/R	C	0.11	15.5	3.0	C	0.10	18.3	2.3
	Overall	**A**	**-**	**0.7**	**-**	**A**	**-**	**0.5**	**-**

DRAFT

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
McArthur Avenue & Vanier Parkway ***Signalized***	EBL	A	0.29	69.7	21.3	A	0.44	72.3	28.9
	EBT	A	0.44	47.8	47.0	C	0.72	65.2	90.8
	EBR	B	0.66	19.6	36.3	E	0.94	51.9	**#119.1**
	WBL	C	0.71	75.0	42.8	**F**	**1.02**	**116.6**	**#90.0**
	WBT	A	0.51	52.2	77.1	B	0.62	56.8	96.3
	WBR	A	0.28	8.2	13.8	A	0.41	8.7	20.4
	NBL	E	0.95	**101.2**	**#135.0**	E	0.97	**102.0**	**#135.3**
	NBT	C	0.76	40.2	172.1	D	0.90	47.9	**#216.0**
	NBR	A	0.32	5.7	19.3	A	0.36	7.2	25.5
	SBL	D	0.82	**92.1**	**m#73.8**	C	0.75	**82.3**	m56.4
	SBT	**F**	**1.06**	**73.1**	**#250.1**	**F**	**1.10**	**96.5**	**m#229.2**
	SBR	A	0.14	3.5	m2.8	A	0.15	2.5	m3.4
	Overall	**D**	**0.89**	**54.4**	**-**	**F**	**1.02**	**67.3**	**-**
Selkirk Street & Palace Street ***Unsignalized***	EBL/T	A	0.03	7.3	0.8	A	0.07	7.4	1.5
	WBT/R	-	-	-	0.8	-	-	-	1.5
	SBL/R	A	0.04	8.5	0.8	A	0.02	8.4	0.8
	Overall	**A**	**-**	**5.2**	**-**	**A**	**-**	**5.4**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
PHF = 1.00
m = metered queue
# = queue exceeds storage or mid-block length

The intersection operations for the 2026 future background horizon in the study area generally operate similarly to the existing conditions with the notable exception of the intersection of Montreal Road and Vanier Parkway. Nominal operation improvements are noted on some movements due to the change of the peak hour factor from 0.90 in the existing conditions to 1.00.

The intersection of Montreal Road and Vanier Parkway is expected to see a drop in the level of service and increased delays and queuing in the eastbound and westbound directions due to the planned geometric changes along Montreal Road. During the AM peak hour, the eastbound through movement may begin to exhibit extended queuing and high delays on this horizon. During the PM peak hour, the eastbound through movement is over theoretical capacity and may subject to high delays and extended queues.

During both the AM and PM peak hours, the study area intersections are subject to queuing issues generally and capacity issues on various movements and similarly to existing conditions.

The Montreal Road at Vanier Parkway intersection may have the opportunity to reallocate green time from the northbound and southbound through movements to the westbound left-turn and through movements to reduce all movements v/c below 1.00 during PM peak hour.

7.2 2031 Future Background Operations

Figure 15 illustrates the 2031 background volumes and Table 16 summarizes the 2031 background intersection operations. The level of service for signalized intersections is based on HCM 2010 v/c calculations for individual lane movements and HCM 2000 v/c calculations for the overall intersection, and HCM average delay for unsignalized intersections. The synchro worksheets for the 2031 future background horizon are provided in Appendix F.

DRAFT

Figure 15: 2031 Future Background Volumes

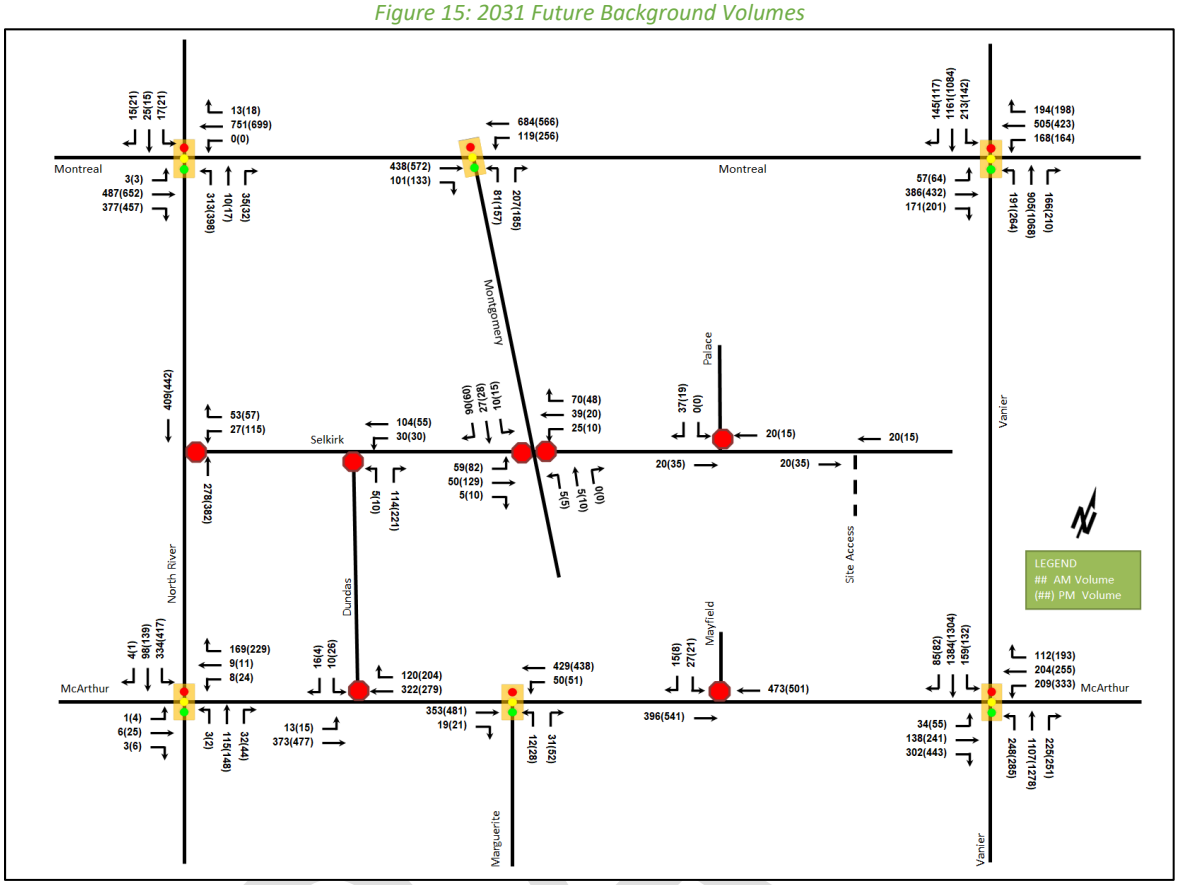


Table 16: 2031 Future Background Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Montreal Road at North River Road ***Signalized***	EBT/R	D	0.82	34.6	**#109.3**	**F**	**1.04**	**73.2**	**#181.4**
	WBT/R	B	0.63	78.5	79.4	A	0.55	**83.0**	82.3
	NBL	B	0.66	37.0	77.2	B	0.69	41.8	119.8
	NBT/R	A	0.11	11.3	8.9	A	0.09	14.2	11.5
	SB	**F**	**1.04**	**169.4**	**#33.4**	**F**	**1.12**	**198.9**	**#38.9**
	Overall	**D**	**0.82**	**54.6**	-	**E**	**0.92**	**72.7**	-
Montreal Road at Montgomery Street ***Signalized***	EBT/R	A	0.24	4.5	17.7	A	0.30	5.9	28.3
	WBT/L	A	0.45	5.8	36.5	A	0.55	7.7	51.8
	NBL	A	0.36	35.6	22.8	B	0.65	53.0	47.6
	NBR	A	0.56	11.3	17.0	A	0.52	11.3	17.7
	Overall	**A**	**0.44**	**7.6**	-	**A**	**0.57**	**11.2**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Montreal Road at Vanier Parkway ***Signalized***	EBL	A	0.38	53.6	27.7	A	0.42	55.2	30.8
	EBT	E	0.96	**89.9**	**#168.2**	**F**	**1.07**	**114.4**	**#196.9**
	EBR	A	0.38	9.4	20.0	A	0.44	12.4	27.8
	WBL	D	0.88	75.4	**#67.1**	**F**	**1.32**	**222.9**	**#90.6**
	WBT/R	B	0.64	38.7	101.1	B	0.62	39.2	89.8
	NBL	D	0.81	**90.4**	m73.2	D	0.87	**88.3**	m88.2
	NBT/R	B	0.63	34.5	69.5	B	0.66	27.7	m70.5
	SBL	D	0.86	**87.8**	**#96.3**	B	0.70	75.9	58.2
	SBT	B	0.65	39.0	117.5	B	0.63	39.5	109.2
	SBR	A	0.24	5.6	14.4	A	0.21	5.9	12.6
	Overall	**D**	**0.81**	**46.5**	**-**	**E**	**0.98**	**52.5**	**-**
Selkirk Street & North River Road ***Unsignalized***	WBL	B	0.05	12.4	1.5	C	0.26	15.9	7.5
	WBR	B	0.07	10.1	1.5	B	0.09	11.0	2.3
	NBT	-	-	-	0.0	-	-	-	0.0
	SBT	-	-	-	1.5	-	-	-	2.3
	Overall	**A**	**-**	**1.1**	**-**	**A**	**-**	**2.5**	**-**
Selkirk Street & Dundas Street ***Unsignalized***	Low volumes at intersection return LOS A and zero second delay for intersection								
	Overall	**A**	**-**	**0.0**	**-**	**A**	**-**	**0.0**	**-**
Selkirk Street & Montgomery Street ***Unsignalized***	EB	B	0.15	10.7	3.8	B	0.28	11.5	9.0
	WB	A	0.15	9.7	3.8	A	0.09	9.4	2.3
	NB	A	0.00	7.5	0.0	A	0.00	7.4	0.0
	SB	A	0.01	7.2	0.0	A	0.01	7.3	0.0
	Overall	**A**	**-**	**6.8**	**-**	**A**	**-**	**8.2**	**-**
McArthur Avenue & North River Road ***Signalized***	EB	A	0.03	16.8	3.7	A	0.10	19.2	9.4
	WBL/T	A	0.05	17.1	m4.7	A	0.13	19.9	m10.3
	WBR	A	0.42	9.9	15.0	A	0.49	12.7	32.7
	NB	A	0.15	5.7	15.0	A	0.19	6.2	18.8
	SBL	A	0.50	11.7	50.8	B	0.67	17.6	**#90.2**
	SBT/R	A	0.10	6.6	12.3	A	0.13	7.0	15.7
	Overall	**A**	**0.41**	**9.7**	**-**	**A**	**0.55**	**13.2**	**-**
McArthur Avenue & Dundas Street ***Unsignalized***	EBL/T	A	0.01	9.0	0.0	A	0.02	8.8	0.0
	WBT/R	-	-	-	0.0	-	-	-	0.0
	SBL/R	C	0.07	15.1	1.5	C	0.12	20.7	3.0
	Overall	**A**	**-**	**0.6**	**-**	**A**	**-**	**0.8**	**-**
McArthur Avenue & Marguerite Street ***Signalized***	EBT/R	A	0.28	3.5	24.6	A	0.40	6.3	m32.9
	WBL/T	A	0.39	7.5	m51.0	A	0.42	7.8	58.2
	NBL	A	0.04	20.4	4.7	A	0.10	24.1	8.8
	NBR	A	0.10	8.5	5.5	A	0.17	8.4	7.7
	Overall	**A**	**0.36**	**6.0**	**-**	**A**	**0.38**	**7.5**	**-**
McArthur Avenue & Mayfield Street ***Unsignalized***	EBT	-	-	-	0.0	-	-	-	0.0
	WBT	-	-	-	0.0	-	-	-	0.0
	SBL/R	C	0.11	15.5	3.0	C	0.10	18.3	2.3
	Overall	**A**	**-**	**0.7**	**-**	**A**	**-**	**0.5**	**-**

DRAFT

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
McArthur Avenue & Vanier Parkway ***Signalized***	EBL	A	0.29	69.7	21.3	A	0.44	72.3	28.9
	EBT	A	0.44	47.8	47.0	C	0.72	65.2	90.8
	EBR	B	0.66	19.7	36.6	E	0.95	52.5	**#119.6**
	WBL	C	0.71	75.0	42.8	**F**	**1.02**	**116.6**	**#90.0**
	WBT	A	0.51	52.2	77.1	B	0.62	56.8	96.3
	WBR	A	0.28	8.2	13.8	A	0.41	8.7	20.4
	NBL	E	0.95	**101.2**	**#135.0**	E	0.97	**102.0**	**#135.3**
	NBT	C	0.78	41.0	178.4	E	0.92	50.3	**#225.6**
	NBR	A	0.32	6.1	20.4	A	0.37	7.6	26.7
	SBL	D	0.82	**91.9**	**m#74.5**	C	0.75	**82.1**	m56.2
	SBT	**F**	**1.08**	**81.3**	**#259.5**	**F**	**1.13**	**106.2**	**m#238.8**
	SBR	A	0.14	3.9	m3.2	A	0.15	2.7	m3.6
	Overall	**D**	**0.90**	**57.4**	**-**	**F**	**1.03**	**70.6**	**-**
Selkirk Street & Palace Street ***Unsignalized***	EBL/T	A	0.03	7.3	0.8	A	0.07	7.4	1.5
	WBT/R	-	-	-	0.8	-	-	-	1.5
	SBL/R	A	0.04	8.5	0.8	A	0.02	8.4	0.8
	Overall	**A**	**-**	**5.2**	**-**	**A**	**-**	**5.4**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
PHF = 1.00
m = metered queue
# = queue exceeds storage or mid-block length

The intersections at the 2031 future background horizon are anticipated to operate similarly to the 2026 background conditions. No new capacity issues are forecasted.

The intersection of Montreal Road at North River Road has theoretical capacity issues, which operates similarly to the 2026 background conditions.

The v/c on all movements may be reduced to below 1.00 for at the intersection of Montreal Road at Vanier Parkway during PM peak hour by taking ten green time from the northbound through and southbound through movement and use it on the westbound through and westbound left-turn movement.

7.3 Modal Share Sensitivity and Demand Rationalization Conclusions

Capacity constraints have been noted at the intersection of Montreal Road at North River Road and McArthur Avenue and Vanier Parkway.

In order to address the constraints at the intersection of Montreal Road and North River Road during PM peak hour, a network reduction in volumes of approximately 45 vehicles making the eastbound shared through/right-turn movement would be required.

At the intersection of McArthur Avenue and Vanier Parkway, a network reduction in volumes of approximately 100 vehicles making the southbound through movement during the AM peak hour, approximately 150 vehicles making the southbound through movement and 9 vehicles making the westbound left-turn movement during the PM peak hour would be required to address the constraints.

The site volumes are projected to be less than 35 two-way vehicles during the peak hours and are not anticipated to be a contributing factor to the network constraints. No demand rationalization is required for this development.

DRAFT

8 Transportation Demand Management

8.1 Context for TDM

The mode shares used within the TIA represent the unmodified district mode shares. Overall, the modal shares are likely to be achieved and supporting TDM measures should be provided to encourage shifts towards sustainable modes.

The subject site is not within a design priority area. The total number of bedrooms within the development is subject to the final unit breakdown. No age restrictions are noted.

8.2 Need and Opportunity

The subject site has been assumed to rely predominantly on auto travel and those assumptions have been carried through the analysis. The study area intersections are anticipated to have residual capacity, and as the unmodified district mode shares have been applied, risks to other network users from failing to meet mode share targets is low.

8.3 TDM Program

The "suite of post occupancy TDM measures" has been summarized in the TDM checklists for the residential land uses. The checklist is provided in Appendix J. The key TDM measures recommended include:

- Display local area maps with walking and cycling routes, and transit route information and schedules at major entrances
- Provide a multimodal travel option information package to new residents
- Contract with providers to install on-site bikeshare (or other micromobility, e.g. scootershare) and carshare spaces
- Inclusion of a 1-month Presto card for first time new townhome purchase and apartment rental, with a set time frame for this offer (e.g. 6-months) from the initial opening of the site
- Unbundle parking cost from purchase or rental costs

9 Neighbourhood Traffic Management

The proposed development will connect to the adjacent arterial road network via the local roads of Selkirk Street, Montgomery Street and Dundas Street. The TIA Guidelines propose a threshold of 120 vehicles per peak hour for the classification of local roads, equivalent to 2 cars per minute, which per City guidance is to be interpreted as two-way volumes.

Overall, the site is anticipated to generate approximately 31 to 33 vehicle trips during the peak hours and will access the adjacent roads of Selkirk Street, Montgomery Street and Dundas Street. These volumes are below the threshold of 1,000 vehicles per day or 120 vehicles during the peak hour, equivalent to 2 cars per minute in both directions total from the TIA guidelines, and thus no further discussion is required.

10 Transit

10.1 Route Capacity

In Section 5.1 the trip generation by mode was estimated, including an estimate of the number of transit trips that will be generated by the proposed development. Table 17 summarizes the transit trip generation.

DRAFT

Table 17: Trip Generation by Transit Mode

Travel Mode	Mode Share	AM Peak Period			PM Peak Period		
		In	Out	Total	In	Out	Total
Transit	38% (28%)	19	43	62	30	22	52

The proposed development is anticipated to generate an additional 62 AM peak hour transit trips and 52 PM peak hour transit trips. Of these trips, 43 outbound AM trips and 30 inbound PM trips are anticipated. From the trip distribution found in Section 5.3, these values can be further broken down.

Site-generated outbound AM trips break down to four trips to the north, 13 trips to the south, 11 trips to the east, and 15 trips to the west. Site-generated inbound PM trips break down to three trips to the north, nine trips to the south, eight trips to the east, and ten trips to the west.

Trips north and south may be assumed to be serviced by the route #9 and #19, and trips east and west may be assumed to be serviced by the route #14. The increases in ridership from site-generated trips would equal about one extra person for route #9 and #19, and about three extra people for route #14. Therefore, no service changes are anticipated as being required to accommodate site-generated transit.

10.2 Transit Priority

Examining delay, negligible impacts are noted on the transit priority movements of the eastbound through and westbound through movements at the Montreal Road intersections, and to the movements to and from the transit priority corridor of the northbound left and the eastbound right movements at the intersection of North River Road and Montreal Road.

11 Network Intersection Design

11.1 Network Intersection Control

No change to the existing signalized control is recommended for the network intersections.

11.2 Network Intersection Design

11.2.1 2026 Future Total Network Intersection Operations

Figure 16 illustrates the 2026 future total volumes and 2026 future total network intersection operations are summarized below in Table 18. The level of service for signalized intersections is based on HCM 2010 v/c calculations for individual lane movements and HCM 2000 v/c calculations for the overall intersection, and HCM average delay for unsignalized intersections. The synchro worksheets have been provided in Appendix H.

DRAFT

Figure 16: 2026 Future Total Volumes

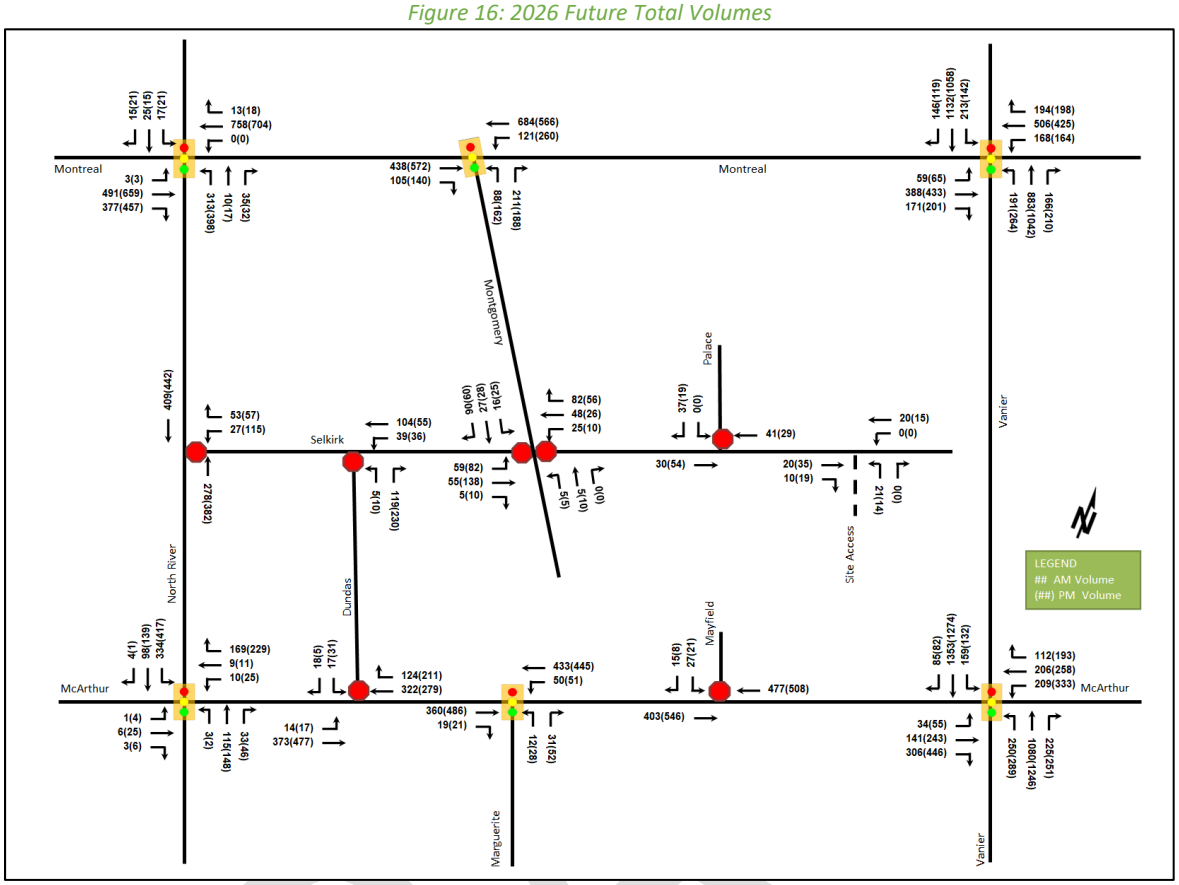


Table 18: 2026 Future Total Network Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Montreal Road at North River Road *Signalized*	EBT/R	D	0.83	34.8	**#110.1**	**F**	**1.04**	**74.6**	**#183.0**
	WBT/R	B	0.63	78.6	80.3	A	0.56	**83.0**	83.2
	NBL	B	0.66	37.0	77.2	B	0.69	41.8	119.8
	NBT/R	A	0.11	11.3	8.9	A	0.09	14.2	11.5
	SB	**F**	**1.04**	**169.4**	**#33.4**	**F**	**1.12**	**198.9**	**#38.9**
	Overall	**D**	**0.82**	**54.8**	-	**E**	**0.92**	**73.4**	-
Montreal Road at Montgomery Street *Signalized*	EBT/R	A	0.24	4.5	17.7	A	0.30	5.9	28.4
	WBT/L	A	0.45	5.9	36.7	A	0.56	7.9	52.5
	NBL	A	0.39	36.2	24.5	B	0.67	53.5	48.9
	NBR	A	0.57	11.3	17.1	A	0.53	11.2	17.9
	Overall	**A**	**0.44**	**7.7**	-	**A**	**0.58**	**11.4**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Montreal Road at Vanier Parkway ***Signalized***	EBL	A	0.40	54.2	28.6	A	0.43	55.6	31.1
	EBT	E	0.97	**90.4**	**#169.4**	**F**	**1.07**	**115.0**	**#197.5**
	EBR	A	0.38	9.5	20.3	A	0.44	12.5	28.1
	WBL	D	0.88	75.4	**#67.5**	**F**	**1.32**	**222.9**	**#90.6**
	WBT/R	B	0.64	38.7	101.2	B	0.62	39.2	90.2
	NBL	D	0.81	**91.2**	m74.7	D	0.87	**89.3**	m89.9
	NBT/R	B	0.62	33.7	68.2	B	0.65	27.2	70.5
	SBL	D	0.86	**87.8**	**#96.3**	B	0.70	75.9	58.2
	SBT	B	0.64	38.6	113.9	B	0.62	39.2	106.1
	SBR	A	0.24	5.7	14.4	A	0.21	6.1	13.2
	Overall	**C**	**0.80**	**46.4**	**-**	**E**	**0.97**	**52.6**	**-**
Selkirk Street & North River Road ***Unsignalized***	WBL	B	0.05	12.4	1.5	C	0.26	15.9	7.5
	WBR	B	0.07	10.1	1.5	B	0.09	11.0	2.3
	NBT	-	-	-	0.0	-	-	-	0.0
	SBT	-	-	-	1.5	-	-	-	2.3
	Overall	**A**	**-**	**1.2**	**-**	**A**	**-**	**3.0**	**-**
Selkirk Street & Dundas Street ***Unsignalized***	Low volumes at intersection return LOS A and zero second delay for intersection								
	Overall	**A**	**-**	**0.0**	**-**	**A**	**-**	**0.0**	**-**
Selkirk Street & Montgomery Street ***Unsignalized***	EB	B	0.17	11.0	4.5	B	0.31	11.9	9.8
	WB	A	0.18	9.9	4.5	A	0.10	9.6	2.3
	NB	A	0.00	7.5	0.0	A	0.00	7.4	0.0
	SB	A	-	0.0	0.0	A	-	0.0	0.0
	Overall	**A**	**-**	**7.2**	**-**	**A**	**-**	**8.5**	**-**
McArthur Avenue & North River Road ***Signalized***	EB	A	0.03	16.8	3.7	A	0.10	19.2	9.4
	WBL/T	A	0.06	17.3	m5.4	A	0.13	20.0	m10.5
	WBR	A	0.42	9.9	15.0	A	0.49	12.7	32.6
	NB	A	0.15	5.6	15.0	A	0.19	6.2	18.9
	SBL	A	0.50	11.7	50.9	B	0.67	17.7	**#90.5**
	SBT/R	A	0.10	6.6	12.3	A	0.13	7.0	15.7
	Overall	**A**	**0.41**	**9.7**	**-**	**A**	**0.55**	**13.2**	**-**
McArthur Avenue & Dundas Street ***Unsignalized***	EBL/T	A	0.02	9.0	0.0	A	0.02	8.9	0.8
	WBT/R	-	-	-	0.0	-	-	-	0.8
	SBL/R	C	0.10	16.2	2.3	C	0.14	21.4	3.8
	Overall	**A**	**-**	**0.8**	**-**	**A**	**-**	**0.9**	**-**
McArthur Avenue & Marguerite Street ***Signalized***	EBT/R	A	0.29	3.6	25.2	A	0.40	6.3	m33.3
	WBL/T	A	0.39	7.6	m51.6	A	0.43	7.8	59.4
	NBL	A	0.04	20.4	4.7	A	0.10	24.1	8.8
	NBR	A	0.10	8.5	5.5	A	0.17	8.4	7.7
	Overall	**A**	**0.37**	**6.1**	**-**	**A**	**0.39**	**7.6**	**-**
McArthur Avenue & Mayfield Street ***Unsignalized***	EBT	-	-	-	0.0	-	-	-	0.0
	WBT	-	-	-	0.0	-	-	-	0.0
	SBL/R	C	0.11	15.6	3.0	C	0.10	18.5	2.3
	Overall	**A**	**-**	**0.7**	**-**	**A**	**-**	**0.5**	**-**

DRAFT

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
McArthur Avenue & Vanier Parkway ***Signalized***	EBL	A	0.29	70.1	21.4	A	0.44	72.3	28.9
	EBT	A	0.45	48.0	48.1	C	0.73	65.5	91.8
	EBR	B	0.67	20.2	39.3	E	0.95	53.3	**#120.9**
	WBL	C	0.71	75.0	42.8	**F**	**1.03**	**117.1**	**#90.0**
	WBT	A	0.51	52.3	77.8	B	0.63	57.1	97.7
	WBR	A	0.28	8.2	13.8	A	0.41	8.7	20.4
	NBL	E	0.94	**100.9**	**#136.7**	E	0.98	**105.2**	**#138.2**
	NBT	C	0.76	40.3	172.1	D	0.90	47.9	**#216.0**
	NBR	A	0.32	5.7	19.3	A	0.36	7.2	25.5
	SBL	D	0.82	**92.1**	**m#73.9**	C	0.75	**82.3**	m56.2
	SBT	**F**	**1.06**	**74.4**	**#250.0**	**F**	**1.10**	**96.4**	**m#229.3**
	SBR	A	0.14	3.5	m2.8	A	0.15	2.5	m3.4
	Overall	**D**	**0.89**	**54.9**	**-**	**F**	**1.03**	**67.7**	**-**
Selkirk Street & Palace Street ***Unsignalized***	EBL/T	A	0.03	7.4	0.8	A	0.07	7.4	1.5
	WBT/R	-	-	-	0.8	-	-	-	1.5
	SBL/R	A	0.04	8.6	0.8	A	0.02	8.5	0.8
	Overall	**A**	**-**	**4.1**	**-**	**A**	**-**	**4.6**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
PHF = 1.00
m = metered queue
# = queue exceeds storage or mid-block length

The intersections for the 2026 future total horizon in the study area generally operate similarly to the 2026 future background conditions during the peak hours. No new capacity issues are noted

11.2.2 2031 Future Total Network Intersection Operations

Figure 17 illustrates the 2031 future total volumes and 2031 future total network intersection operations are summarized below in Figure 18. The level of service for signalized intersections is based on HCM 2010 v/c calculations for individual lane movements and HCM 2000 v/c calculations for the overall intersection, and HCM average delay for unsignalized intersections. The synchro worksheets have been provided in Appendix I.

DRAFT

Figure 17: 2031 Future Total Volumes

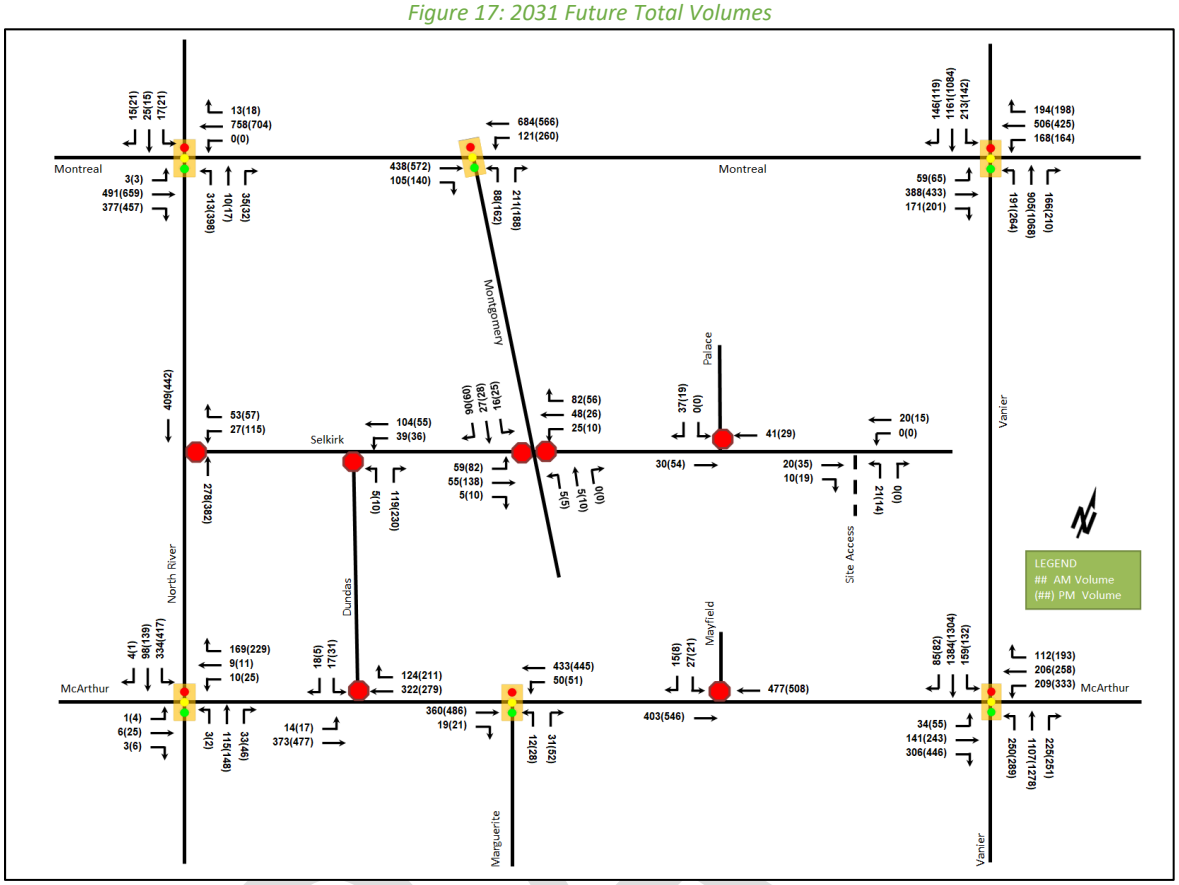


Figure 18: 2031 Future Total Network Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Montreal Road at North River Road *Signalized*	EBT/R	D	0.83	34.8	**#110.1**	**F**	**1.04**	**74.6**	**#183.0**
	WBT/R	B	0.63	78.6	80.3	A	0.56	**83.0**	83.2
	NBL	B	0.66	37.0	77.2	B	0.69	41.8	119.8
	NBT/R	A	0.11	11.3	8.9	A	0.09	14.2	11.5
	SB	**F**	**1.04**	**169.4**	**#33.4**	**F**	**1.12**	**198.9**	**#38.9**
	Overall	**D**	**0.82**	**54.8**	-	**E**	**0.92**	**73.4**	-
Montreal Road at Montgomery Street *Signalized*	EBT/R	A	0.24	4.5	17.7	A	0.30	5.9	28.4
	WBT/L	A	0.45	5.9	36.7	A	0.56	7.9	52.5
	NBL	A	0.39	36.2	24.5	B	0.67	53.5	48.9
	NBR	A	0.57	11.3	17.1	A	0.53	11.2	17.9
	Overall	**A**	**0.44**	**7.7**	-	**A**	**0.58**	**11.4**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Montreal Road at Vanier Parkway ***Signalized***	EBL	A	0.40	54.2	28.6	A	0.43	55.6	31.1
	EBT	E	0.97	**90.4**	**#169.4**	**F**	**1.07**	**115.0**	**#197.5**
	EBR	A	0.38	9.5	20.3	A	0.44	12.5	28.1
	WBL	D	0.88	75.4	**#67.5**	**F**	**1.32**	**222.9**	**#90.6**
	WBT/R	B	0.64	38.7	101.2	B	0.62	39.2	90.2
	NBL	D	0.81	**90.4**	m73.2	D	0.87	**88.3**	m88.2
	NBT/R	B	0.63	34.5	69.5	B	0.66	27.7	m70.5
	SBL	D	0.86	**87.8**	**#96.3**	B	0.70	75.9	58.2
	SBT	B	0.65	39.1	117.5	B	0.63	39.5	109.2
	SBR	A	0.24	5.7	14.4	A	0.21	6.1	13.2
	Overall	**D**	**0.81**	**46.6**	**-**	**E**	**0.98**	**52.6**	**-**
Selkirk Street & North River Road ***Unsignalized***	WBL	B	0.05	12.4	1.5	C	0.26	15.9	7.5
	WBR	B	0.07	10.1	1.5	B	0.09	11.0	2.3
	NBT	-	-	-	0.0	-	-	-	0.0
	SBT	-	-	-	1.5	-	-	-	2.3
	Overall	**A**	**-**	**1.1**	**-**	**A**	**-**	**2.5**	**-**
Selkirk Street & Dundas Street ***Unsignalized***	Low volumes at intersection return LOS A and zero second delay for intersection								
	Overall	**A**	**-**	**0.0**	**-**	**A**	**-**	**0.0**	**-**
Selkirk Street & Montgomery Street ***Unsignalized***	EB	B	0.17	11.0	4.5	B	0.31	11.9	9.8
	WB	A	0.18	9.9	4.5	A	0.10	9.6	2.3
	NB	A	0.00	7.5	0.0	A	0.00	7.4	0.0
	SB	A	0.01	7.2	0.0	A	0.02	7.3	0.0
	Overall	**A**	**-**	**7.2**	**-**	**A**	**-**	**8.5**	**-**
McArthur Avenue & North River Road ***Signalized***	EB	A	0.03	16.8	3.7	A	0.10	19.2	9.4
	WBL/T	A	0.06	17.2	m5.4	A	0.13	20.0	m10.5
	WBR	A	0.42	9.8	15.0	A	0.49	12.7	32.6
	NB	A	0.15	5.6	15.0	A	0.19	6.2	18.9
	SBL	A	0.50	11.7	50.9	B	0.67	17.7	**#90.5**
	SBT/R	A	0.10	6.6	12.3	A	0.13	7.0	15.7
	Overall	**A**	**0.41**	**9.7**	**-**	**A**	**0.55**	**13.2**	**-**
McArthur Avenue & Dundas Street ***Unsignalized***	EBL/T	A	0.02	9.0	0.0	A	0.02	8.9	0.8
	WBT/R	-	-	-	0.0	-	-	-	0.0
	SBL/R	C	0.10	16.2	2.3	C	0.14	21.4	3.8
	Overall	**A**	**-**	**0.8**	**-**	**A**	**-**	**0.9**	**-**
McArthur Avenue & Marguerite Street ***Signalized***	EBT/R	A	0.29	3.6	25.2	A	0.40	6.3	m33.3
	WBL/T	A	0.39	7.6	m51.6	A	0.43	7.8	59.4
	NBL	A	0.04	20.4	4.7	A	0.10	24.1	8.8
	NBR	A	0.10	8.5	5.5	A	0.17	8.4	7.7
	Overall	**A**	**0.37**	**6.1**	**-**	**A**	**0.39**	**7.6**	**-**
McArthur Avenue & Mayfield Street ***Unsignalized***	EBT	-	-	-	0.0	-	-	-	0.0
	WBT	-	-	-	0.0	-	-	-	0.0
	SBL/R	C	0.11	15.6	3.0	C	0.10	18.5	2.3
	Overall	**A**	**-**	**0.7**	**-**	**A**	**-**	**0.5**	**-**

DRAFT

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
McArthur Avenue & Vanier Parkway ***Signalized***	EBL	A	0.29	70.0	21.4	A	0.44	72.3	28.9
	EBT	A	0.45	48.0	48.2	C	0.73	65.5	91.8
	EBR	B	0.67	20.3	39.7	E	0.95	53.8	**#121.3**
	WBL	C	0.71	75.0	42.8	**F**	**1.03**	**117.1**	**#90.0**
	WBT	A	0.51	52.3	77.8	B	0.63	57.1	97.7
	WBR	A	0.28	8.2	13.8	A	0.41	8.7	20.4
	NBL	E	0.94	**100.9**	**#136.7**	E	0.98	**105.2**	**#138.2**
	NBT	C	0.78	41.1	178.4	E	0.92	50.3	**#225.6**
	NBR	A	0.32	6.2	20.4	A	0.37	7.6	26.7
	SBL	D	0.82	**91.9**	**m#74.6**	C	0.75	**82.1**	m56.2
	SBT	**F**	**1.08**	**82.7**	**#259.4**	**F**	**1.13**	**106.2**	**m#238.7**
	SBR	A	0.14	3.9	m3.2	A	0.15	2.7	m3.6
	Overall	**E**	**0.91**	**57.9**	**-**	**F**	**1.04**	**71.0**	**-**
Selkirk Street & Palace Street ***Unsignalized***	EBL/T	A	0.03	7.4	0.8	A	0.07	7.4	1.5
	WBT/R	-	-	-	0.8	-	-	-	1.5
	SBL/R	A	0.04	8.6	0.8	A	0.02	8.5	0.8
	Overall	**A**	**-**	**4.1**	**-**	**A**	**-**	**4.6**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
PHF = 1.00
m = metered queue
# = queue exceeds storage or mid-block length

The intersections for the 2031 future total horizon in the study area operate similarly to the 2031 future background conditions during the peak hours. No new capacity issues are noted.

11.2.3 Network Intersection MMLOS

Table 19 summarizes the MMLOS analysis for the network intersections of Montreal Road at North River Road, Montreal Road at Montgomery Street, Montreal Road at Vanier Parkway, and McArthur Avenue at North River Road. Where the existing, pre-construction and future conditions will be the different, they are considered in separate rows. The intersection analysis is based on the policy area within 300m of a school, all study area intersections falling within 300m of Mauril-Belanger Elementary School. The MMLOS worksheets has been provided in Appendix G.

Table 19: Study Area Intersection MMLOS Analysis

Intersection	Pedestrian LOS		Bicycle LOS		Transit LOS		Truck LOS		Auto LOS	
	PLOS	Target	BLOS	Target	TLOS	Target	TrLOS	Target	ALOS	Target
Montreal Road & North River Road	**F**	A	**E**	C	**F**	C	-	-	E	E
Montreal Road & Montgomery Street	**E**	A	**E**	C	B	C	-	-	A	E
Montreal Road & Montgomery Street (Future)	**E**	A	**D**	C	B	C	-	-	A	E
Montreal Road & Vanier Parkway (Pre-Construction)	**F**	A	**F**	C	**F**	C	A	D	D	E
Montreal Road & Vanier Parkway (Future)	**F**	A	A	C	**F**	C	D	D	E	E
McArthur Avenue & North River Road	**F**	A	**F**	C	D	D	-	-	C	E

DRAFT

McArthur Avenue & Marguerite Avenue	**E**	A	D	D	B	D	-	-	A	E
McArthur Avenue & Vanier Parkway	**F**	A	**F**	C	**F**	D	A	D	**F**	E

The pedestrian LOS targets will not be met at the existing or future intersections throughout the study area. As typical for arterial roads, the crossing distance does not permit the targets to be met. To meet pedestrian LOS at all intersections, the maximum crossing distances would need to be no more than two lane widths at all crossings.

The bicycle LOS targets are not met by the pre-construction geometry at Montreal Road and Vanier Parkway but will be met once the Montreal Road Revitalization is complete. The bicycle LOS targets will not be met at Montreal Road and North River Road, Montreal Road and Montgomery Street, McArthur Avenue and North River Road and McArthur Avenue and Vanier Parkway intersection. To meet bicycle LOS at the intersections, the left-turn configurations would need to be two-stage or include turn boxes, and dedicated facilities would be required along the roadways.

The transit LOS targets will not be met in the existing or future condition at the intersections of Montreal Road and North River Road, Montreal Road and Vanier Parkway, and McArthur Road and Vanier Parkway. To meet transit LOS, the delay would need to be reduced to below 30 seconds on all transit movements.

Auto LOS will not be met at the intersection of McArthur Avenue and Vanier Parkway. To meet auto LOS, volumes would need to be reduced in the westbound left-turn and southbound through movements as discussed in Section 7.3.

11.2.4 Recommended Design Elements

No study area intersection design elements are proposed as part of this study.

12 Summary of Improvements Indicated and Modifications Options

The following summarizes the analysis and results presented in this TIA report:

Proposed Site and Screening

- The proposed site includes 204 apartment units
- Accesses will be provided to Montgomery Street and Selkirk Street via full-moves accesses
- The development is proposed to be completed as a single phase by 2026
- The trip generation trigger was met for the TIA Screening
- This report accompanies an Official Plan amendment/zoning by-law amendment

Existing Conditions

- Vanier Parkway, Montreal Road, McArthur Avenue, and North River Road between Montreal Road and McArthur Avenue are arterial roads, and North River Road south of McArthur Avenue is a collector road in the study area
- Sidewalks are generally provided on both sides of the arterial and collector road in the study area and one side on the local roadway
- Cycle lanes are provided along McArthur Avenue, Montreal Road west of North River Road, and Donald Street between North River Road and Vanier Parkway, a shared cycle lane is on Montreal Road west of North River Road, and a MUP is provided on the west side of North River Road

DRAFT

- North River Road is the Rideau River Eastern Pathway. North River Road, Vanier Parkway, and Montreal Road are spine routes
- The high volumes roadways have produced a high number of collisions at the study area intersections, primarily at the McArthur Avenue at Vanier Parkway (69% or 105 collisions) and the next highest collision location at the Montreal Road at Montgomery Street intersection (8% or 12 collisions), predominantly represented by rear end and sideswipe, which are likely due to congested areas.
- Queuing issues and capacity issues are noted on various movements at the intersection of Montreal Road at North River Road, Montreal Road at Vanier Parkway, and McArthur Avenue and Vanier Parkway, and extended queues are noted on southbound movement at the intersection of McArthur Avenue and North River Road during both peak hours

Development Generated Travel Demand

- The proposed development is forecasted produce 82 two-way people trips during the AM peak hour and 81 two-way people trips during the PM peak hour
- Of the forecasted people trips, a total of 31 AM and 33 PM new peak hour two-way vehicle trips are projected as a result of the proposed development based on a 39% AM and 40% PM modal share target
- Of the forecasted trips,10% are anticipated to travel north, 30% to the south, 25% to the east, and 35% to the west

Background Conditions

- The background developments were explicitly included in the background conditions, along with a total background growth of 0.5% per annum along the mainline volumes on Vanier Parkway
- The study area intersections at both background horizons will operate similar to the existing conditions with the notable exception of capacity issues along Vanier Parkway but are generally not seen as creating new capacity issues beyond those currently existing

TDM

- Supportive TDM measures to be included within the proposed development should include:
    - Display local area maps with walking and cycling routes, and transit route information and schedules at major entrances
    - Provide a multimodal travel option information package to new residents
    - Contract with providers to install on-site bikeshare (or other micromobility, e.g. scootershare) and carshare spaces
    - Inclusion of a 1-month Presto card for first time new townhome purchase and apartment rental, with a set time frame for this offer (e.g. 6-months) from the initial opening of the site
    - Unbundle parking cost from purchase or rental costs

NTM

- The site is anticipated to generate approximately 31 to 33 vehicle trips during the peak hours and will access the adjacent roads of Selkirk Street, Montgomery Street and Dundas Street, and are below the NTM thresholds

DRAFT

Transit

- The development is forecasted to generate a peak direction transit trips of 43 outbound AM peak hour trips and 30 inbound PM peak hour trips
- The increases in ridership from site-generated trips would equal about one extra person for route #9 and #19, and about three extra people for route #14, and no addition service is anticipated to be required
- Negligible impacts to the transit movement delay are noted from the additional site traffic volumes

Network Intersection Design

- Generally, the network intersections operate at the future total horizons will operate similarly to the future background conditions
- The pedestrian LOS targets will not be met at the existing or future intersections throughout the study area, which require crossing distances need to be reduced to equal or less than two lane widths
- The bicycle LOS targets are not met at a number of study area intersections and are limited by the lack of dedicated facilities and improved left-turn configurations
- The transit LOS targets will not be met on a number of transit movements throughout the study area and the delay would need to be reduced to below 30 seconds on all transit movements
- Auto LOS will not be met at the intersection of McArthur Avenue and Vanier Parkway and would require reduced volumes on the westbound left-turn and southbound through movements to for improved capacity

13 Next Steps

Following the circulation and review of the TIA, any outstanding comments will be documents within the context of the Official Plan amendment/zoning by-law amendment in the Step 4 Strategy Report. Once remaining TIA Steps are completed and sign-off has been received from City Transportation Project Manager, a signed and stamped final report will be provided to City staff.

DRAFT

Appendix A

TIA Screening Form and PM Certification Form

DRAFT

13 Markham Avenue
Ottawa ON K2G 3Z1

City of Ottawa 2017 TIA Guidelines
Step 1 - Screening Form

Date: 11-Aug-21
Project Number: 2021-092
Project Reference: 337-345 Montgomery and 94 Selkirk Street

1.1 Description of Proposed Development	
Municipal Address	337-345 Monrgomery Street and 94 Selkirk Street
Description of Location	Ward 12, Southeast corner of the Montgomery Street and Selkirk Street
Land Use Classification	Residential Fifth Density Zone (R5C H(25))
Development Size	204 residential unit
Accesses	One full-moves access onto Selkirk Street, and one full-moves service/garbage access onto Montgomery Street
Phase of Development	Single Phase
Buildout Year	2026
TIA Requirement	Full TIA Required

1.2 Trip Generation Trigger		
Land Use Type	Townhomes or apartments	
Development Size	204	Units
Trip Generation Trigger	Yes	

1.3 Location Triggers	
Does the development propose a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit or Spine Bicycle Networks?	No
Is the development in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone?	No
Location Trigger	No

1.4. Safety Triggers	
Are posted speed limits on a boundary street 80 km/hr or greater?	No
Are there any horizontal/vertical curvatures on a boundary street limits sight lines at a proposed driveway?	No
Is the proposed driveway within the area of influence of an adjacent traffic signal or roundabout (i.e. within 300 m of intersection in rural conditions, or within 150 m of intersection in urban/ suburban conditions)?	No
Is the proposed driveway within auxiliary lanes of an intersection?	No
Does the proposed driveway make use of an existing median break that serves an existing site?	No
Is there is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development?	No
Does the development include a drive-thru facility?	No
Safety Trigger	No

TIA Plan Reports

On 14 June 2017, the Council of the City of Ottawa adopted new Transportation Impact Assessment (TIA) Guidelines. In adopting the guidelines, Council established a requirement for those preparing and delivering transportation impact assessments and reports to sign a letter of certification.

Individuals submitting TIA reports will be responsible for all aspects of development-related transportation assessment and reporting, and undertaking such work, in accordance and compliance with the City of Ottawa's Official Plan, the Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines.

By submitting the attached TIA report (and any associated documents) and signing this document, the individual acknowledges that s/he meets the four criteria listed below.

CERTIFICATION

1. I have reviewed and have a sound understanding of the objectives, needs and requirements of the City of Ottawa's Official Plan, Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines;
2. I have a sound knowledge of industry standard practice with respect to the preparation of transportation impact assessment reports, including multi modal level of service review;
3. I have substantial experience (more than 5 years) in undertaking and delivering transportation impact studies (analysis, reporting and geometric design) with strong background knowledge in transportation planning, engineering or traffic operations; and
4. I am either a licensed[1] or registered[2] professional in good standing, whose field of expertise [check √ appropriate field(s)] is either transportation engineering √ or transportation planning □.

[1,2] License of registration body that oversees the profession is required to have a code of conduct and ethics guidelines that will ensure appropriate conduct and representation for transportation planning and/or transportation engineering works.

City Of Ottawa
Infrastructure Services and Community Sustainability
Planning and Growth Management
110 Laurier Avenue West, 4th fl.
Ottawa, ON K1P 1J1
Tel. : 613-580-2424
Fax: 613-560-6006

Ville d'Ottawa
Services d 'infrastructure et Viabilité des collectivités
Urbanisme et Gestion de la croissance
110, avenue Laurier Ouest
Ottawa (Ontario) K1P 1J1
Tél. : 613-580-2424
Télécopieur: 613-560-6006

Dated at ___Ottawa_____ this __20__ day of _____September_____, 2018.
(City)

Name: _____Andrew Harte_____
(Please Print)

Professional Title: _____Professional Engineer_____

_____
Signature of Individual certifier that s/he meets the above four criteria

Office Contact Information (Please Print)
Address: 13 Markham Avenue
City / Postal Code: Ottawa / K2G 3Z1
Telephone / Extension: (613) 697-3797
E-Mail Address: Andrew.Harte@CGHTransportation.com



Appendix B

Turning Movement Counts

DRAFT

Transportation Services - Traffic Services

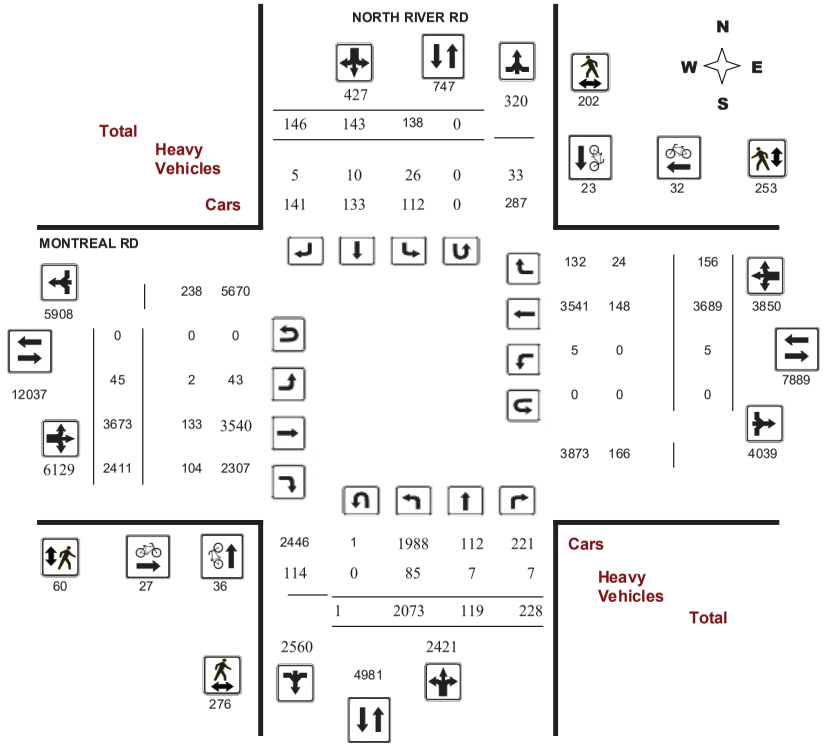
Turning Movement Count - Study Results

MONTREAL RD @ NORTH RIVER RD

Survey Date: Tuesday, March 10, 2020 **WO No:** 39500

Start Time: 07:00 **Device:** Miovision

Full Study Diagram



5475438 - FEB 19, 2020 - 8HRS - CLARA JAJOU

Transportation Services - Traffic Services

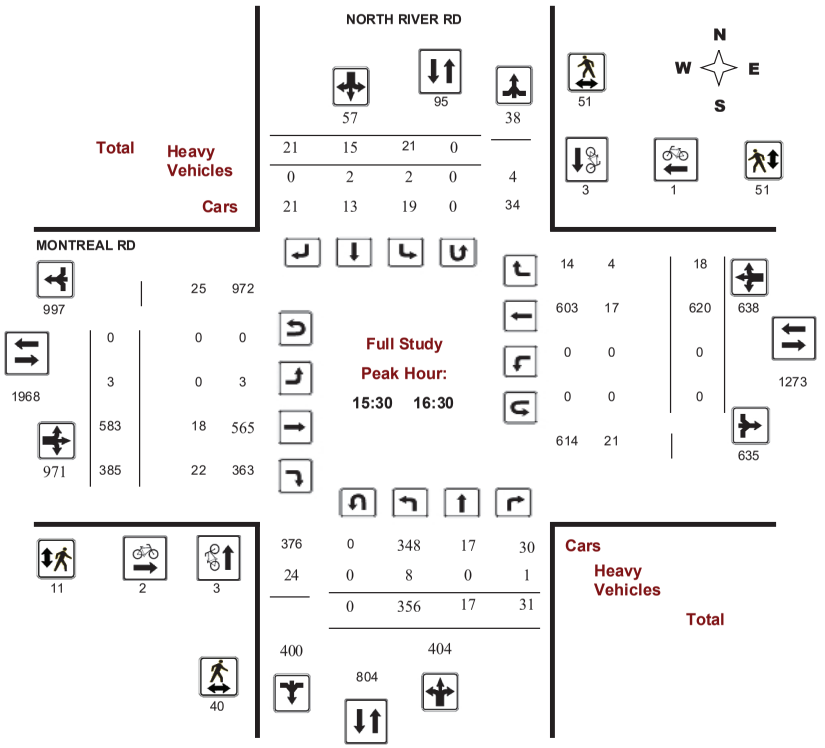
Turning Movement Count - Study Results

MONTREAL RD @ NORTH RIVER RD

Survey Date: Tuesday, March 10, 2020 **WO No:** 39500

Start Time: 07:00 **Device:** Miovision

Full Study Peak Hour Diagram



5475438 - FEB 19, 2020 - 8HRS - CLARA JAJOU

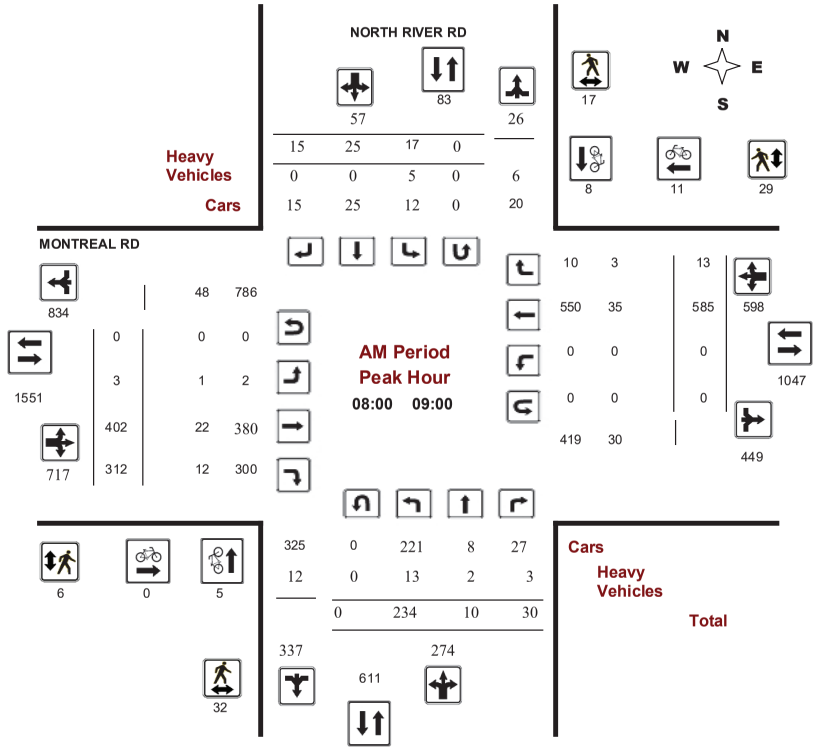
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MONTREAL RD @ NORTH RIVER RD

Survey Date: Tuesday, March 10, 2020 **WO No:** 39500

Start Time: 07:00 **Device:** Miovision



Comments 5475438 - FEB 19, 2020 - 8HRS - CLARA JAJOU

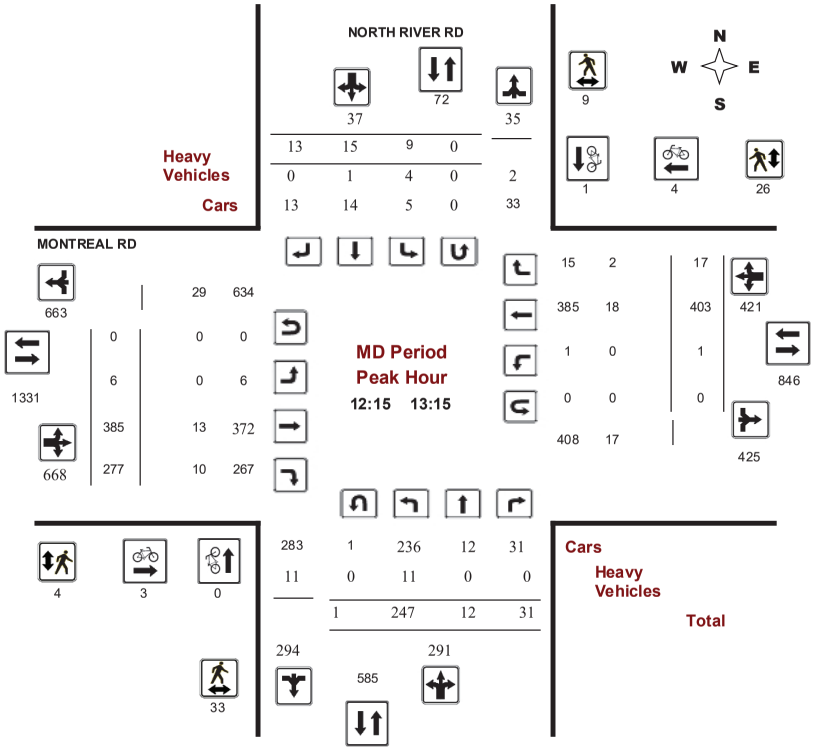
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MONTREAL RD @ NORTH RIVER RD

Survey Date: Tuesday, March 10, 2020 **WO No:** 39500

Start Time: 07:00 **Device:** Miovision



Comments 5475438 - FEB 19, 2020 - 8HRS - CLARA JAJOU

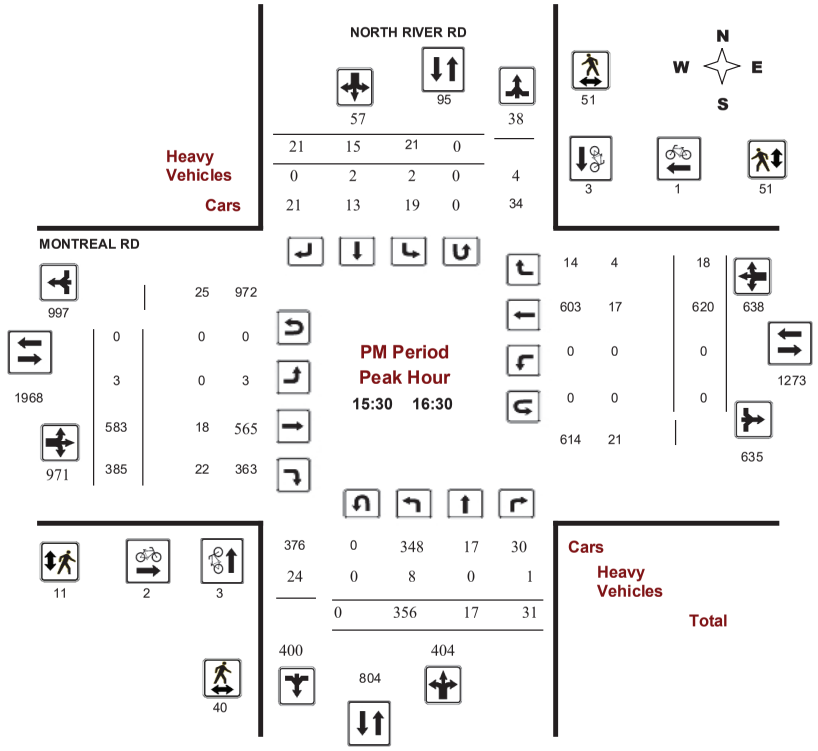
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MONTREAL RD @ NORTH RIVER RD

Survey Date: Tuesday, March 10, 2020 **WO No:** 39500

Start Time: 07:00 **Device:** Miovision



Comments 5475438 - FEB 19, 2020 - 8HRS - CLARA JAJOU

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MONTREAL RD @ NORTH RIVER RD

Survey Date: Tuesday, March 10, 2020 **WO No:** 39500

Start Time: 07:00 **Device:** Miovision

Full Study Summary (8 HR Standard)

Survey Date: Tuesday, March 10, 2020

Total Observed U-Turns

Northbound: 1 Southbound: 0

Eastbound: 0 Westbound: 0

AADT Factor 1.00

	NORTH RIVER RD								MONTREAL RD								
	Northbound				Southbound				Eastbound				Westbound				
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	157	11	14	**182**	19	21	18	**58**	**240**	2	373	265	**640**	0	386	13	**399**	**1039**	**1279**
08:00 09:00	234	10	30	**274**	17	25	15	**57**	**331**	3	402	312	**717**	0	585	13	**598**	**1315**	**1646**
09:00 10:00	184	16	28	**228**	18	19	18	**55**	**283**	8	412	230	**650**	0	381	20	**401**	**1051**	**1334**
11:30 12:30	231	14	28	**273**	20	14	13	**47**	**320**	7	429	265	**701**	3	333	22	**358**	**1059**	**1379**
12:30 13:30	232	13	30	**275**	11	19	10	**40**	**315**	7	384	288	**679**	0	378	19	**397**	**1076**	**1391**
15:00 16:00	391	18	30	**439**	23	19	28	**70**	**509**	5	535	354	**894**	1	605	24	**630**	**1524**	**2033**
16:00 17:00	335	17	39	**391**	12	9	20	**41**	**432**	3	601	353	**957**	0	575	20	**595**	**1552**	**1984**
17:00 18:00	309	20	29	**358**	18	17	24	**59**	**417**	10	537	344	**891**	1	446	25	**472**	**1363**	**1780**
Sub Total	2073	119	228	**2420**	138	143	146	**427**	**2847**	45	3673	2411	**6129**	5	3689	156	**3850**	**9979**	**12826**
U Turns				**1**				**0**	**1**				**0**				**0**	**0**	**1**
Total	2073	119	228	**2421**	138	143	146	**427**	**2848**	45	3673	2411	**6129**	5	3689	156	**3850**	**9979**	**12827**
EQ 12Hr	2881	165	317	**3365**	192	199	203	**594**	**3959**	63	5105	3351	**8519**	7	5128	217	**5352**	**13871**	**17830**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	2716	156	299	**3172**	181	187	191	**559**	**3959**	59	4812	3158	**8029**	7	4833	204	**5044**	**13871**	**17830**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1**					
AVG 24Hr	3557	204	391	**4155**	237	245	251	**733**	**4888**	77	6303	4138	**10518**	9	6331	268	**6607**	**17125**	**22013**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MONTREAL RD @ NORTH RIVER RD

Survey Date: Tuesday, March 10, 2020 **WO No:** 39500

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute Increments

		NORTH RIVER RD									MONTREAL RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	19	3	0	22	2	6	1	9	5	2	81	51	134	0	65	3	68	5	233
07:15	07:30	32	3	7	42	7	7	7	21	9	0	90	59	149	0	90	4	94	9	306
07:30	07:45	45	5	4	54	5	3	3	11	5	0	90	76	166	0	116	3	119	5	350
07:45	08:00	61	0	3	64	5	5	7	17	5	0	112	79	191	0	115	3	118	5	390
08:00	08:15	58	2	7	67	4	8	5	17	6	0	82	79	161	0	147	0	147	6	392
08:15	08:30	53	0	10	63	3	7	5	15	4	0	114	74	188	0	147	3	150	4	416
08:30	08:45	57	3	4	64	5	5	1	11	8	1	100	72	173	0	146	6	152	8	400
08:45	09:00	66	5	9	80	5	5	4	14	5	2	106	87	195	0	145	4	149	5	438
09:00	09:15	43	7	6	56	5	7	6	18	3	2	116	68	186	0	117	5	122	3	382
09:15	09:30	50	1	6	57	7	3	3	13	6	2	99	49	150	0	85	5	90	6	310
09:30	09:45	44	2	10	56	2	4	5	11	6	1	103	61	165	0	86	3	89	6	321
09:45	10:00	47	6	6	59	4	5	4	13	5	3	94	52	149	0	93	7	100	5	321
11:30	11:45	59	5	7	71	5	7	5	17	5	0	109	65	174	0	79	5	84	5	346
11:45	12:00	52	3	7	62	7	2	2	11	2	0	109	75	184	0	77	11	88	2	345
12:00	12:15	58	3	8	69	6	2	1	9	3	6	113	72	191	2	71	3	76	3	345
12:15	12:30	62	3	6	72	2	3	5	10	5	1	98	53	152	1	106	3	110	5	344
12:30	12:45	56	1	5	62	3	5	2	10	4	2	90	80	172	0	104	6	110	4	354
12:45	13:00	65	6	10	81	1	3	3	7	4	3	83	67	153	0	86	3	89	4	330
13:00	13:15	64	2	10	76	3	4	3	10	3	0	114	77	191	0	107	5	112	3	389
13:15	13:30	47	4	5	56	4	7	2	13	10	2	97	64	163	0	81	5	86	10	318
15:00	15:15	104	3	6	113	6	3	5	14	6	1	117	83	201	0	132	9	141	6	469
15:15	15:30	99	7	15	121	3	6	12	21	4	2	118	69	189	1	164	5	170	4	501
15:30	15:45	99	3	6	108	8	6	2	16	6	1	152	115	268	0	134	6	140	6	532
15:45	16:00	89	5	3	97	6	4	9	19	2	1	148	87	236	0	175	4	179	2	531
16:00	16:15	84	7	8	99	1	3	7	11	4	0	143	85	228	0	159	3	162	4	500
16:15	16:30	84	2	14	100	6	2	3	11	1	1	140	98	239	0	152	5	157	1	507
16:30	16:45	85	4	10	99	2	3	2	7	3	0	161	85	246	0	140	5	145	3	497
16:45	17:00	82	4	7	93	3	1	8	12	2	2	157	85	244	0	124	7	131	2	480
17:00	17:15	92	3	10	105	5	4	7	16	4	0	156	89	245	1	131	10	142	4	508
17:15	17:30	78	5	6	89	3	4	8	15	2	5	132	82	219	0	115	5	120	2	443
17:30	17:45	79	6	9	94	4	2	4	10	2	3	133	88	224	0	96	6	102	2	430
17:45	18:00	60	6	4	70	6	7	5	18	1	2	116	85	203	0	104	4	108	1	399
Total:		2073	119	228	2421	138	143	146	427	140	45	3673	2411	6129	5	3689	156	3850	140	12,827

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MONTREAL RD @ NORTH RIVER RD

Survey Date: Tuesday, March 10, 2020 **WO No:** 39500

Start Time: 07:00 **Device:** Miovision

Full Study Cyclist Volume

		NORTH RIVER RD			MONTREAL RD			
Time Period		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	1	3	4	0	1	1	5
07:15	07:30	1	2	3	0	3	3	6
07:30	07:45	2	0	2	0	0	0	2
07:45	08:00	1	1	2	0	1	1	3
08:00	08:15	2	2	4	0	3	3	7
08:15	08:30	2	1	3	0	6	6	9
08:30	08:45	1	3	4	0	2	2	6
08:45	09:00	0	2	2	0	0	0	2
09:00	09:15	1	0	1	1	3	4	5
09:15	09:30	1	0	1	0	1	1	2
09:30	09:45	0	0	0	1	0	1	1
09:45	10:00	1	0	1	0	0	0	1
11:30	11:45	0	0	0	2	0	2	2
11:45	12:00	0	0	0	0	2	2	2
12:00	12:15	1	0	1	1	0	1	2
12:15	12:30	0	0	0	1	1	2	2
12:30	12:45	0	0	0	0	1	1	1
12:45	13:00	0	0	0	0	1	1	1
13:00	13:15	0	1	1	2	1	3	4
13:15	13:30	1	0	1	0	1	1	2
15:00	15:15	0	0	0	1	0	1	1
15:15	15:30	2	0	2	3	1	4	6
15:30	15:45	0	0	0	0	1	1	1
15:45	16:00	1	1	2	1	0	1	3
16:00	16:15	2	1	3	1	0	1	4
16:15	16:30	0	1	1	0	0	0	1
16:30	16:45	6	0	6	4	1	5	11
16:45	17:00	1	0	1	2	0	2	3
17:00	17:15	3	5	8	0	0	0	8
17:15	17:30	2	0	2	1	1	2	4
17:30	17:45	3	0	3	5	0	5	8
17:45	18:00	1	0	1	1	1	2	3
Total		36	23	**59**	27	32	59	118

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MONTREAL RD @ NORTH RIVER RD

Survey Date: Tuesday, March 10, 2020 **WO No:** 39500

Start Time: 07:00 **Device:** Miovision

Full Study Pedestrian Volume

		NORTH RIVER RD			MONTREAL RD			
Time Period		NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00	07:15	3	7	**10**	2	5	**7**	**17**
07:15	07:30	3	4	**7**	0	4	**4**	**11**
07:30	07:45	7	0	**7**	0	7	**7**	**14**
07:45	08:00	8	3	**11**	2	10	**12**	**23**
08:00	08:15	5	9	**14**	2	9	**11**	**25**
08:15	08:30	13	0	**13**	1	8	**9**	**22**
08:30	08:45	5	6	**11**	2	6	**8**	**19**
08:45	09:00	9	2	**11**	1	6	**7**	**18**
09:00	09:15	7	4	**11**	0	11	**11**	**22**
09:15	09:30	3	4	**7**	3	5	**8**	**15**
09:30	09:45	7	0	**7**	0	7	**7**	**14**
09:45	10:00	4	4	**8**	0	2	**2**	**10**
11:30	11:45	12	8	**20**	1	3	**4**	**24**
11:45	12:00	7	7	**14**	6	5	**11**	**25**
12:00	12:15	10	6	**16**	1	4	**5**	**21**
12:15	12:30	11	1	**12**	0	6	**6**	**18**
12:30	12:45	6	4	**10**	1	9	**10**	**20**
12:45	13:00	4	4	**8**	2	9	**11**	**19**
13:00	13:15	12	0	**12**	1	2	**3**	**15**
13:15	13:30	5	1	**6**	2	4	**6**	**12**
15:00	15:15	8	3	**11**	2	5	**7**	**18**
15:15	15:30	11	12	**23**	2	9	**11**	**34**
15:30	15:45	11	17	**28**	5	12	**17**	**45**
15:45	16:00	8	16	**24**	3	11	**14**	**38**
16:00	16:15	15	6	**21**	2	12	**14**	**35**
16:15	16:30	6	12	**18**	1	16	**17**	**35**
16:30	16:45	16	8	**24**	4	10	**14**	**38**
16:45	17:00	8	15	**23**	4	10	**14**	**37**
17:00	17:15	19	12	**31**	3	11	**14**	**45**
17:15	17:30	13	7	**20**	3	8	**11**	**31**
17:30	17:45	9	9	**18**	3	17	**20**	**38**
17:45	18:00	11	11	**22**	1	10	**11**	**33**
Total		276	202	**478**	60	253	**313**	**791**

5475438 - FEB 19, 2020 - 8HRS - CLARA JAJOU

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MONTREAL RD @ NORTH RIVER RD

Survey Date: Tuesday, March 10, 2020 **WO No:** 39500

Start Time: 07:00 **Device:** Miovision

Full Study Heavy Vehicles

		NORTH RIVER RD									MONTREAL RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	4	1	0	**5**	0	0	0	**0**	**5**	0	4	2	**6**	0	2	1	**3**	**9**	**14**
07:15	07:30	4	1	0	**5**	2	0	2	**4**	**9**	0	7	4	**11**	0	6	3	**9**	**20**	**29**
07:30	07:45	3	1	0	**4**	1	0	0	**1**	**5**	0	4	1	**5**	0	8	0	**8**	**13**	**18**
07:45	08:00	4	0	0	**4**	1	0	0	**1**	**5**	0	6	3	**9**	0	5	1	**6**	**15**	**20**
08:00	08:15	2	0	2	**4**	2	0	0	**2**	**6**	0	3	5	**8**	0	13	0	**13**	**21**	**27**
08:15	08:30	4	0	0	**4**	0	0	0	**0**	**4**	0	8	2	**10**	0	6	1	**7**	**17**	**21**
08:30	08:45	5	1	0	**6**	2	0	0	**2**	**8**	0	3	1	**4**	0	5	2	**7**	**11**	**19**
08:45	09:00	2	1	1	**4**	1	0	0	**1**	**5**	1	8	4	**13**	0	11	0	**11**	**24**	**29**
09:00	09:15	2	0	0	**2**	0	0	1	**1**	**3**	0	4	6	**10**	0	8	2	**10**	**20**	**23**
09:15	09:30	4	0	0	**4**	2	0	0	**2**	**6**	0	9	2	**11**	0	6	1	**7**	**18**	**24**
09:30	09:45	5	0	0	**5**	0	1	0	**1**	**6**	0	6	3	**9**	0	4	0	**4**	**13**	**19**
09:45	10:00	3	0	0	**3**	1	0	1	**2**	**5**	0	1	5	**6**	0	4	0	**4**	**10**	**15**
11:30	11:45	3	0	0	**3**	1	1	0	**2**	**5**	0	4	2	**6**	0	4	1	**5**	**11**	**16**
11:45	12:00	1	0	0	**1**	1	0	0	**1**	**2**	0	4	3	**7**	0	3	1	**4**	**11**	**13**
12:00	12:15	3	0	0	**3**	0	0	0	**0**	**3**	1	4	2	**7**	0	3	0	**3**	**10**	**13**
12:15	12:30	4	0	0	**4**	1	0	0	**1**	**5**	0	4	3	**7**	0	5	0	**5**	**12**	**17**
12:30	12:45	2	0	0	**2**	1	1	0	**2**	**4**	0	3	1	**4**	0	4	0	**4**	**8**	**12**
12:45	13:00	3	0	0	**3**	1	0	0	**1**	**4**	0	2	2	**4**	0	4	1	**5**	**9**	**13**
13:00	13:15	2	0	0	**2**	1	0	0	**1**	**3**	0	4	4	**8**	0	5	1	**6**	**14**	**17**
13:15	13:30	3	1	1	**5**	3	2	0	**5**	**10**	0	5	5	**10**	0	2	1	**3**	**13**	**23**
15:00	15:15	2	0	1	**3**	2	1	0	**3**	**6**	0	2	0	**2**	0	4	3	**7**	**9**	**15**
15:15	15:30	2	0	0	**2**	0	2	0	**2**	**4**	0	2	4	**6**	0	4	0	**4**	**10**	**14**
15:30	15:45	2	0	1	**3**	1	2	0	**3**	**6**	0	8	6	**14**	0	5	2	**7**	**21**	**27**
15:45	16:00	1	0	0	**1**	1	0	0	**1**	**2**	0	3	6	**9**	0	3	1	**4**	**13**	**15**
16:00	16:15	4	0	0	**4**	0	0	0	**0**	**4**	0	3	6	**9**	0	5	1	**6**	**15**	**19**
16:15	16:30	1	0	0	**1**	0	0	0	**0**	**1**	0	4	4	**8**	0	4	0	**4**	**12**	**13**
16:30	16:45	2	0	1	**3**	0	0	0	**0**	**3**	0	4	5	**9**	0	4	0	**4**	**13**	**16**
16:45	17:00	1	1	0	**2**	0	0	0	**0**	**2**	0	2	1	**3**	0	2	0	**2**	**5**	**7**
17:00	17:15	3	0	0	**3**	1	0	0	**1**	**4**	0	4	3	**7**	0	2	0	**2**	**9**	**13**
17:15	17:30	1	0	0	**1**	0	0	1	**1**	**2**	0	4	7	**11**	0	4	0	**4**	**15**	**17**
17:30	17:45	2	0	0	**2**	0	0	0	**0**	**2**	0	3	0	**3**	0	1	1	**2**	**5**	**7**
17:45	18:00	1	0	0	**1**	0	0	0	**0**	**1**	0	1	2	**3**	0	2	0	**2**	**5**	**6**
Total:	None	85	7	7	**99**	26	10	5	**41**	**140**	2	133	104	**239**	0	148	24	**172**	**411**	**551**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MONTREAL RD @ NORTH RIVER RD

Survey Date: Tuesday, March 10, 2020 **WO No:** 39500

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute U-Turn Total

Time Period		NORTH RIVER RD Northbound U-Turn Total	NORTH RIVER RD Southbound U-Turn Total	MONTREAL RD Eastbound U-Turn Total	MONTREAL RD Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	1	0	0	0	1
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		1	0	0	0	1

Transportation Services - Traffic Services

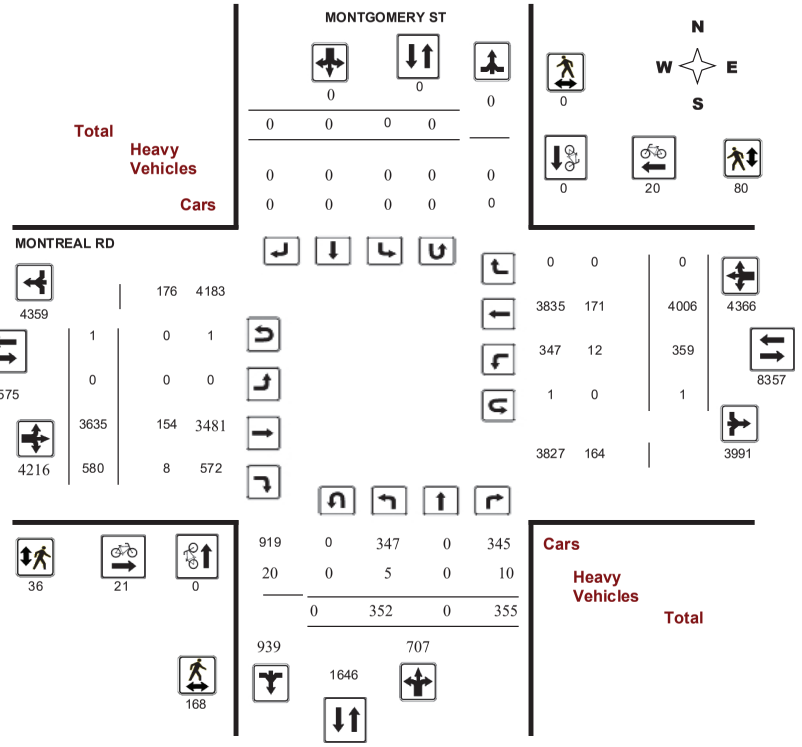
Turning Movement Count - Study Results

MONTGOMERY ST @ MONTREAL RD

Survey Date: Wednesday, February 19, 2020 **WO No:** 39501

Start Time: 07:00 **Device:** Miovision

Full Study Diagram


MONTGOMERY ST
MONTREAL RD
N
W
E
S
Total
Heavy Vehicles
Cars
0
0
0

Transportation Services - Traffic Services

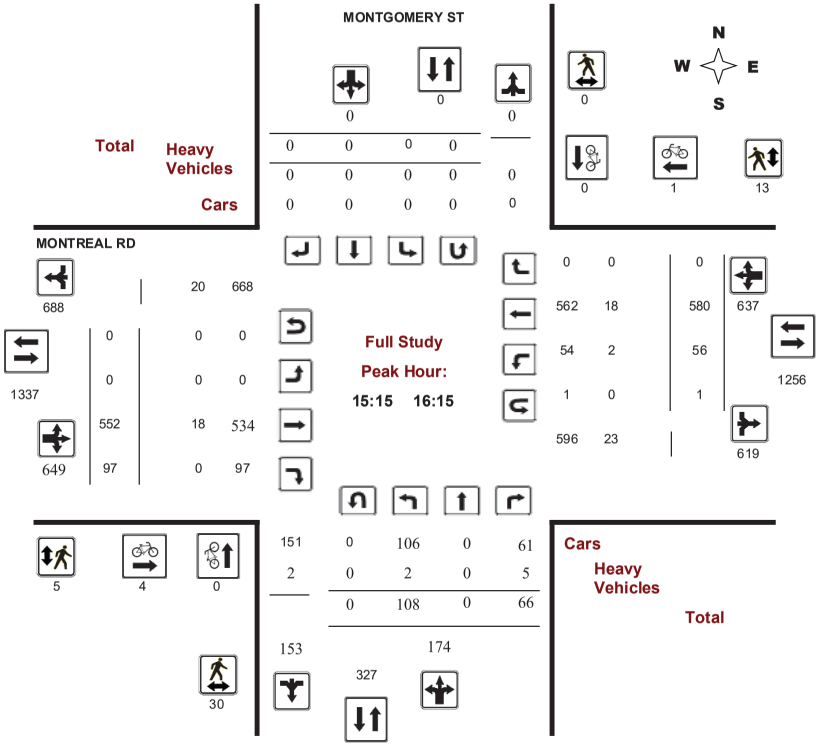
Turning Movement Count - Study Results

MONTGOMERY ST @ MONTREAL RD

Survey Date: Wednesday, February 19, 2020 **WO No:** 39501

Start Time: 07:00 **Device:** Miovision

Full Study Peak Hour Diagram



5475439 - FEB 19, 2020 - 8HRS - CLARA JAJOU

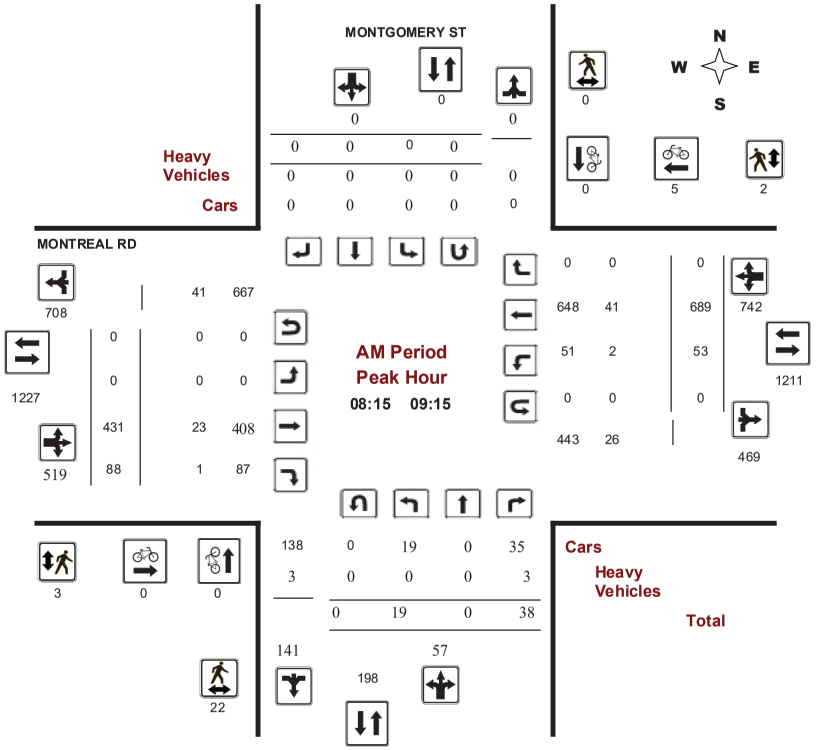
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MONTGOMERY ST @ MONTREAL RD

Survey Date: Wednesday, February 19, 2020 **WO No:** 39501

Start Time: 07:00 **Device:** Miovision



Comments 5475439 - FEB 19, 2020 - 8HRS - CLARA JAJOU

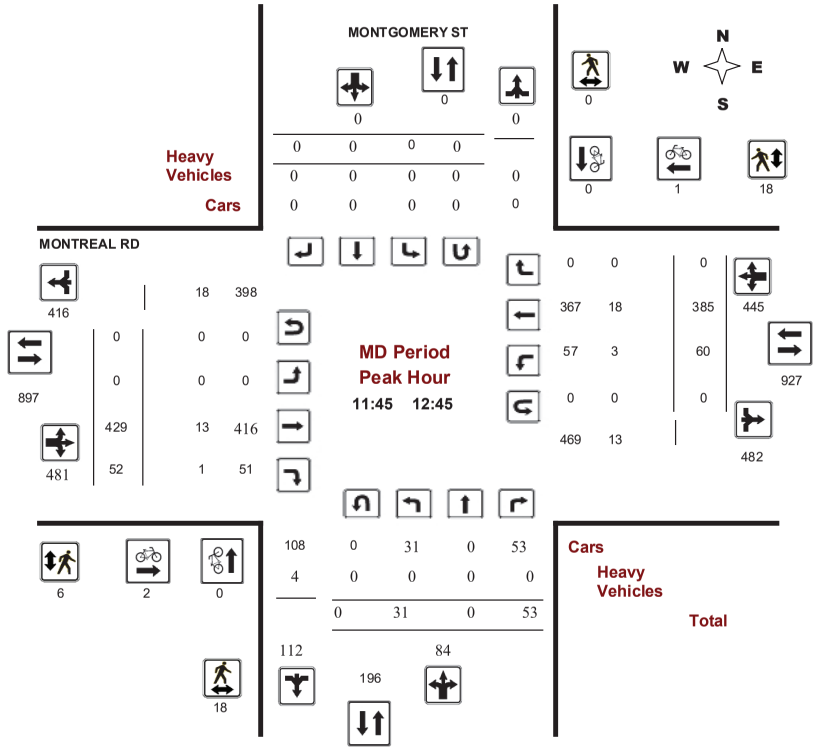
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MONTGOMERY ST @ MONTREAL RD

Survey Date: Wednesday, February 19, 2020 **WO No:** 39501

Start Time: 07:00 **Device:** Miovision



Comments 5475439 - FEB 19, 2020 - 8HRS - CLARA JAJOU

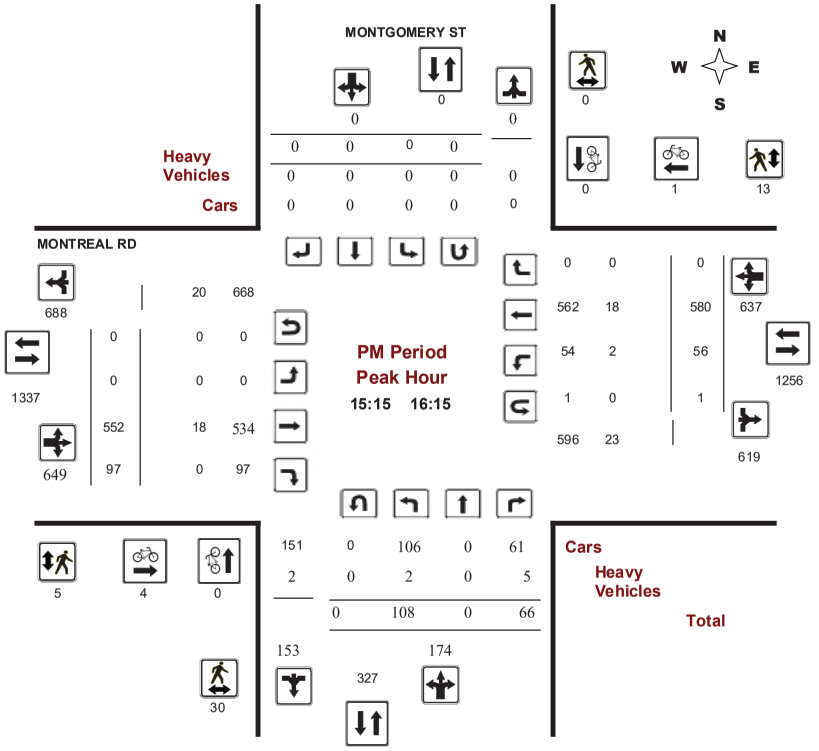
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MONTGOMERY ST @ MONTREAL RD

Survey Date: Wednesday, February 19, 2020 **WO No:** 39501

Start Time: 07:00 **Device:** Miovision



Comments 5475439 - FEB 19, 2020 - 8HRS - CLARA JAJOU

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MONTGOMERY ST @ MONTREAL RD

Survey Date: Wednesday, February 19, 2020 **WO No:** 39501

Start Time: 07:00 **Device:** Miovision

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, February 19, 2020

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 1 Westbound: 1

AADT Factor

1.00

	MONTGOMERY ST									MONTREAL RD									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	8	0	16	**24**	0	0	0	**0**	**24**	0	364	63	**427**	31	444	0	**475**	**902**	**926**
08:00 09:00	20	0	34	**54**	0	0	0	**0**	**54**	0	443	88	**531**	42	670	0	**712**	**1243**	**1297**
09:00 10:00	13	0	31	**44**	0	0	0	**0**	**44**	0	387	71	**458**	52	482	0	**534**	**992**	**1036**
11:30 12:30	35	0	46	**81**	0	0	0	**0**	**81**	0	426	56	**482**	52	386	0	**438**	**920**	**1001**
12:30 13:30	28	0	55	**83**	0	0	0	**0**	**83**	0	410	50	**460**	57	344	0	**401**	**861**	**944**
15:00 16:00	105	0	66	**171**	0	0	0	**0**	**171**	0	540	78	**618**	53	594	0	**647**	**1265**	**1436**
16:00 17:00	87	0	58	**145**	0	0	0	**0**	**145**	0	525	93	**618**	41	581	0	**622**	**1240**	**1385**
17:00 18:00	56	0	49	**105**	0	0	0	**0**	**105**	0	540	81	**621**	31	505	0	**536**	**1157**	**1262**
Sub Total	352	0	355	**707**	0	0	0	**0**	**707**	0	3635	580	**4215**	359	4006	0	**4365**	**8580**	**9287**
U Turns				**0**				**0**	**0**				**1**				**1**	**2**	**2**
Total	352	0	355	**707**	0	0	0	**0**	**707**	0	3635	580	**4216**	359	4006	0	**4366**	**8582**	**9289**
EQ 12Hr	489	0	493	**983**	0	0	0	**0**	**983**	0	5053	806	**5860**	499	5568	0	**6069**	**11929**	**12912**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	461	0	465	**926**	0	0	0	**0**	**983**	0	4762	760	**5523**	470	5248	0	**5719**	**11929**	**12912**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1**					
AVG 24Hr	604	0	609	**1213**	0	0	0	**0**	**1213**	0	6238	995	**7235**	616	6875	0	**7492**	**14727**	**15940**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MONTGOMERY ST @ MONTREAL RD

Survey Date: Wednesday, February 19, 2020 **WO No:** 39501

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute Increments

		MONTGOMERY ST									MONTREAL RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	4	0	2	6	0	0	0	0	0	0	78	16	94	7	79	0	86	0	186
07:15	07:30	0	0	3	3	0	0	0	0	1	0	77	12	89	11	103	0	114	1	206
07:30	07:45	1	0	6	7	0	0	0	0	1	0	90	20	110	3	116	0	119	1	236
07:45	08:00	3	0	5	8	0	0	0	0	1	0	119	15	134	10	146	0	156	1	298
08:00	08:15	7	0	4	11	0	0	0	0	2	0	117	23	140	2	149	0	151	2	302
08:15	08:30	1	0	10	11	0	0	0	0	0	0	118	21	139	11	180	0	191	0	341
08:30	08:45	3	0	11	14	0	0	0	0	2	0	107	21	128	11	177	0	188	2	330
08:45	09:00	9	0	9	18	0	0	0	0	1	0	101	23	124	18	164	0	182	1	324
09:00	09:15	6	0	8	14	0	0	0	0	0	0	105	23	128	13	168	0	181	0	323
09:15	09:30	2	0	9	11	0	0	0	0	0	0	84	19	103	15	113	0	128	0	242
09:30	09:45	4	0	10	14	0	0	0	0	0	0	90	16	106	13	101	0	114	0	234
09:45	10:00	1	0	4	5	0	0	0	0	0	0	108	13	121	11	100	0	111	0	237
11:30	11:45	11	0	7	18	0	0	0	0	0	0	102	14	116	12	91	0	103	0	237
11:45	12:00	10	0	7	17	0	0	0	0	0	0	109	10	119	13	89	0	102	0	238
12:00	12:15	11	0	18	29	0	0	0	0	0	0	109	15	124	11	109	0	120	0	273
12:15	12:30	3	0	14	17	0	0	0	0	0	0	106	17	123	16	97	0	113	0	253
12:30	12:45	7	0	14	21	0	0	0	0	0	0	105	10	115	20	90	0	110	0	246
12:45	13:00	8	0	13	21	0	0	0	0	0	0	90	15	105	15	83	0	98	0	224
13:00	13:15	9	0	17	26	0	0	0	0	0	0	103	15	118	15	88	0	103	0	247
13:15	13:30	4	0	11	15	0	0	0	0	0	0	112	10	122	7	83	0	90	0	227
15:00	15:15	20	0	19	39	0	0	0	0	0	0	120	10	131	10	154	0	164	0	334
15:15	15:30	33	0	13	46	0	0	0	0	1	0	117	18	135	12	155	0	168	1	349
15:30	15:45	33	0	15	48	0	0	0	0	3	0	161	26	187	10	123	0	133	3	368
15:45	16:00	19	0	19	38	0	0	0	0	2	0	142	24	166	21	162	0	183	2	387
16:00	16:15	23	0	19	42	0	0	0	0	1	0	132	29	161	13	140	0	153	1	356
16:15	16:30	22	0	14	36	0	0	0	0	0	0	134	24	158	7	146	0	153	0	347
16:30	16:45	13	0	14	27	0	0	0	0	0	0	121	18	139	11	163	0	174	0	340
16:45	17:00	29	0	11	40	0	0	0	0	0	0	138	22	160	10	132	0	142	0	342
17:00	17:15	15	0	15	30	0	0	0	0	0	0	152	20	172	8	145	0	153	0	355
17:15	17:30	16	0	11	27	0	0	0	0	0	0	131	25	156	9	133	0	142	0	325
17:30	17:45	12	0	6	18	0	0	0	0	0	0	144	19	163	7	124	0	131	0	312
17:45	18:00	13	0	17	30	0	0	0	0	0	0	113	17	130	7	103	0	110	0	270
Total:		352	0	355	707	0	0	0	0	15	0	3635	580	4216	359	4006	0	4366	15	9,289

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MONTGOMERY ST @ MONTREAL RD

Survey Date: Wednesday, February 19, 2020 **WO No:** 39501

Start Time: 07:00 **Device:** Miovision

Full Study Cyclist Volume

Time Period		MONTGOMERY ST Northbound	MONTGOMERY ST Southbound	MONTGOMERY ST Street Total	MONTREAL RD Eastbound	MONTREAL RD Westbound	MONTREAL RD Street Total	Grand Total
07:00	07:15	0	0	0	0	2	2	2
07:15	07:30	0	0	0	0	0	0	0
07:30	07:45	0	0	0	0	1	1	1
07:45	08:00	0	0	0	0	1	1	1
08:00	08:15	0	0	0	0	1	1	1
08:15	08:30	0	0	0	0	1	1	1
08:30	08:45	0	0	0	0	2	2	2
08:45	09:00	0	0	0	0	2	2	2
09:00	09:15	0	0	0	0	0	0	0
09:15	09:30	0	0	0	0	1	1	1
09:30	09:45	0	0	0	0	0	0	0
09:45	10:00	0	0	0	0	1	1	1
11:30	11:45	0	0	0	0	3	3	3
11:45	12:00	0	0	0	0	1	1	1
12:00	12:15	0	0	0	0	0	0	0
12:15	12:30	0	0	0	0	0	0	0
12:30	12:45	0	0	0	2	0	2	2
12:45	13:00	0	0	0	0	0	0	0
13:00	13:15	0	0	0	0	0	0	0
13:15	13:30	0	0	0	0	0	0	0
15:00	15:15	0	0	0	0	0	0	0
15:15	15:30	0	0	0	0	0	0	0
15:30	15:45	0	0	0	2	0	2	2
15:45	16:00	0	0	0	1	0	1	1
16:00	16:15	0	0	0	1	1	2	2
16:15	16:30	0	0	0	2	0	2	2
16:30	16:45	0	0	0	2	0	2	2
16:45	17:00	0	0	0	0	0	0	0
17:00	17:15	0	0	0	2	0	2	2
17:15	17:30	0	0	0	2	0	2	2
17:30	17:45	0	0	0	4	3	7	7
17:45	18:00	0	0	0	3	0	3	3
Total		0	0	**0**	21	20	41	41

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MONTGOMERY ST @ MONTREAL RD

Survey Date: Wednesday, February 19, 2020 **WO No:** 39501

Start Time: 07:00 **Device:** Miovision

Full Study Pedestrian Volume

Time Period	MONTGOMERY ST NB Approach (E or W Crossing)	MONTGOMERY ST SB Approach (E or W Crossing)	MONTGOMERY ST Total	MONTREAL RD EB Approach (N or S Crossing)	MONTREAL RD WB Approach (N or S Crossing)	MONTREAL RD Total	Grand Total
07:00 07:15	2	0	**2**	0	0	**0**	**2**
07:15 07:30	3	0	**3**	0	0	**0**	**3**
07:30 07:45	2	0	**2**	3	2	**5**	**7**
07:45 08:00	1	0	**1**	0	2	**2**	**3**
08:00 08:15	6	0	**6**	0	0	**0**	**6**
08:15 08:30	11	0	**11**	1	0	**1**	**12**
08:30 08:45	5	0	**5**	1	0	**1**	**6**
08:45 09:00	5	0	**5**	1	2	**3**	**8**
09:00 09:15	1	0	**1**	0	0	**0**	**1**
09:15 09:30	4	0	**4**	1	3	**4**	**8**
09:30 09:45	3	0	**3**	0	1	**1**	**4**
09:45 10:00	3	0	**3**	0	2	**2**	**5**
11:30 11:45	4	0	**4**	3	3	**6**	**10**
11:45 12:00	2	0	**2**	2	2	**4**	**6**
12:00 12:15	7	0	**7**	2	8	**10**	**17**
12:15 12:30	4	0	**4**	1	2	**3**	**7**
12:30 12:45	5	0	**5**	1	6	**7**	**12**
12:45 13:00	6	0	**6**	1	5	**6**	**12**
13:00 13:15	9	0	**9**	1	4	**5**	**14**
13:15 13:30	4	0	**4**	0	1	**1**	**5**
15:00 15:15	2	0	**2**	1	2	**3**	**5**
15:15 15:30	7	0	**7**	1	7	**8**	**15**
15:30 15:45	9	0	**9**	1	2	**3**	**12**
15:45 16:00	6	0	**6**	2	1	**3**	**9**
16:00 16:15	8	0	**8**	1	3	**4**	**12**
16:15 16:30	9	0	**9**	1	3	**4**	**13**
16:30 16:45	6	0	**6**	1	5	**6**	**12**
16:45 17:00	1	0	**1**	3	1	**4**	**5**
17:00 17:15	5	0	**5**	5	1	**6**	**11**
17:15 17:30	12	0	**12**	1	7	**8**	**20**
17:30 17:45	11	0	**11**	1	1	**2**	**13**
17:45 18:00	5	0	**5**	0	4	**4**	**9**
Total	168	0	**168**	36	80	**116**	**284**

5475439 - FEB 19, 2020 - 8HRS - CLARA JAJOU

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MONTGOMERY ST @ MONTREAL RD

Survey Date: Wednesday, February 19, 2020 **WO No:** 39501

Start Time: 07:00 **Device:** Miovision

Full Study Heavy Vehicles

		MONTGOMERY ST									MONTREAL RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	0	0	**0**	0	0	0	**0**	**0**	0	4	1	**5**	0	7	0	**7**	**12**	**12**
07:15	07:30	0	0	1	**1**	0	0	0	**0**	**1**	0	8	0	**8**	1	6	0	**7**	**15**	**16**
07:30	07:45	0	0	1	**1**	0	0	0	**0**	**1**	0	5	0	**5**	0	6	0	**6**	**11**	**12**
07:45	08:00	1	0	0	**1**	0	0	0	**0**	**1**	0	9	0	**9**	0	9	0	**9**	**18**	**19**
08:00	08:15	2	0	0	**2**	0	0	0	**0**	**2**	0	5	1	**6**	0	9	0	**9**	**15**	**17**
08:15	08:30	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**2**	1	7	0	**8**	**10**	**10**
08:30	08:45	0	0	2	**2**	0	0	0	**0**	**2**	0	7	1	**8**	0	12	0	**12**	**20**	**22**
08:45	09:00	0	0	1	**1**	0	0	0	**0**	**1**	0	7	0	**7**	1	9	0	**10**	**17**	**18**
09:00	09:15	0	0	0	**0**	0	0	0	**0**	**0**	0	7	0	**7**	0	13	0	**13**	**20**	**20**
09:15	09:30	0	0	0	**0**	0	0	0	**0**	**0**	0	8	2	**10**	2	5	0	**7**	**17**	**17**
09:30	09:45	0	0	0	**0**	0	0	0	**0**	**0**	0	2	1	**3**	1	5	0	**6**	**9**	**9**
09:45	10:00	0	0	0	**0**	0	0	0	**0**	**0**	0	8	0	**8**	0	5	0	**5**	**13**	**13**
11:30	11:45	0	0	0	**0**	0	0	0	**0**	**0**	0	5	0	**5**	0	4	0	**4**	**9**	**9**
11:45	12:00	0	0	0	**0**	0	0	0	**0**	**0**	0	3	0	**3**	1	3	0	**4**	**7**	**7**
12:00	12:15	0	0	0	**0**	0	0	0	**0**	**0**	0	2	1	**3**	0	5	0	**5**	**8**	**8**
12:15	12:30	0	0	0	**0**	0	0	0	**0**	**0**	0	6	0	**6**	0	4	0	**4**	**10**	**10**
12:30	12:45	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**2**	2	6	0	**8**	**10**	**10**
12:45	13:00	0	0	0	**0**	0	0	0	**0**	**0**	0	3	0	**3**	0	3	0	**3**	**6**	**6**
13:00	13:15	0	0	0	**0**	0	0	0	**0**	**0**	0	5	0	**5**	0	2	0	**2**	**7**	**7**
13:15	13:30	0	0	0	**0**	0	0	0	**0**	**0**	0	6	0	**6**	0	4	0	**4**	**10**	**10**
15:00	15:15	0	0	0	**0**	0	0	0	**0**	**0**	0	6	0	**6**	1	6	0	**7**	**13**	**13**
15:15	15:30	0	0	1	**1**	0	0	0	**0**	**1**	0	4	0	**4**	1	5	0	**6**	**10**	**11**
15:30	15:45	1	0	2	**3**	0	0	0	**0**	**3**	0	4	0	**4**	0	4	0	**4**	**8**	**11**
15:45	16:00	1	0	1	**2**	0	0	0	**0**	**2**	0	5	0	**5**	0	4	0	**4**	**9**	**11**
16:00	16:15	0	0	1	**1**	0	0	0	**0**	**1**	0	5	0	**5**	1	5	0	**6**	**11**	**12**
16:15	16:30	0	0	0	**0**	0	0	0	**0**	**0**	0	4	0	**4**	0	5	0	**5**	**9**	**9**
16:30	16:45	0	0	0	**0**	0	0	0	**0**	**0**	0	6	1	**7**	0	5	0	**5**	**12**	**12**
16:45	17:00	0	0	0	**0**	0	0	0	**0**	**0**	0	4	0	**4**	0	3	0	**3**	**7**	**7**
17:00	17:15	0	0	0	**0**	0	0	0	**0**	**0**	0	4	0	**4**	0	2	0	**2**	**6**	**6**
17:15	17:30	0	0	0	**0**	0	0	0	**0**	**0**	0	5	0	**5**	0	3	0	**3**	**8**	**8**
17:30	17:45	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**2**	0	3	0	**3**	**5**	**5**
17:45	18:00	0	0	0	**0**	0	0	0	**0**	**0**	0	1	0	**1**	0	2	0	**2**	**3**	**3**
Total:	None	5	0	10	**15**	0	0	0	**0**	**15**	0	154	8	**162**	12	171	0	**183**	**345**	**360**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MONTGOMERY ST @ MONTREAL RD

Survey Date: Wednesday, February 19, 2020 **WO No:** 39501

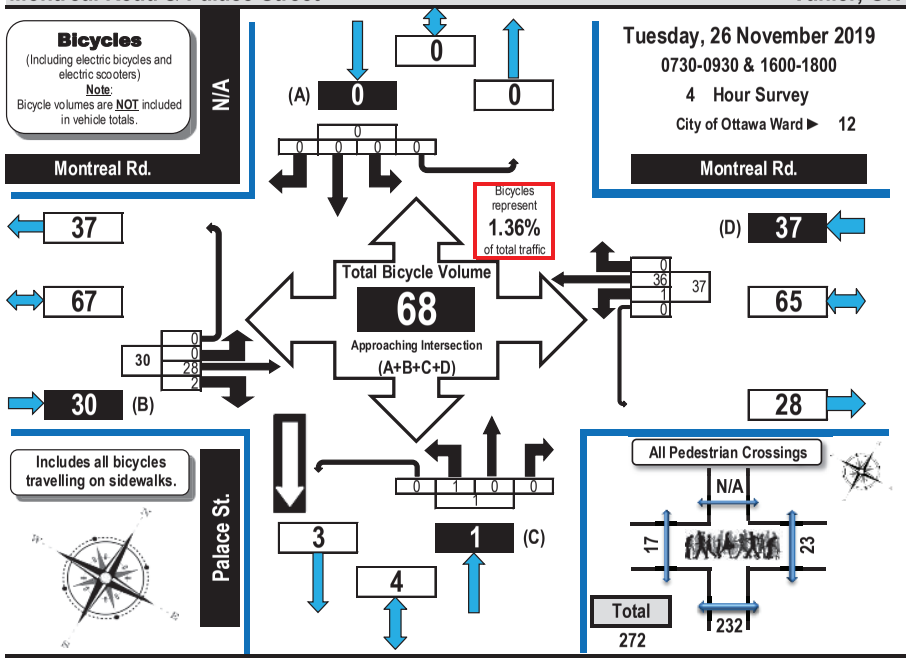
Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute U-Turn Total

		MONTGOMERY ST	MONTGOMERY ST	MONTREAL RD	MONTREAL RD	
Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	1	0	1
15:15	15:30	0	0	0	1	1
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		0	0	1	1	2

Turning Movement Count
Bicycle Summary
Flow Diagram

Montreal Road & Palace Street — **Vanier, ON**



	Montreal Rd. Eastbound					Montreal Rd. Westbound					Palace St. Northbound					N/A Southbound					
Time Period	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	G.Tot.
0730-0800	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	5
0800-0900	0	3	0	0	3	0	13	0	0	13	0	0	0	0	0	0	0	0	0	0	16
0900-0930	0	2	0	0	2	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	7
1600-1700	0	11	2	0	13	0	3	0	0	3	1	0	0	0	1	0	0	0	0	0	17
1700-1800	0	12	0	0	12	1	10	0	0	11	0	0	0	0	0	0	0	0	0	0	23
Totals	0	28	2	0	30	1	36	0	0	37	1	0	0	0	1	0	0	0	0	0	68

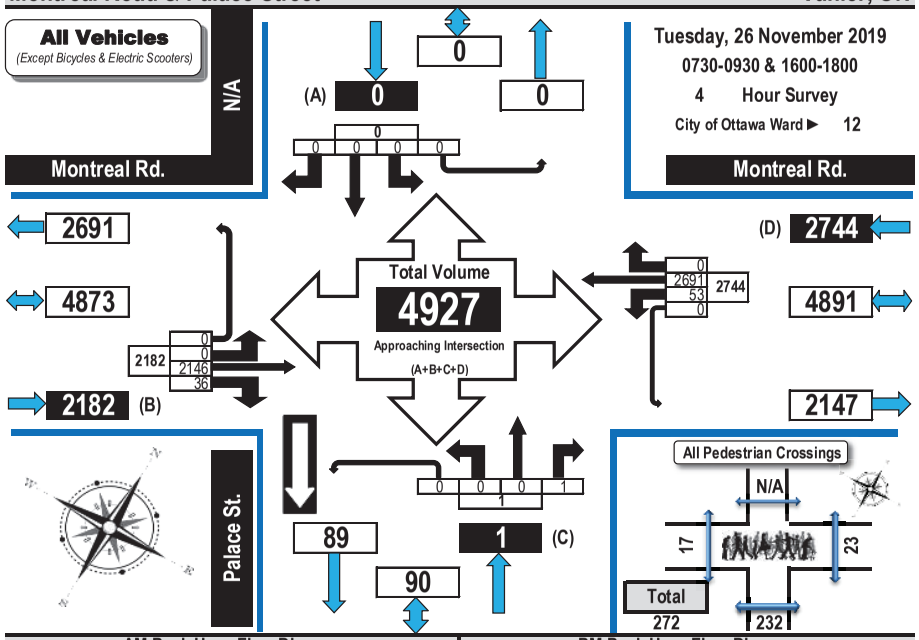
Comments:

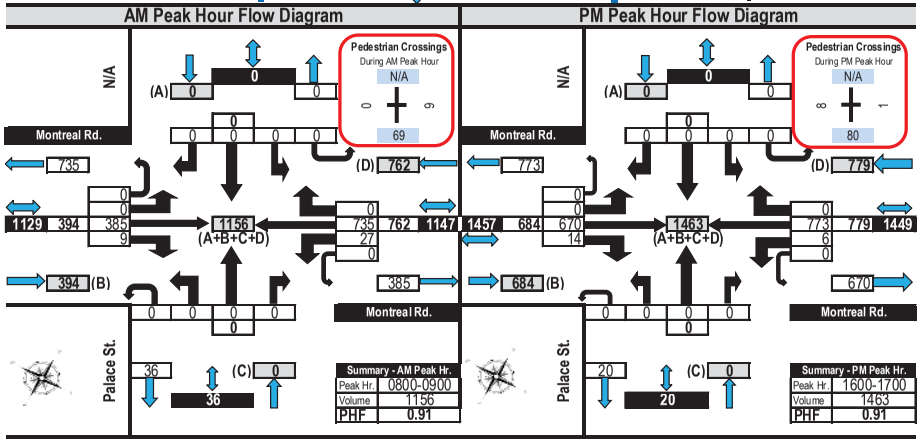
Palace Street is one way southbound and there was 1 northound right turn to Montreal Road. During the evening portion of the traffic count and occasionally in the morning eastbound traffic backs up from the Vanier Parkway.

Turning Movement Count
Summary, AM and PM Peak Hour
Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Montreal Road & Palace Street — **Vanier, ON**



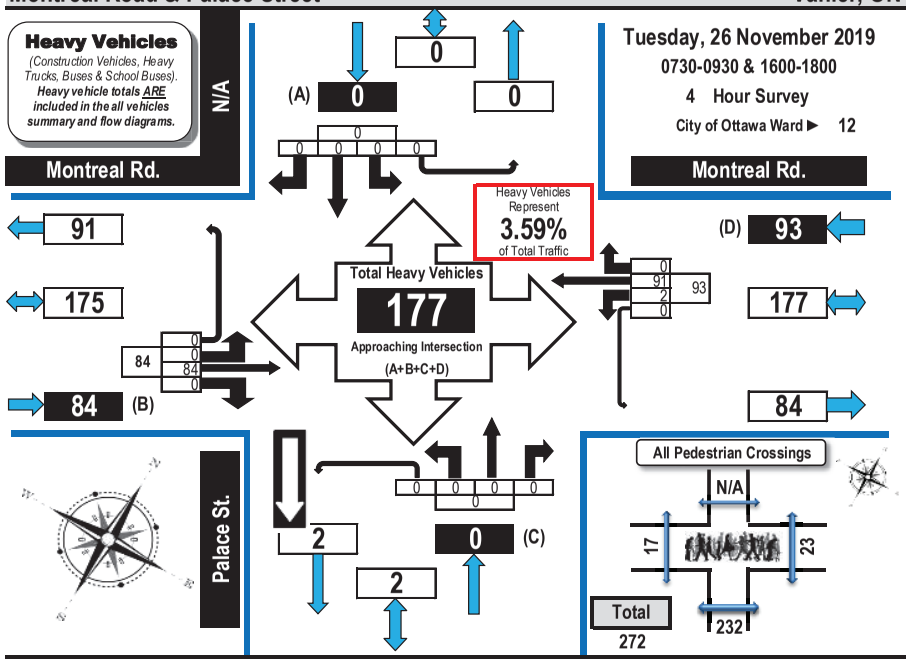


Turning Movement Count
Heavy Vehicle Summary
Flow Diagram

Montreal Road & Palace Street — **Vanier, ON**

Heavy Vehicles
(Construction Vehicles, Heavy Trucks, Buses & School Buses).
Heavy vehicle totals ARE included in the all vehicles summary and flow diagrams.

Tuesday, 26 November 2019
0730-0930 & 1600-1800
4 Hour Survey
City of Ottawa Ward ► 12



	Montreal Rd.					Montreal Rd.					Palace St.					N/A					
	Eastbound					Westbound					Northbound					Southbound					
Time Period	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	G.Tot.
0730-0800	0	9	0	0	9	0	16	0	0	16	0	0	0	0	0	0	0	0	0	0	25
0800-0900	0	30	0	0	30	2	35	0	0	37	0	0	0	0	0	0	0	0	0	0	67
0900-0930	0	17	0	0	17	0	14	0	0	14	0	0	0	0	0	0	0	0	0	0	31
1600-1700	0	14	0	0	14	0	18	0	0	18	0	0	0	0	0	0	0	0	0	0	32
1700-1800	0	14	0	0	14	0	8	0	0	8	0	0	0	0	0	0	0	0	0	0	22
Totals	0	84	0	0	84	2	91	0	0	93	0	0	0	0	0	0	0	0	0	0	177

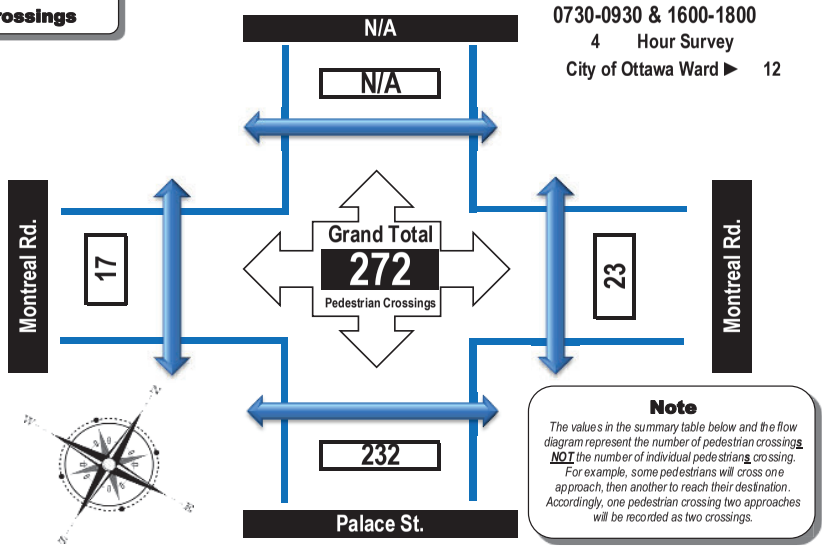
Comments:
Palace Street is one way southbound and there was 1 northound right turn to Montreal Road. During the evening portion of the traffic count and occasionally in the morning eastbound traffic backs up from the Vanier Parkway.

Turning Movement Count
Pedestrian Crossings Summary
and Flow Diagram

Montreal Road & Palace Street — **Vanier, ON**

Pedestrian Crossings

Tuesday, 26 November 2019
0730-0930 & 1600-1800
4 Hour Survey
City of Ottawa Ward ► 12



Note
*The values in the summary table below and the flow diagram represent the number of pedestrian crossings **NOT** the number of individual pedestrians crossing. For example, some pedestrians will cross one approach, then another to reach their destination. Accordingly, one pedestrian crossing two approaches will be recorded as two crossings.*

Time Period	West Side Crossing Montreal Rd.	East Side Crossing Montreal Rd.	Street Total	South Side Crossing Palace St.	North Side Crossing N/A	Street Total	Grand Total
0730-0800	5	6	11	23	0	23	34
0800-0900	0	9	9	69	0	69	78
0900-0930	0	2	2	8	0	8	10
1600-1700	8	1	9	80	0	80	89
1700-1800	4	5	9	52	0	52	61
Totals	17	23	40	232	0	232	272

Comments:
Palace Street is one way southbound and there was 1 northound right turn to Montreal Road. During the evening portion of the traffic count and occasionally in the morning eastbound traffic backs up from the Vanier Parkway.

Turning Movement Count
Summary Report
AADT and Expansion Factors

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Montreal Road & Palace Street — Vanier, ON

Survey Date: Tuesday, 26 November 2019 **Start Time:** 0730 **AADT Factor:** 1.0
Weather AM: Overcast +5°C **Survey Duration:** 4 Hrs. **Survey Hours:** 0730-0930 & 1600-1800
Weather PM: Overcast +10°C **Surveyor(s):** Carmody

	Montreal Rd. Eastbound					Montreal Rd. Westbound						Palace St. Northbound					N/A Southbound						
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
0730-0800	0	189	4	0	193	6	288	0	0	294	487	0	0	0	0	0	0	0	0	0	0	0	487
0800-0900	0	385	9	0	394	27	735	0	0	762	1156	0	0	0	0	0	0	0	0	0	0	0	1156
0900-0930	0	224	2	0	226	7	285	0	0	292	518	0	0	1	0	1	0	0	0	0	0	1	519
1600-1700	0	670	14	0	684	6	773	0	0	779	1463	0	0	0	0	0	0	0	0	0	0	0	1463
1700-1800	0	678	7	0	685	7	610	0	0	617	1302	0	0	0	0	0	0	0	0	0	0	0	1302
Totals	0	2146	36	0	2182	53	2691	0	0	2744	4926	0	0	1	0	1	0	0	0	0	0	1	4927

Equivalent 12 & 24-hour Vehicle Volumes Including the Annual Average Daily Traffic (AADT) Factor Applicable to the Day and Month of the Turning Movement Count

Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts conducted during the hours of 0700h - 1000h, 1130h - 1330h and 1500h - 1800h

Equivalent 12-hour vehicle volumes. These volumes are calculated by multiplying the 8-hour totals by the 8 ➡12 expansion factor of 1.39

Equ. 12 Hr	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Average daily 12-hour vehicle volumes. These volumes are calculated by multiplying the equivalent 12-hour totals by the AADT factor of: 1.0

AADT 12-hr	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

24-Hour AADT. These volumes are calculated by multiplying the average daily 12-hour vehicle volumes by the 12 ➡24 expansion factor of 1.31

AADT 24 Hr	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

AADT and expansion factors provided by the City of Ottawa

AM Peak Hour Factor ➡ 0.91												Highest Hourly Vehicle Volume Between 0700h & 1000h										
AM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
0800-0900	0	385	9	0	394	27	735	0	0	762	1156	0	0	0	0	0	0	0	0	0	0	0	1156

PM Peak Hour Factor ➡ 0.91												Highest Hourly Vehicle Volume Between 1500h & 1800h										
PM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
1600-1700	0	670	14	0	684	6	773	0	0	779	1463	0	0	0	0	0	0	0	0	0	0	0	1463

Comments:
Palace Street is one way southbound and there was 1 northound right turn to Montreal Road. During the evening portion of the traffic count and occasionally in the morning eastbound traffic backs up from the Vanier Parkway.

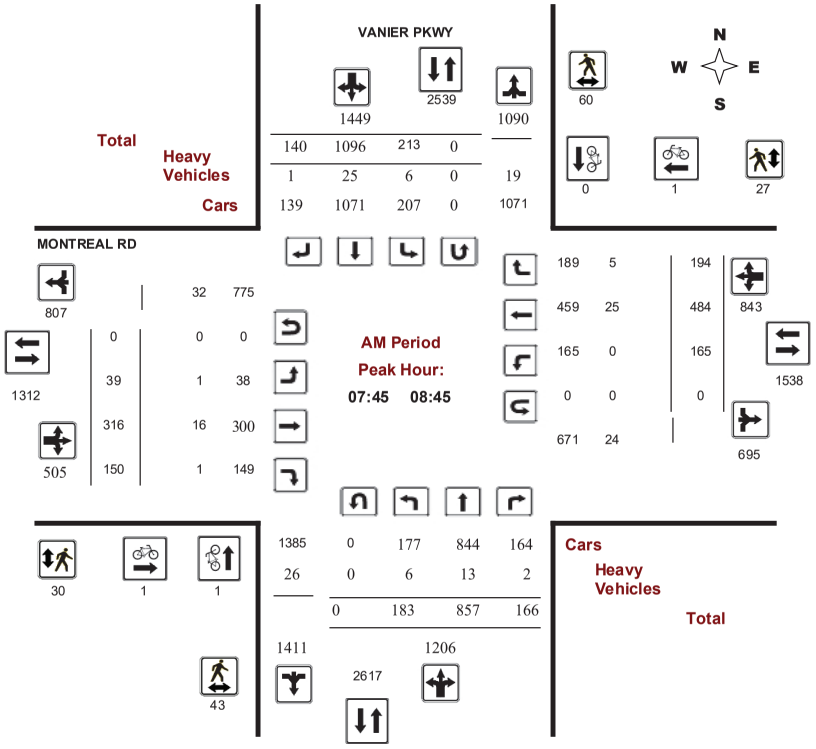
Notes:
1. Includes all vehicle types except bicycles, electric bicycles, and electric scooters.
2.When expansion and AADT factors are applied, the results will differ slightly due to rounding.

Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

MONTREAL RD @ VANIER PKWY

Survey Date: Tuesday, March 26, 2019 **WO No:** 38462
Start Time: 07:00 **Device:** Miovision



Comments

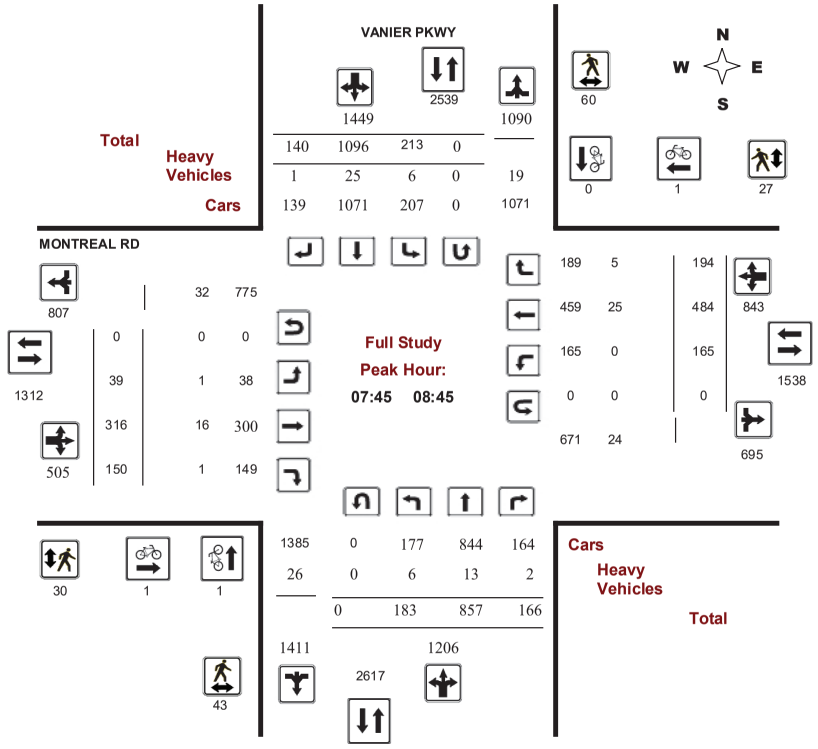
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

MONTREAL RD @ VANIER PKWY

Survey Date: Tuesday, March 26, 2019 **WO No:** 38462

Start Time: 07:00 **Device:** Miovision



Comments

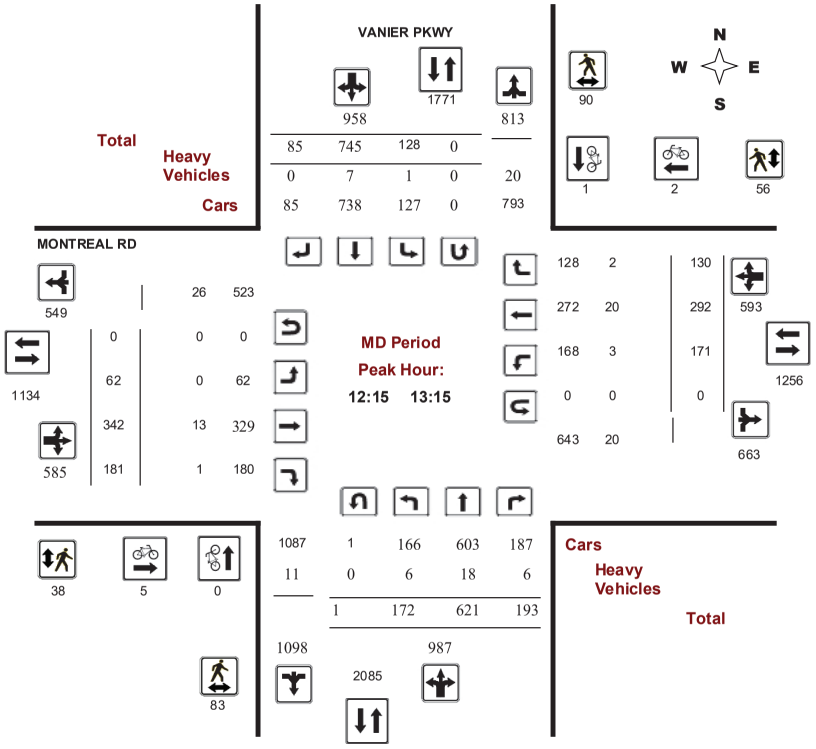
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

MONTREAL RD @ VANIER PKWY

Survey Date: Tuesday, March 26, 2019 **WO No:** 38462

Start Time: 07:00 **Device:** Miovision



Comments

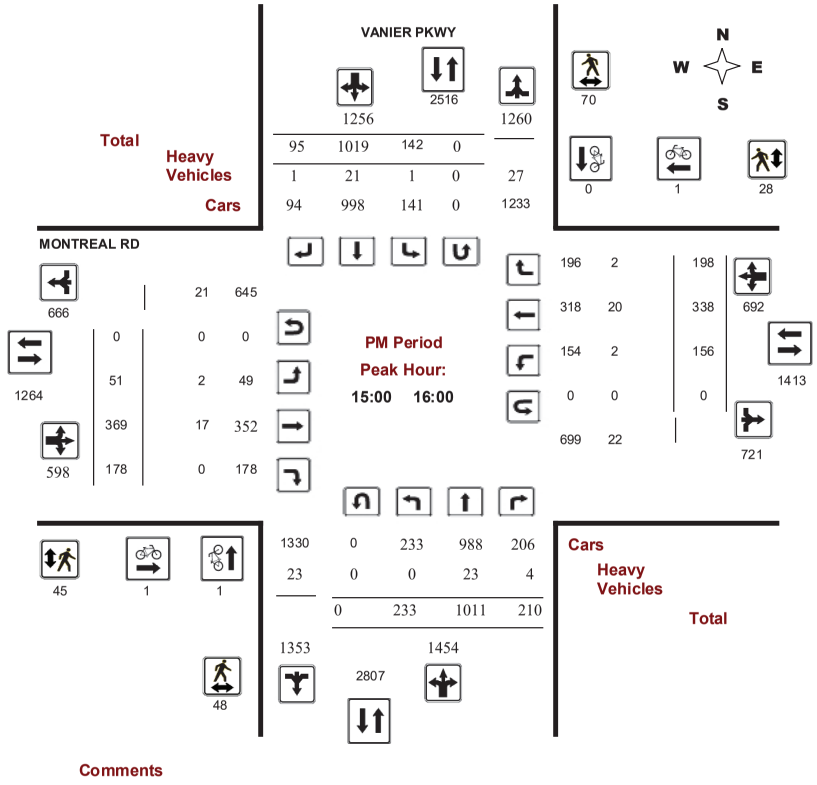
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

MONTREAL RD @ VANIER PKWY

Survey Date: Tuesday, March 26, 2019 **WO No:** 38462

Start Time: 07:00 **Device:** Miovision



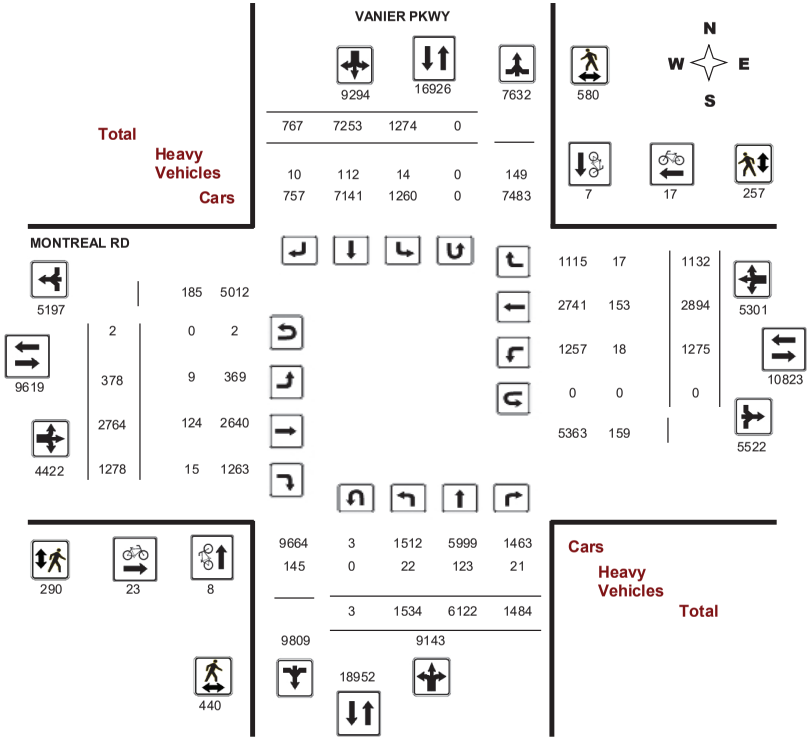
Transportation Services - Traffic Services

Turning Movement Count - Full Study Diagram

MONTREAL RD @ VANIER PKWY

Survey Date: Tuesday, March 26, 2019 **WO#:** 38462

Device: Miovision



Transportation Services - Traffic Services

Work Order 38462

Turning Movement Count - Full Study Summary Report

MONTREAL RD @ VANIER PKWY

Survey Date: Tuesday, March 26, 2019

Total Observed U-Turns

Northbound: 3 Southbound: 0

Eastbound: 2 Westbound: 0

AADT Factor 1.00

Full Study

	VANIER PKWY									MONTREAL RD									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	128	674	122	**924**	218	999	89	**1306**	**2230**	38	270	140	**448**	162	329	162	**653**	**1101**	**3331**
08:00 09:00	185	806	165	**1156**	185	1132	128	**1445**	**2601**	39	318	144	**501**	164	506	178	**848**	**1349**	**3950**
09:00 10:00	196	677	195	**1068**	155	879	97	**1131**	**2199**	42	247	151	**440**	160	306	109	**575**	**1015**	**3214**
11:30 12:30	163	588	181	**932**	138	703	86	**927**	**1859**	55	331	173	**559**	165	271	119	**555**	**1114**	**2973**
12:30 13:30	158	624	187	**969**	135	731	69	**935**	**1904**	58	351	176	**585**	170	314	145	**629**	**1214**	**3118**
15:00 16:00	233	1011	210	**1454**	142	1019	95	**1256**	**2710**	51	369	178	**598**	156	338	198	**692**	**1290**	**4000**
16:00 17:00	256	907	196	**1359**	133	863	103	**1099**	**2458**	51	440	177	**668**	140	439	123	**702**	**1370**	**3828**
17:00 18:00	215	835	228	**1278**	168	927	100	**1195**	**2473**	44	438	139	**621**	158	391	98	**647**	**1268**	**3741**
Sub Total	1534	6122	1484	**9140**	1274	7253	767	**9294**	**18434**	378	2764	1278	**4420**	1275	2894	1132	**5301**	**9721**	**28155**
U Turns				**3**				**0**	**3**				**2**				**0**	**2**	**5**
Total	1534	6122	1484	**9143**	1274	7253	767	**9294**	**18437**	378	2764	1278	**4422**	1275	2894	1132	**5301**	**9723**	**28160**
EQ 12Hr	2132	8510	2063	**12709**	1771	10082	1066	**12919**	**25628**	525	3842	1776	**6147**	1772	4023	1573	**7368**	**13515**	**39143**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													**1.39**						
AVG 12Hr	2132	8510	2063	**12709**	1771	10082	1066	**12919**	**25628**	525	3842	1776	**6147**	1772	4023	1573	**7368**	**13515**	**39143**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													**1.00**						
AVG 24Hr	2793	11148	2702	**16648**	2320	13207	1397	**16923**	**33571**	688	5033	2327	**8052**	2322	5270	2061	**9653**	**17705**	**51276**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.													**1.31**						

Comments:

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

W.O. 38462

Turning Movement Count - 15 Minute Summary Report

MONTREAL RD @ VANIER PKWY

Survey Date: Tuesday, March 26, 2019

Total Observed U-Turns

Northbound: 3 Southbound: 0

Eastbound: 2 Westbound: 0

	VANIER PKWY									MONTREAL RD									
	Northbound				Southbound					Eastbound				Westbound					
Time Period	LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00 07:15	23	137	19	**179**	46	276	11	**333**	**512**	6	64	40	**110**	36	66	32	**134**	**244**	**756**
07:15 07:30	27	137	30	**194**	47	302	17	**366**	**560**	10	63	31	**104**	39	65	37	**141**	**245**	**805**
07:30 07:45	32	162	34	**228**	51	192	19	**262**	**490**	10	69	31	**110**	45	95	41	**181**	**291**	**781**
07:45 08:00	46	238	39	**323**	74	229	42	**345**	**668**	12	74	38	**124**	42	103	52	**197**	**321**	**989**
08:00 08:15	39	194	47	**280**	42	285	36	**363**	**643**	15	78	33	**126**	42	123	36	**201**	**327**	**970**
08:15 08:30	53	205	35	**293**	49	258	28	**335**	**628**	5	89	38	**132**	41	134	68	**243**	**375**	**1003**
08:30 08:45	45	220	45	**310**	48	324	34	**406**	**716**	7	75	41	**123**	40	124	38	**202**	**325**	**1041**
08:45 09:00	48	187	38	**273**	46	265	30	**341**	**614**	12	76	32	**120**	41	125	36	**202**	**322**	**936**
09:00 09:15	47	208	41	**296**	41	259	30	**330**	**626**	7	56	32	**95**	37	78	37	**152**	**247**	**873**
09:15 09:30	50	169	56	**275**	43	191	21	**255**	**530**	15	65	42	**122**	41	82	19	**142**	**264**	**794**
09:30 09:45	55	163	41	**259**	33	234	14	**281**	**540**	12	62	43	**117**	45	66	22	**133**	**250**	**790**
09:45 10:00	44	137	57	**238**	38	195	32	**265**	**503**	8	64	34	**106**	37	80	31	**148**	**254**	**757**
11:30 11:45	30	165	39	**234**	34	176	20	**230**	**464**	12	87	42	**141**	50	63	26	**139**	**280**	**744**
11:45 12:00	42	106	47	**195**	32	184	13	**229**	**424**	12	66	48	**126**	40	70	35	**145**	**271**	**695**
12:00 12:15	47	176	46	**269**	43	156	29	**228**	**497**	15	95	41	**151**	35	79	32	**146**	**297**	**794**
12:15 12:30	44	141	49	**234**	29	187	24	**240**	**474**	16	83	42	**141**	40	59	26	**125**	**266**	**740**
12:30 12:45	53	162	47	**262**	41	193	20	**254**	**516**	14	89	42	**145**	50	82	42	**174**	**319**	**835**
12:45 13:00	32	165	48	**245**	31	167	21	**219**	**464**	18	85	38	**141**	41	75	25	**141**	**282**	**746**
13:00 13:15	43	153	49	**246**	27	198	20	**245**	**491**	14	85	59	**158**	40	76	37	**153**	**311**	**802**
13:15 13:30	30	144	43	**217**	36	173	8	**217**	**434**	12	92	37	**141**	39	81	41	**161**	**302**	**736**
15:00 15:15	64	270	55	**389**	35	244	27	**306**	**695**	22	78	56	**156**	34	65	43	**142**	**298**	**993**
15:15 15:30	46	271	62	**379**	38	273	25	**336**	**715**	9	83	50	**142**	40	77	59	**176**	**318**	**1033**
15:30 15:45	57	228	46	**331**	29	215	23	**267**	**598**	6	116	42	**164**	43	105	49	**197**	**361**	**959**
15:45 16:00	66	242	47	**355**	40	287	20	**347**	**702**	14	92	30	**136**	39	91	47	**177**	**313**	**1015**
16:00 16:15	62	237	54	**353**	32	247	13	**292**	**645**	7	97	44	**148**	30	116	31	**177**	**325**	**970**
16:15 16:30	76	242	38	**356**	30	184	26	**240**	**596**	19	100	38	**157**	37	115	26	**178**	**335**	**931**
16:30 16:45	45	242	58	**345**	30	223	27	**280**	**625**	5	103	38	**147**	43	99	35	**177**	**324**	**949**
16:45 17:00	73	186	46	**306**	41	209	37	**287**	**593**	20	140	57	**217**	30	109	31	**170**	**387**	**980**
17:00 17:15	64	206	60	**330**	53	276	29	**358**	**688**	11	103	24	**138**	34	96	29	**159**	**297**	**985**
17:15 17:30	56	193	55	**304**	35	236	32	**303**	**607**	19	122	43	**184**	44	122	21	**187**	**371**	**978**
17:30 17:45	39	195	70	**305**	43	242	17	**302**	**607**	6	100	34	**141**	33	82	22	**137**	**278**	**885**
17:45 18:00	56	241	43	**340**	37	173	22	**232**	**572**	8	113	38	**159**	47	91	26	**164**	**323**	**895**
TOTAL:	1534	6122	1484	**9143**	1274	7253	767	**9294**	**18437**	378	2764	1278	**4422**	1275	2894	1132	**5301**	**9723**	**28160**

Note: U-Turns are included in Totals.

Comment:

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order 38462

MONTREAL RD @ VANIER PKWY

Count Date: Tuesday, March 26, 2019 **Start Time:** 07:00

Time Period	VANIER PKWY Northbound	VANIER PKWY Southbound	VANIER PKWY Street Total	MONTREAL RD Eastbound	MONTREAL RD Westbound	MONTREAL RD Street Total	Grand Total
07:00 08:00	0	1	**1**	0	3	**3**	**4**
08:00 09:00	1	0	**1**	1	0	**1**	**2**
09:00 10:00	0	0	**0**	1	3	**4**	**4**
11:30 12:30	0	1	**1**	3	1	**4**	**5**
12:30 13:30	0	0	**0**	9	3	**12**	**12**
15:00 16:00	1	0	**1**	1	1	**2**	**3**
16:00 17:00	2	1	**3**	1	1	**2**	**5**
17:00 18:00	4	4	**8**	7	5	**12**	**20**
Total	8	7	**15**	23	17	**40**	**55**

Comment:

Note: These volumes consists of bicycles only (no mopeds or motorcycles) and ARE NOT included in the Turning Movement Count Summary.

Transportation Services - Traffic Services

W.O. 38462

Turning Movement Count - Heavy Vehicle Report

MONTREAL RD @ VANIER PKWY

Survey Date: Tuesday, March 26, 2019

Time Period	VANIER PKWY Northbound LT	ST	RT	N TOT	Southbound LT	ST	RT	S TOT	STR TOT	MONTREAL RD Eastbound LT	ST	RT	E TOT	Westbound LT	ST	RT	W TOT	STR TOT	Grand Total
07:00 08:00	3	17	1	**21**	4	8	1	**13**	**34**	0	24	4	**28**	3	16	1	**20**	**48**	**82**
08:00 09:00	5	15	3	**23**	2	24	2	**28**	**51**	2	20	3	**25**	1	30	5	**36**	**61**	**112**
09:00 10:00	4	14	4	**22**	1	15	3	**19**	**41**	2	12	2	**16**	1	25	1	**27**	**43**	**84**
11:30 12:30	2	15	2	**19**	2	15	1	**18**	**37**	2	13	0	**15**	4	12	2	**18**	**33**	**70**
12:30 13:30	5	15	5	**25**	1	7	0	**8**	**33**	1	14	3	**18**	3	20	2	**25**	**43**	**76**
15:00 16:00	0	23	4	**27**	1	21	1	**23**	**50**	2	17	0	**19**	2	20	2	**24**	**43**	**93**
16:00 17:00	2	12	1	**15**	2	13	2	**17**	**32**	0	16	3	**19**	1	17	2	**20**	**39**	**71**
17:00 18:00	1	12	1	**14**	1	9	0	**10**	**24**	0	8	0	**8**	3	13	2	**18**	**26**	**50**
Sub Total	22	123	21	**166**	14	112	10	**136**	**302**	9	124	15	**148**	18	153	17	**188**	**336**	**638**
U-Turns (Heavy Vehicles)				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	22	123	21	**0**	14	112	10	**136**	**302**	9	124	15	**148**	18	153	17	**188**	**336**	**638**

Heavy Vehicles include Buses, Single-Unit Trucks and Articulated Trucks. Further, they ARE included in the Turning Movement Count Summary.

Transportation Services - Traffic Services

Work Order 38462

Turning Movement Count - Pedestrian Volume Report

MONTREAL RD @ VANIER PKWY

Count Date: Tuesday, March 26, 2019 **Start Time:** 07:00

Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	4	10	**14**	10	2	**12**	**26**
07:15 07:30	10	11	**21**	5	8	**13**	**34**
07:30 07:45	14	7	**21**	4	7	**11**	**32**
07:45 08:00	8	9	**17**	9	7	**16**	**33**
07:00 08:00	36	37	**73**	28	24	**52**	**125**
08:00 08:15	13	18	**31**	6	4	**10**	**41**
08:15 08:30	13	17	**30**	4	11	**15**	**45**
08:30 08:45	9	16	**25**	11	5	**16**	**41**
08:45 09:00	12	18	**30**	11	6	**17**	**47**
08:00 09:00	47	69	**116**	32	26	**58**	**174**
09:00 09:15	16	12	**28**	3	13	**16**	**44**
09:15 09:30	8	18	**26**	6	4	**10**	**36**
09:30 09:45	9	13	**22**	11	9	**20**	**42**
09:45 10:00	8	12	**20**	3	9	**12**	**32**
09:00 10:00	41	55	**96**	23	35	**58**	**154**
11:30 11:45	7	17	**24**	14	8	**22**	**46**
11:45 12:00	19	16	**35**	4	9	**13**	**48**
12:00 12:15	12	18	**30**	17	3	**20**	**50**
12:15 12:30	17	16	**33**	10	6	**16**	**49**
11:30 12:30	55	67	**122**	45	26	**71**	**193**
12:30 12:45	31	22	**53**	15	22	**37**	**90**
12:45 13:00	26	24	**50**	6	10	**16**	**66**
13:00 13:15	9	28	**37**	7	18	**25**	**62**
13:15 13:30	31	26	**57**	7	15	**22**	**79**
12:30 13:30	97	100	**197**	35	65	**100**	**297**
15:00 15:15	10	16	**26**	3	2	**5**	**31**
15:15 15:30	5	17	**22**	20	8	**28**	**50**
15:30 15:45	19	20	**39**	8	11	**19**	**58**
15:45 16:00	14	17	**31**	14	7	**21**	**52**
15:00 16:00	48	70	**118**	45	28	**73**	**191**
16:00 16:15	21	26	**47**	16	6	**22**	**69**
16:15 16:30	18	16	**34**	13	14	**27**	**61**
16:30 16:45	12	25	**37**	11	4	**15**	**52**
16:45 17:00	17	20	**37**	8	1	**9**	**46**
16:00 17:00	68	87	**155**	48	25	**73**	**228**
17:00 17:15	14	18	**32**	10	5	**15**	**47**
17:15 17:30	11	19	**30**	15	3	**18**	**48**
17:30 17:45	7	29	**36**	5	5	**10**	**46**
17:45 18:00	16	29	**45**	4	15	**19**	**64**
17:00 18:00	48	95	**143**	34	28	**62**	**205**
Total	440	580	**1020**	290	257	**547**	**1567**

Comment:

Transportation Services - Traffic Services

Work Order 38462

Turning Movement Count - 15 Min U-Turn Total Report

MONTREAL RD @ VANIER PKWY

Survey Date: Tuesday, March 26, 2019

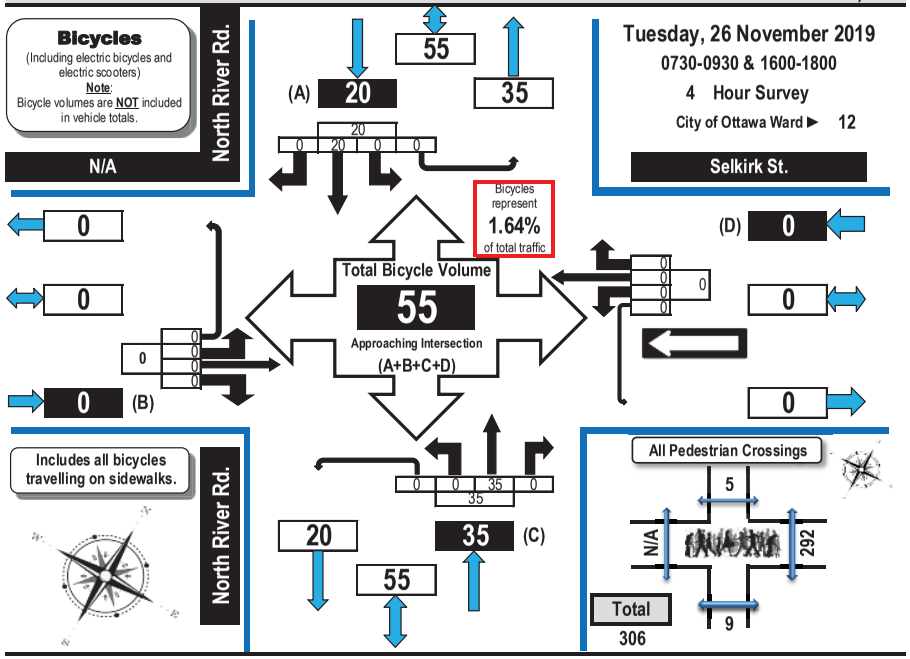
Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	1	0	0	0	1
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	1	0	1
16:45	17:00	1	0	0	0	1
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	1	0	1	0	2
17:45	18:00	0	0	0	0	0
Total		3	0	2	0	5

Turning Movement Count
Bicycle Summary
Flow Diagram

North River Road & Selkirk Street — **Vanier, ON**

Bicycles
(Including electric bicycles and electric scooters)
Note: Bicycle volumes are NOT included in vehicle totals.

Tuesday, 26 November 2019
0730-0930 & 1600-1800
4 Hour Survey
City of Ottawa Ward ► 12



	N/A Eastbound					Selkirk St. Westbound					North River Rd. Northbound					North River Rd. Southbound					
Time Period	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	G.Tot.
0730-0800	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	4	0	0	4	5
0800-0900	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	0	2	0	0	2	7
0900-0930	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	3
1600-1700	0	0	0	0	0	0	0	0	0	0	0	11	0	0	11	0	4	0	0	4	15
1700-1800	0	0	0	0	0	0	0	0	0	0	0	16	0	0	16	0	9	0	0	9	25
Totals	0	0	0	0	0	0	0	0	0	0	0	35	0	0	35	0	20	0	0	20	55

Comments:
Selkirk Street is one way westbound. One northbound heavy vehicle turned right from North River Road. Southbound traffic backs up from McArthur Avenue, primarily during the evening portion of the survey to Selkirk Street and occasionally to Montreal Road. Some westbound left turns from Selkirk Street force their way into traffic to complete their turn.

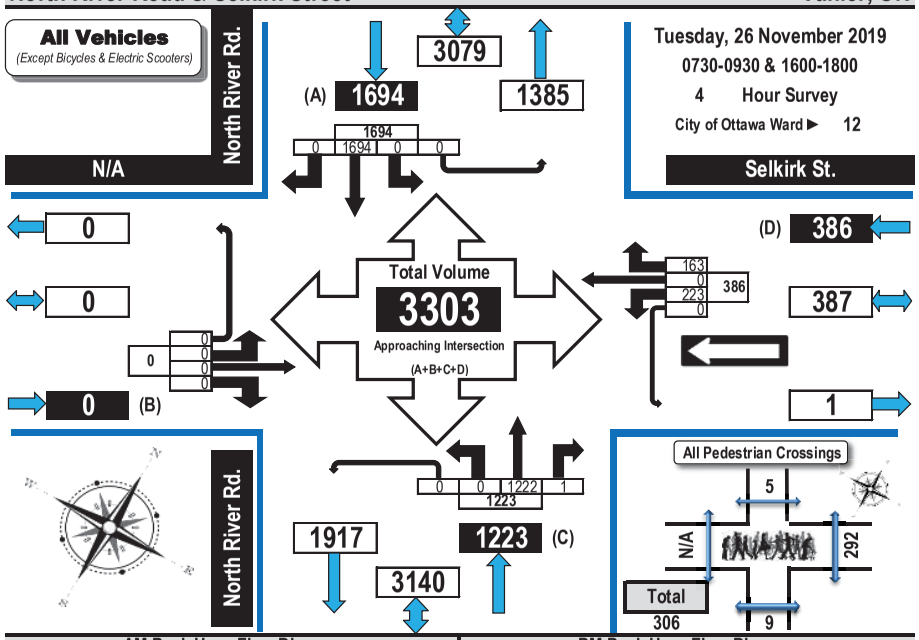
Turning Movement Count
Summary, AM and PM Peak Hour
Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

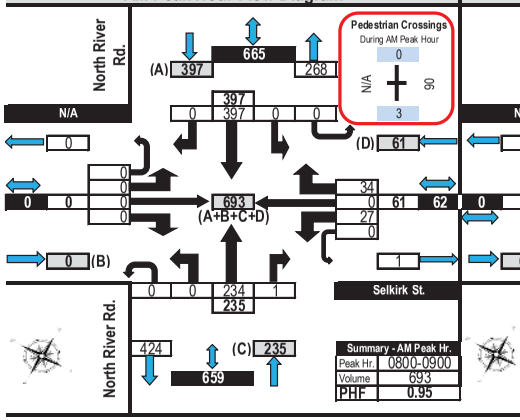
North River Road & Selkirk Street — **Vanier, ON**

All Vehicles
(Except Bicycles & Electric Scooters)

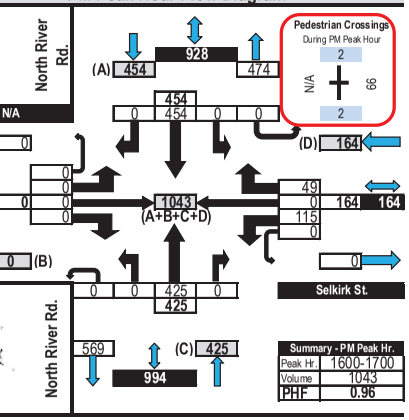
Tuesday, 26 November 2019
0730-0930 & 1600-1800
4 Hour Survey
City of Ottawa Ward ► 12



AM Peak Hour Flow Diagram



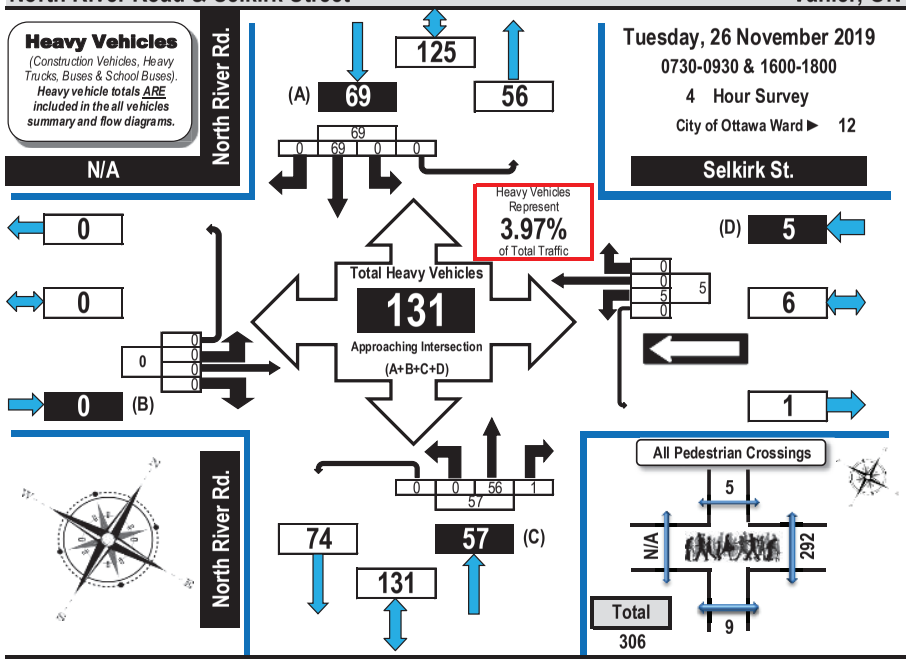
PM Peak Hour Flow Diagram



Turning Movement Count
Heavy Vehicle Summary
Flow Diagram



North River Road & Selkirk Street — **Vanier, ON**



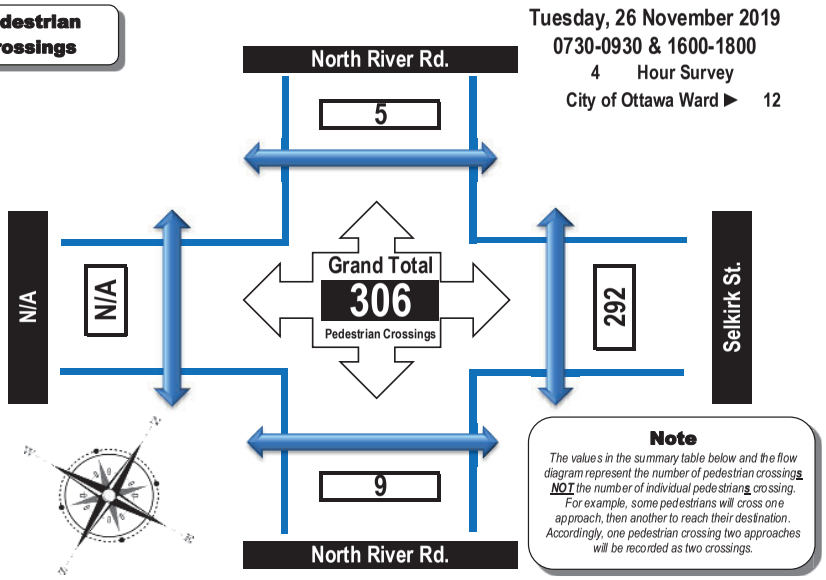
	N/A					Selkirk St.					North River Rd.					North River Rd.					
	Eastbound					Westbound					Northbound					Southbound					
Time Period	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	G.Tot.
0730-0800	0	0	0	0	0	1	0	0	0	1	0	9	0	0	9	0	8	0	0	8	18
0800-0900	0	0	0	0	0	2	0	0	0	2	0	18	1	0	19	0	9	0	0	9	30
0900-0930	0	0	0	0	0	1	0	0	0	1	0	9	0	0	9	0	20	0	0	20	30
1600-1700	0	0	0	0	0	1	0	0	0	1	0	13	0	0	13	0	19	0	0	19	33
1700-1800	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	0	13	0	0	13	20
Totals	0	0	0	0	0	5	0	0	0	5	0	56	1	0	57	0	69	0	0	69	131

Comments:
Selkirk Street is one way westbound. One northbound heavy vehicle turned right from North River Road. Southbound traffic backs up from McArthur Avenue, primarily during the evening portion of the survey to Selkirk Street and occasionally to Montreal Road. Some westbound left turns from Selkirk Street force their way into traffic to complete their turn.

Turning Movement Count
Pedestrian Crossings Summary
and Flow Diagram



North River Road & Selkirk Street — **Vanier, ON**



Time Period	West Side Crossing N/A	East Side Crossing Selkirk St.	Street Total	South Side Crossing North River Rd.	North Side Crossing North River Rd.	Street Total	Grand Total
0730-0800	0	48	48	1	0	1	49
0800-0900	0	90	90	3	0	3	93
0900-0930	0	28	28	2	2	4	32
1600-1700	0	66	66	2	2	4	70
1700-1800	0	60	60	1	1	2	62
Totals	0	292	292	9	5	14	306

Comments:
Selkirk Street is one way westbound. One northbound heavy vehicle turned right from North River Road. Southbound traffic backs up from McArthur Avenue, primarily during the evening portion of the survey to Selkirk Street and occasionally to Montreal Road. Some westbound left turns from Selkirk Street force their way into traffic to complete their turn.

ACCURATE TRUSTED TRAFFIC DATA

Turning Movement Count
Summary Report
AADT and Expansion Factors

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

North River Road & Selkirk Street — Vanier, ON

Survey Date: Tuesday, 26 November 2019 **Start Time:** 0730 **AADT Factor:** 1.0
Weather AM: Overcast +5ºC **Survey Duration:** 4 Hrs. **Survey Hours:** 0730-0930 & 1600-1800
Weather PM: Overcast +10ºC **Surveyor(s):** Carmody

	N/A					Selkirk St.						North River Rd.					North River Rd.						
	Eastbound					Westbound						Northbound					Southbound						
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
0730-0800	0	0	0	0	**0**	12	0	16	0	**28**	**28**	0	121	0	0	**121**	0	182	0	0	**182**	**303**	**331**
0800-0900	0	0	0	0	**0**	27	0	34	0	**61**	**61**	0	234	1	0	**235**	0	397	0	0	**397**	**632**	**693**
0900-0930	0	0	0	0	**0**	11	0	19	0	**30**	**30**	0	106	0	0	**106**	0	177	0	0	**177**	**283**	**313**
1600-1700	0	0	0	0	**0**	115	0	49	0	**164**	**164**	0	425	0	0	**425**	0	454	0	0	**454**	**879**	**1043**
1700-1800	0	0	0	0	**0**	58	0	45	0	**103**	**103**	0	336	0	0	**336**	0	484	0	0	**484**	**820**	**923**
Totals	**0**	**0**	**0**	**0**	**0**	**223**	**0**	**163**	**0**	**386**	**386**	**0**	**1222**	**1**	**0**	**1223**	**0**	**1694**	**0**	**0**	**1694**	**2917**	**3303**

Equivalent 12 & 24-hour Vehicle Volumes Including the Annual Average Daily Traffic (AADT) Factor Applicable to the Day and Month of the Turning Movement Count

Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts conducted during the hours of 0700h - 1000h, 1130h - 1330h and 1500h - 1800h

Equivalent 12-hour vehicle volumes. These volumes are calculated by multiplying the 8-hour totals by the 8 ➡12 expansion factor of 1.39

Equ. 12 Hr	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	**n/a**

Average daily 12-hour vehicle volumes. These volumes are calculated by multiplying the equivalent 12-hour totals by the AADT factor of: 1.0

AADT 12-hr	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	**n/a**

24-Hour AADT. These volumes are calculated by multiplying the average daily 12-hour vehicle volumes by the 12 ➡24 expansion factor of 1.31

AADT 24 Hr	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	**n/a**

AADT and expansion factors provided by the City of Ottawa

AM Peak Hour Factor ➡ 0.95 — Highest Hourly Vehicle Volume Between 0700h & 1000h

AM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
0800-0900	0	0	0	0	**0**	27	0	34	0	**61**	**61**	0	234	1	0	**235**	0	397	0	0	**397**	**632**	**693**

PM Peak Hour Factor ➡ 0.96 — Highest Hourly Vehicle Volume Between 1500h & 1800h

PM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
1600-1700	0	0	0	0	**0**	115	0	49	0	**164**	**164**	0	425	0	0	**425**	0	454	0	0	**454**	**879**	**1043**

Comments:

Selkirk Street is one way westbound. One northbound heavy vehicle turned right from North River Road. Southbound traffic backs up from McArthur Avenue, primarily during the evening portion of the survey to Selkirk Street and occasionally to Montreal Road. Some westbound left turns from Selkirk Street force their way into traffic to complete their turn.

Notes:

1. Includes all vehicle types except bicycles, electric bicycles, and electric scooters.
2. When expansion and AADT factors are applied, the results will differ slightly due to rounding.

Ottawa

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MCARTHUR AVE @ NORTH RIVER RD

Survey Date: Tuesday, March 19, 2019 **WO No:** 38447
Start Time: 07:00 **Device:** Miovision

Full Study Summary (8 HR Standard)

Survey Date: Tuesday, March 19, 2019

Total Observed U-Turns Northbound: 0 Southbound: 1 Eastbound: 0 Westbound: 0

AADT Factor 1.00

	NORTH RIVER RD								MCARTHUR AVE								
	Northbound				Southbound				Eastbound				Westbound				
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	2	67	20	**89**	287	56	5	**348**	**437**	1	5	0	**6**	12	11	110	**133**	**139**	**576**
08:00 09:00	3	125	29	**157**	332	102	4	**438**	**595**	1	6	3	**10**	8	9	165	**182**	**192**	**787**
09:00 10:00	6	125	18	**149**	201	107	2	**310**	**459**	0	4	2	**6**	11	5	103	**119**	**125**	**584**
11:30 12:30	5	122	22	**149**	228	119	4	**351**	**500**	1	5	3	**9**	10	3	131	**144**	**153**	**653**
12:30 13:30	4	112	28	**144**	241	109	5	**355**	**499**	4	6	1	**11**	14	2	138	**154**	**165**	**664**
15:00 16:00	2	148	36	**186**	409	139	1	**549**	**735**	4	25	6	**35**	24	11	217	**252**	**287**	**1022**
16:00 17:00	2	147	26	**175**	437	108	0	**545**	**720**	3	15	0	**18**	13	5	216	**234**	**252**	**972**
17:00 18:00	0	186	28	**214**	359	157	4	**520**	**734**	5	5	3	**13**	23	1	211	**235**	**248**	**982**
Sub Total	24	1032	207	**1263**	2494	897	25	**3416**	**4679**	19	71	18	**108**	115	47	1291	**1453**	**1561**	**6240**
U Turns				**0**				**1**	**1**				**0**				**0**	**0**	**1**
Total	24	1032	207	**1263**	2494	897	25	**3417**	**4680**	19	71	18	**108**	115	47	1291	**1453**	**1561**	**6241**
EQ 12Hr	33	1434	288	**1756**	3467	1247	35	**4750**	**6505**	26	99	25	**150**	160	65	1794	**2020**	**2170**	**8675**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	31	1352	271	**1655**	3267	1175	33	**4476**	**6505**	25	93	24	**141**	151	62	1691	**1903**	**2170**	**8675**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1**					
AVG 24Hr	41	1771	355	**2167**	4280	1539	43	**5864**	**8031**	33	122	31	**185**	197	81	2215	**2493**	**2678**	**10709**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

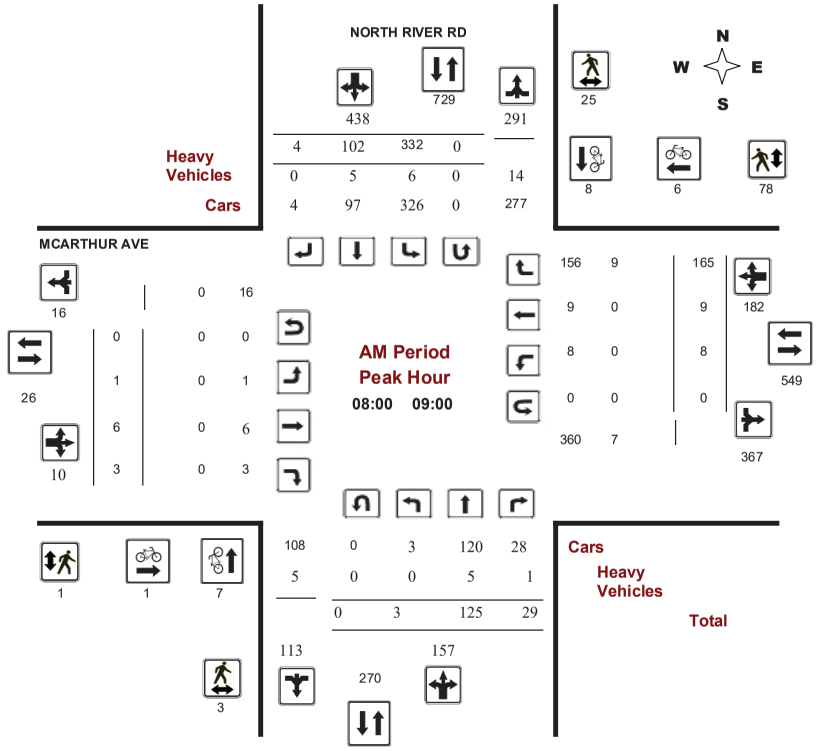
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MCARTHUR AVE @ NORTH RIVER RD

Survey Date: Tuesday, March 19, 2019 **WO No:** 38447

Start Time: 07:00 **Device:** Miovision



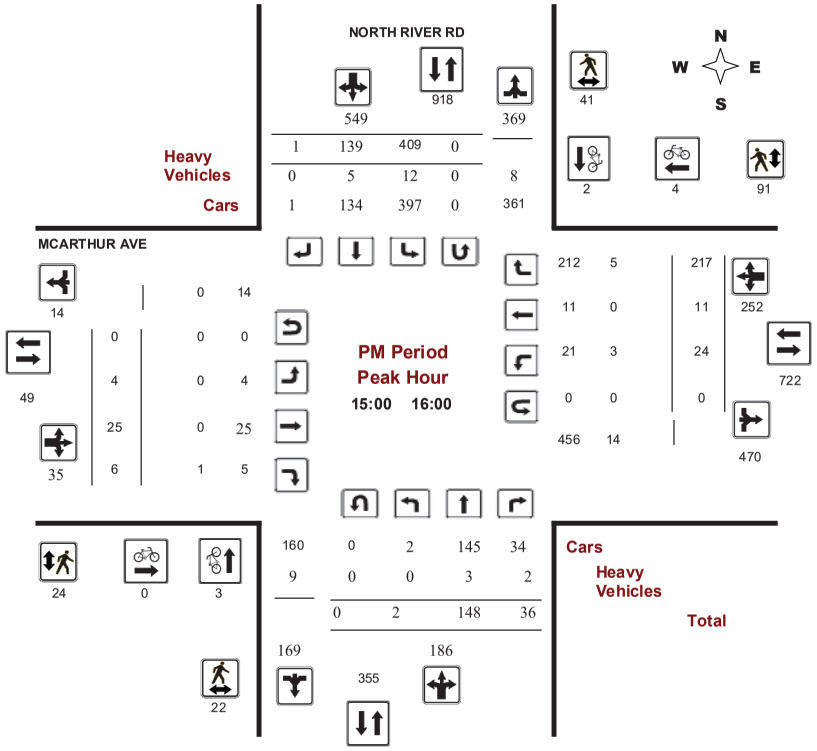
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MCARTHUR AVE @ NORTH RIVER RD

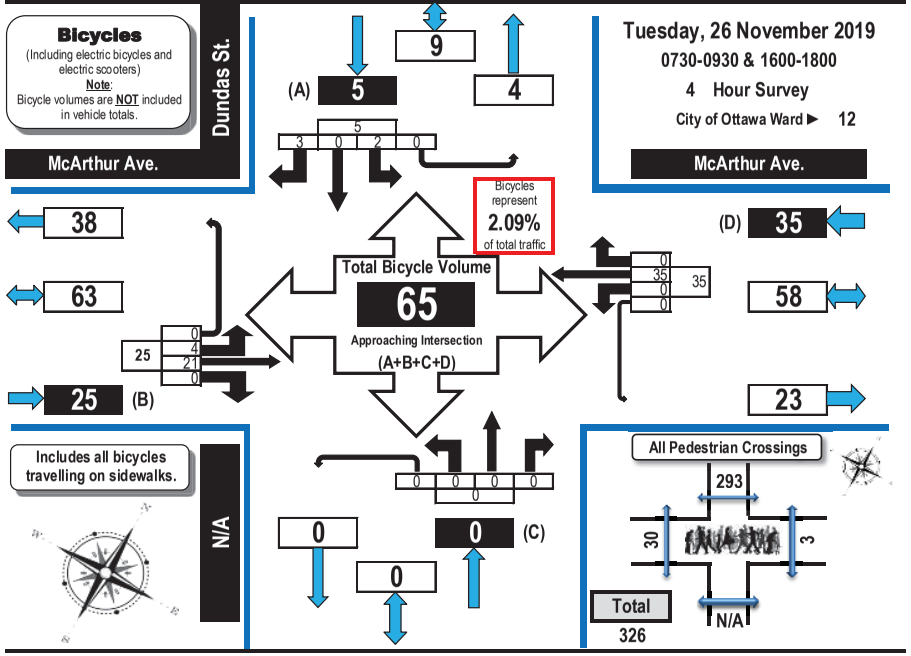
Survey Date: Tuesday, March 19, 2019 **WO No:** 38447

Start Time: 07:00 **Device:** Miovision



Turning Movement Count
Bicycle Summary
Flow Diagram

Dundas Street & McArthur Avenue — **Vanier, ON**



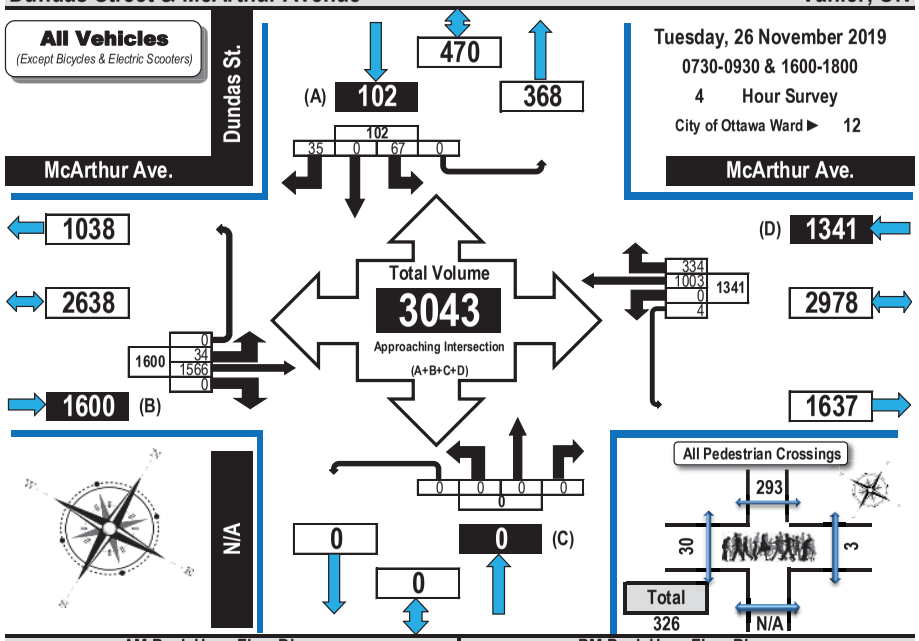
	McArthur Ave. Eastbound					McArthur Ave. Westbound					N/A Northbound					Dundas St. Southbound					
Time Period	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	G.Tot.
0730-0800	0	1	0	0	1	0	9	0	0	9	0	0	0	0	0	0	0	0	0	0	10
0800-0900	2	2	0	0	4	0	12	0	0	12	0	0	0	0	0	0	0	1	0	1	17
0900-0930	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
1600-1700	1	9	0	0	10	0	5	0	0	5	0	0	0	0	0	1	0	2	0	3	18
1700-1800	1	9	0	0	10	0	7	0	0	7	0	0	0	0	0	1	0	0	0	1	18
Totals	4	21	0	0	25	0	35	0	0	35	0	0	0	0	0	2	0	3	0	5	65

Comments:
There were no traffic issues observed.

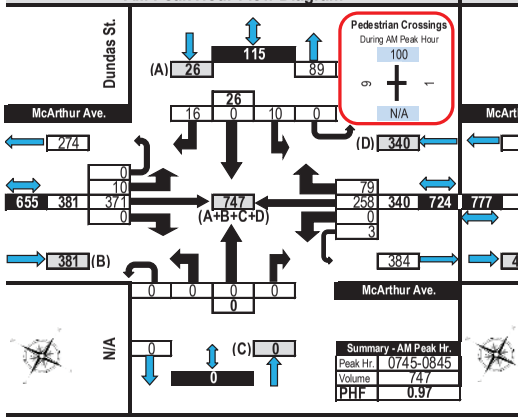
Turning Movement Count
Summary, AM and PM Peak Hour
Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

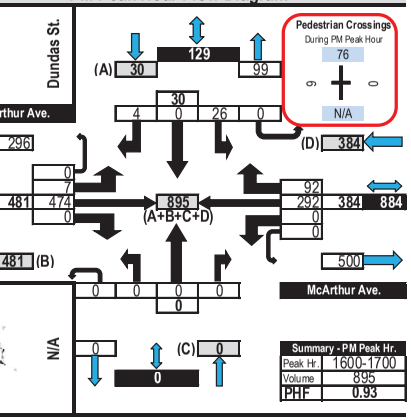
Dundas Street & McArthur Avenue — **Vanier, ON**



AM Peak Hour Flow Diagram



PM Peak Hour Flow Diagram

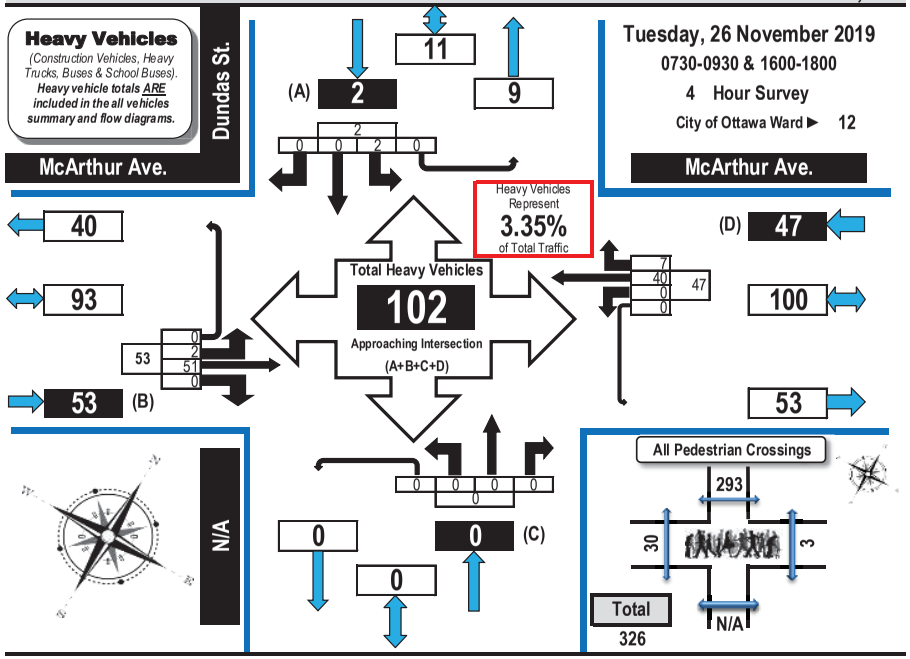


Turning Movement Count
Heavy Vehicle Summary
Flow Diagram

Dundas Street & McArthur Avenue — **Vanier, ON**

Heavy Vehicles
(Construction Vehicles, Heavy Trucks, Buses & School Buses).
Heavy vehicle totals ARE included in the all vehicles summary and flow diagrams.

Tuesday, 26 November 2019
0730-0930 & 1600-1800
4 Hour Survey
City of Ottawa Ward ► 12



	McArthur Ave. Eastbound					McArthur Ave. Westbound					N/A Northbound					Dundas St. Southbound					
Time Period	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	G.Tot.
0730-0800	1	7	0	0	8	0	4	1	0	5	0	0	0	0	0	0	0	0	0	0	13
0800-0900	1	9	0	0	10	0	14	2	0	16	0	0	0	0	0	0	0	0	0	0	26
0900-0930	0	13	0	0	13	0	7	4	0	11	0	0	0	0	0	0	0	0	0	0	24
1600-1700	0	14	0	0	14	0	10	0	0	10	0	0	0	0	0	2	0	0	0	2	26
1700-1800	0	8	0	0	8	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	13
Totals	2	51	0	0	53	0	40	7	0	47	0	0	0	0	0	2	0	0	0	2	102

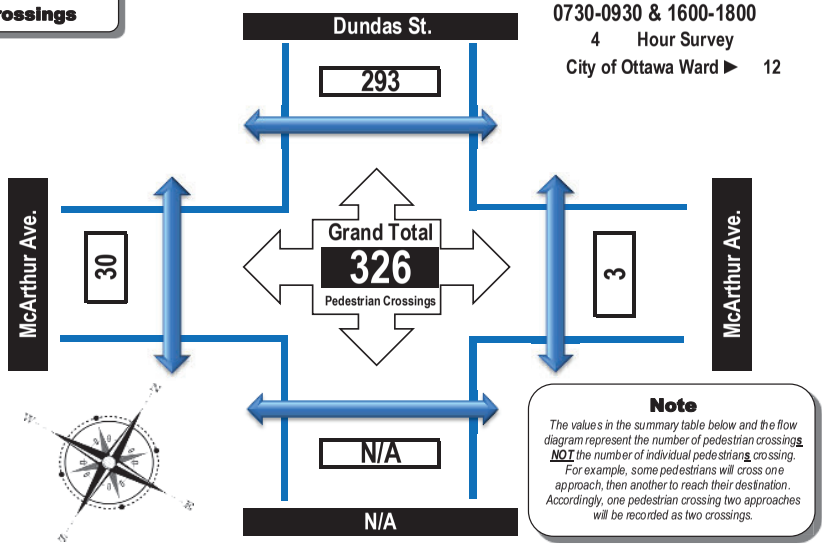
Comments:
There were no traffic issues observed.

Turning Movement Count
Pedestrian Crossings Summary
and Flow Diagram

Dundas Street & McArthur Avenue — **Vanier, ON**

Pedestrian Crossings

Tuesday, 26 November 2019
0730-0930 & 1600-1800
4 Hour Survey
City of Ottawa Ward ► 12



Note
*The values in the summary table below and the flow diagram represent the number of pedestrian crossings **NOT** the number of individual pedestrians crossing. For example, some pedestrians will cross one approach, then another to reach their destination. Accordingly, one pedestrian crossing two approaches will be recorded as two crossings.*

Time Period	West Side Crossing McArthur Ave.	East Side Crossing McArthur Ave.	Street Total	South Side Crossing N/A	North Side Crossing Dundas St.	Street Total	Grand Total
0730-0800	4	0	4	0	50	50	54
0800-0900	11	1	12	0	91	91	103
0900-0930	5	0	5	0	32	32	37
1600-1700	9	0	9	0	76	76	85
1700-1800	1	2	3	0	44	44	47
Totals	30	3	33	0	293	293	326

Comments:
There were no traffic issues observed.

ACCURATE TRUSTED TRAFFIC DATA

Turning Movement Count
Summary Report
AADT and Expansion Factors

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Dundas Street & McArthur Avenue — Vanier, ON

Survey Date: Tuesday, 26 November 2019 **Start Time:** 0730 **AADT Factor:** 1.0
Weather AM: Overcast +5°C **Survey Duration:** 4 Hrs. **Survey Hours:** 0730-0930 & 1600-1800
Weather PM: Overcast +10°C **Surveyor(s):** Merrett/Mousseau

	McArthur Ave. Eastbound					McArthur Ave. Westbound						N/A Northbound					Dundas St. Southbound						
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
0730-0800	4	181	0	0	185	0	139	32	0	171	356	0	0	0	0	0	5	0	12	0	17	17	373
0800-0900	15	354	0	0	369	0	258	92	3	353	722	0	0	0	0	0	11	0	13	0	24	24	746
0900-0930	5	133	0	0	138	0	105	49	1	155	293	0	0	0	0	0	2	0	2	0	4	4	297
1600-1700	7	474	0	0	481	0	292	92	0	384	865	0	0	0	0	0	26	0	4	0	30	30	895
1700-1800	3	424	0	0	427	0	209	69	0	278	705	0	0	0	0	0	23	0	4	0	27	27	732
Totals	34	1566	0	0	1600	0	1003	334	4	1341	2941	0	0	0	0	0	67	0	35	0	102	102	3043

Equivalent 12 & 24-hour Vehicle Volumes Including the Annual Average Daily Traffic (AADT) Factor Applicable to the Day and Month of the Turning Movement Count

Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts conducted during the hours of 0700h - 1000h, 1130h - 1330h and 1500h - 1800h

Equivalent 12-hour vehicle volumes. These volumes are calculated by multiplying the 8-hour totals by the 8 ➡12 expansion factor of 1.39

Equ. 12 Hr	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Average daily 12-hour vehicle volumes. These volumes are calculated by multiplying the equivalent 12-hour totals by the AADT factor of: 1.0

AADT 12-hr	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

24-Hour AADT. These volumes are calculated by multiplying the average daily 12-hour vehicle volumes by the 12 ➡24 expansion factor of 1.31

AADT 24 Hr	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

AADT and expansion factors provided by the City of Ottawa

AM Peak Hour Factor ➡ 0.97 — Highest Hourly Vehicle Volume Between 0700h & 1000h

AM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
0745-0845	10	371	0	0	381	0	258	79	3	340	721	0	0	0	0	0	10	0	16	0	26	26	747

PM Peak Hour Factor ➡ 0.93 — Highest Hourly Vehicle Volume Between 1500h & 1800h

PM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
1600-1700	7	474	0	0	481	0	292	92	0	384	865	0	0	0	0	0	26	0	4	0	30	30	895

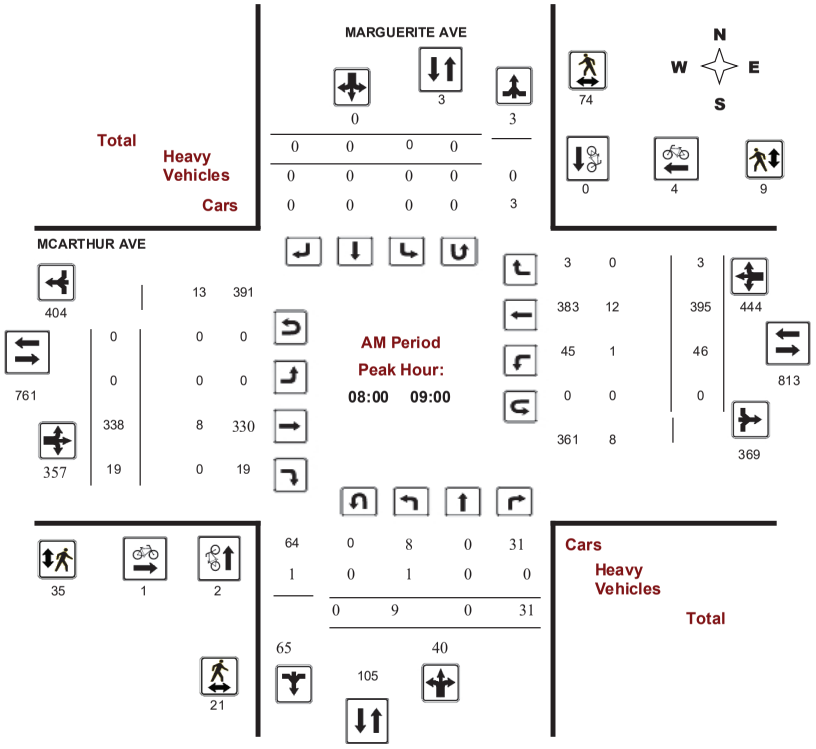
Comments:
There were no traffic issues observed.

Notes:
1. Includes all vehicle types except bicycles, electric bicycles, and electric scooters.
2.When expansion and AADT factors are applied, the results will differ slightly due to rounding.

Ottawa

Transportation Services - Traffic Services
Turning Movement Count - Full Study Peak Hour Diagram
MARGUERITE AVE @ MCARTHUR AVE

Survey Date: Tuesday, March 26, 2019 **WO No:** 38444
Start Time: 07:00 **Device:** Miovision



Comments

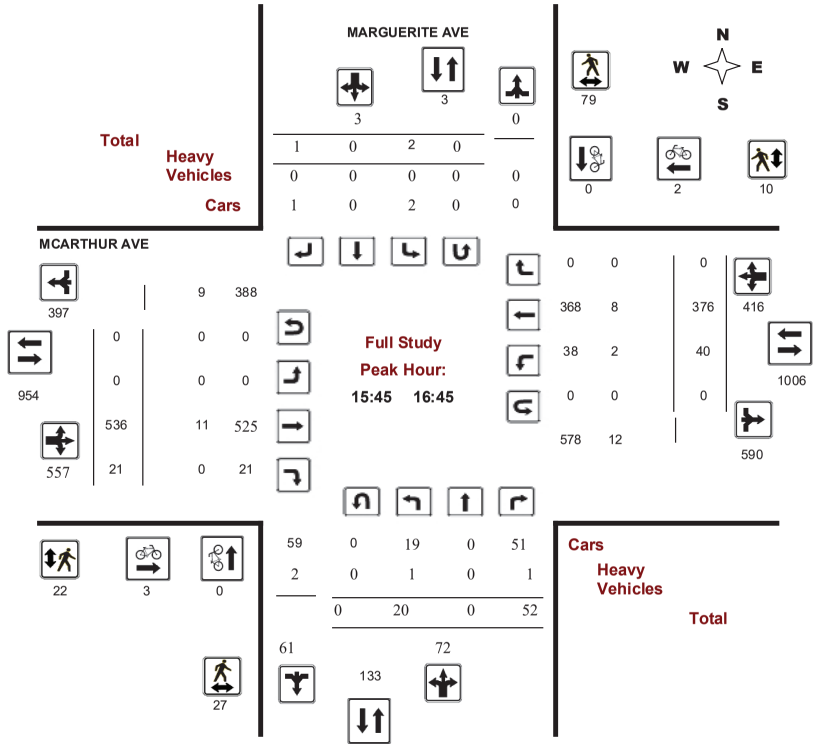
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

MARGUERITE AVE @ MCARTHUR AVE

Survey Date: Tuesday, March 26, 2019 **WO No:** 38444

Start Time: 07:00 **Device:** Miovision



Comments

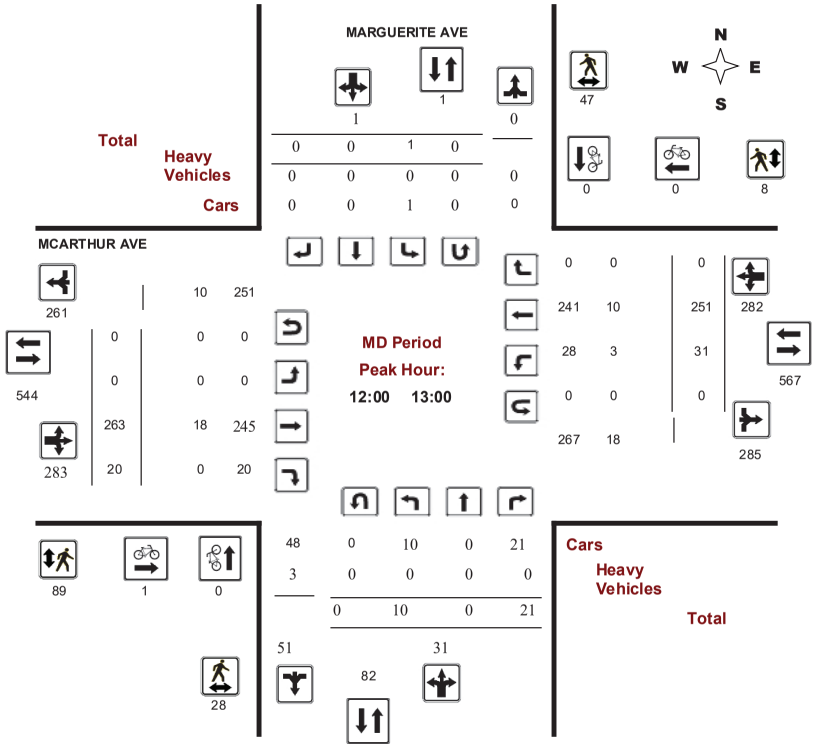
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

MARGUERITE AVE @ MCARTHUR AVE

Survey Date: Tuesday, March 26, 2019 **WO No:** 38444

Start Time: 07:00 **Device:** Miovision



Comments

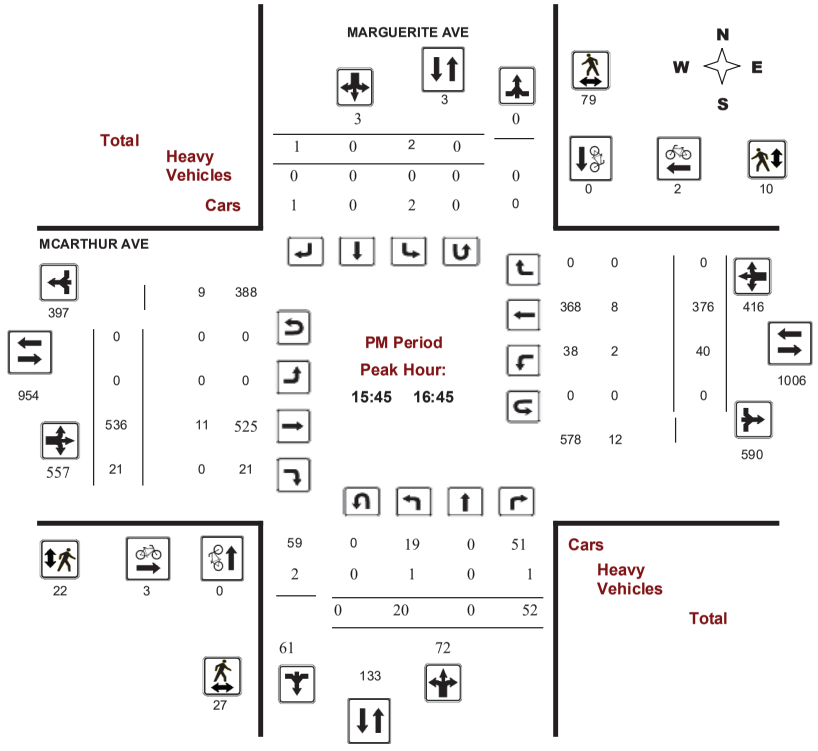
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

MARGUERITE AVE @ MCARTHUR AVE

Survey Date: Tuesday, March 26, 2019 **WO No:** 38444

Start Time: 07:00 **Device:** Miovision



Comments

Transportation Services - Traffic Services

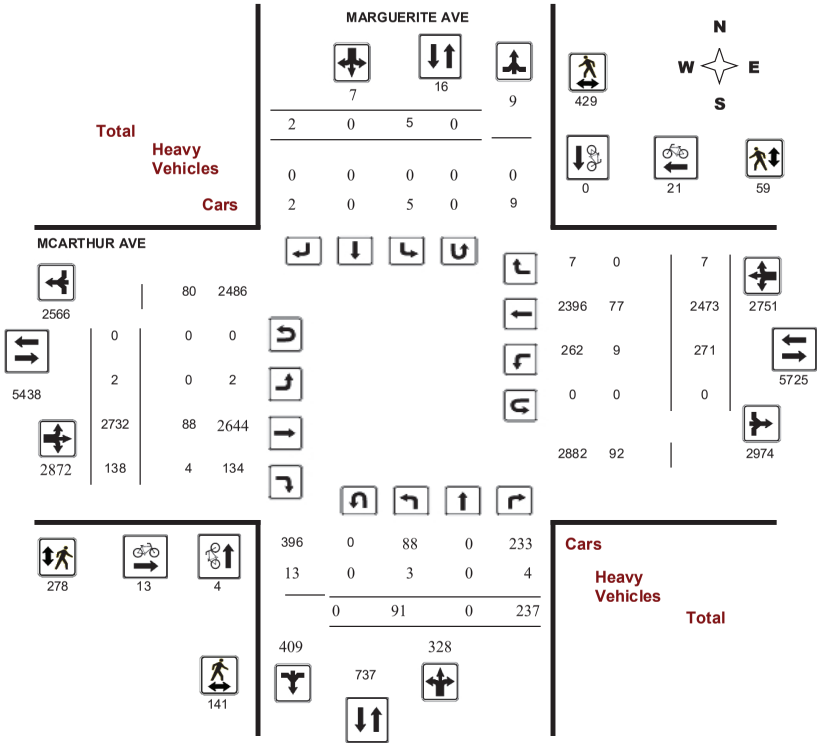
Turning Movement Count - Study Results

MARGUERITE AVE @ MCARTHUR AVE

Survey Date: Tuesday, March 26, 2019 **WO No:** 38444

Start Time: 07:00 **Device:** Miovision

Full Study Diagram



Transportation Services - Traffic Services

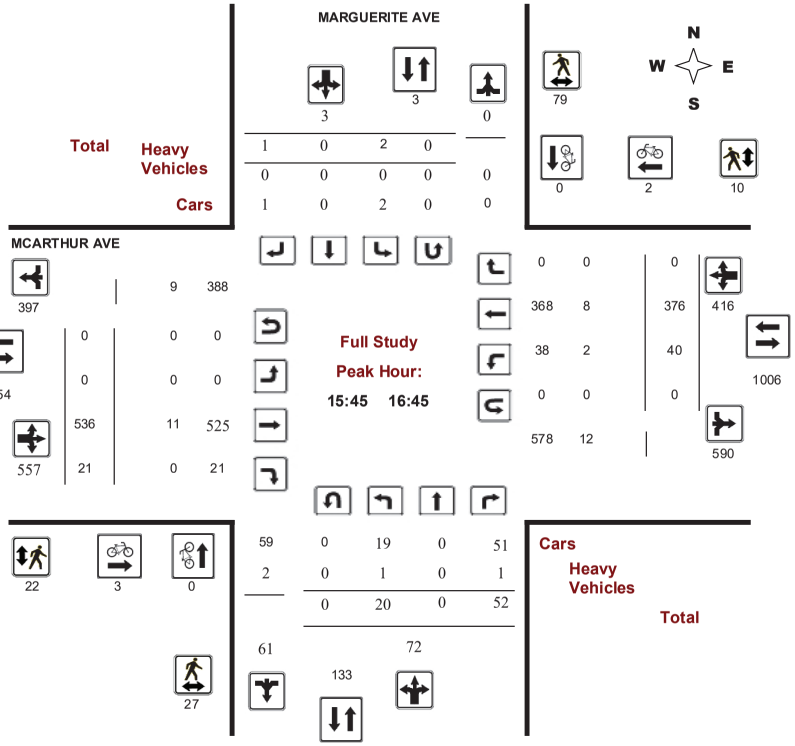
Turning Movement Count - Study Results

MARGUERITE AVE @ MCARTHUR AVE

Survey Date: Tuesday, March 26, 2019 **WO No:** 38444

Start Time: 07:00 **Device:** Miovision

Full Study Peak Hour Diagram



Transportation Services - Traffic Services

Turning Movement Count - Study Results

MARGUERITE AVE @ MCARTHUR AVE

Survey Date: Tuesday, March 26, 2019 **WO No:** 38444

Start Time: 07:00 **Device:** Miovision

Full Study Summary (8 HR Standard)

Survey Date: Tuesday, March 26, 2019

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

AADT Factor 1.39

	MARGUERITE AVE								MCARTHUR AVE									
	Northbound				Southbound				Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	6	0	14	**20**	0	0	0	**0**	**20**	1	265	9	**275**	46	358	2	**406**	**681**	**701**
08:00 09:00	9	0	31	**40**	0	0	0	**0**	**40**	0	338	19	**357**	46	395	3	**444**	**801**	**841**
09:00 10:00	5	0	14	**19**	0	0	0	**0**	**19**	1	234	17	**252**	22	283	1	**306**	**558**	**577**
11:30 12:30	7	0	15	**22**	1	0	0	**1**	**23**	0	253	20	**273**	27	214	0	**241**	**514**	**537**
12:30 13:30	13	0	24	**37**	0	0	0	**0**	**37**	0	237	19	**256**	27	259	1	**287**	**543**	**580**
15:00 16:00	12	0	55	**67**	0	0	1	**1**	**68**	0	472	11	**483**	32	327	0	**359**	**842**	**910**
16:00 17:00	21	0	51	**72**	4	0	1	**5**	**77**	0	530	26	**556**	36	360	0	**396**	**952**	**1029**
17:00 18:00	18	0	33	**51**	0	0	0	**0**	**51**	0	403	17	**420**	35	277	0	**312**	**732**	**783**
Sub Total	91	0	237	**328**	5	0	2	**7**	**335**	2	2732	138	**2872**	271	2473	7	**2751**	**5623**	**5958**
U Turns				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	91	0	237	**328**	5	0	2	**7**	**335**	2	2732	138	**2872**	271	2473	7	**2751**	**5623**	**5958**
EQ 12Hr	126	0	329	**456**	7	0	3	**10**	**466**	3	3797	192	**3992**	377	3437	10	**3824**	**7816**	**8282**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	126	0	329	**456**	7	0	3	**10**	**466**	3	3797	192	**3992**	377	3437	10	**3824**	**7816**	**8282**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1**					
AVG 24Hr	166	0	432	**597**	9	0	4	**13**	**610**	4	4975	251	**5230**	493	4503	13	**5009**	**10239**	**10849**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MARGUERITE AVE @ MCARTHUR AVE

Survey Date: Tuesday, March 26, 2019 **WO No:** 38444

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute Increments

		MARGUERITE AVE									MCARTHUR AVE									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	3	0	2	5	0	0	0	0	21	0	43	4	47	11	59	1	71	21	123
07:15	07:30	1	0	4	5	0	0	0	0	21	0	60	2	62	14	95	0	109	21	176
07:30	07:45	0	0	3	3	0	0	0	0	16	1	92	3	96	9	96	0	105	16	204
07:45	08:00	2	0	5	7	0	0	0	0	20	0	70	0	70	12	108	1	121	20	198
08:00	08:15	3	0	10	13	0	0	0	0	32	0	94	4	98	13	88	2	103	32	214
08:15	08:30	5	0	5	10	0	0	0	0	24	0	86	3	89	11	94	0	105	24	204
08:30	08:45	1	0	10	11	0	0	0	0	29	0	82	7	89	10	114	1	125	29	225
08:45	09:00	0	0	6	6	0	0	0	0	23	0	76	5	81	12	99	0	111	23	198
09:00	09:15	1	0	7	8	0	0	0	0	26	1	63	7	71	9	94	1	104	26	183
09:15	09:30	1	0	0	1	0	0	0	0	7	0	55	2	57	4	71	0	75	7	133
09:30	09:45	2	0	1	3	0	0	0	0	7	0	62	0	62	4	67	0	71	7	136
09:45	10:00	1	0	6	7	0	0	0	0	20	0	54	8	62	5	51	0	56	20	125
11:30	11:45	1	0	5	6	0	0	0	0	9	0	64	3	67	0	64	0	64	9	137
11:45	12:00	0	0	2	2	0	0	0	0	17	0	50	7	57	8	41	0	49	17	108
12:00	12:15	2	0	5	7	1	0	0	1	27	0	72	7	79	12	57	0	69	27	156
12:15	12:30	4	0	3	7	0	0	0	0	17	0	67	3	70	7	52	0	59	17	136
12:30	12:45	3	0	5	8	0	0	0	0	23	0	56	6	62	9	75	0	84	23	154
12:45	13:00	1	0	8	9	0	0	0	0	16	0	68	4	72	3	67	0	70	16	151
13:00	13:15	5	0	5	10	0	0	0	0	28	0	66	6	72	11	48	1	60	28	142
13:15	13:30	4	0	6	10	0	0	0	0	17	0	47	3	50	4	69	0	73	17	133
15:00	15:15	5	0	13	18	0	0	1	1	31	0	117	3	120	9	71	0	80	31	219
15:15	15:30	1	0	8	9	0	0	0	0	19	0	99	4	103	6	76	0	82	19	194
15:30	15:45	2	0	23	25	0	0	0	0	37	0	123	3	126	9	84	0	93	37	244
15:45	16:00	4	0	11	15	0	0	0	0	24	0	133	1	134	8	96	0	104	24	253
16:00	16:15	7	0	16	23	1	0	1	2	40	0	124	5	129	10	94	0	104	40	258
16:15	16:30	4	0	18	22	1	0	0	1	45	0	140	7	147	15	106	0	121	45	291
16:30	16:45	5	0	7	12	0	0	0	0	27	0	139	8	147	7	80	0	87	27	246
16:45	17:00	5	0	10	15	2	0	0	2	27	0	127	6	133	4	80	0	84	27	234
17:00	17:15	8	0	9	17	0	0	0	0	34	0	125	6	131	11	77	0	88	34	236
17:15	17:30	6	0	8	14	0	0	0	0	35	0	108	7	115	14	69	0	83	35	212
17:30	17:45	3	0	10	13	0	0	0	0	21	0	84	3	87	5	76	0	81	21	181
17:45	18:00	1	0	6	7	0	0	0	0	13	0	86	1	87	5	55	0	60	13	154
Total:		91	0	237	328	5	0	2	7	753	2	2732	138	2872	271	2473	7	2751	753	5,958

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MARGUERITE AVE @ MCARTHUR AVE

Survey Date: Tuesday, March 26, 2019 **WO No:** 38444

Start Time: 07:00 **Device:** Miovision

Full Study Cyclist Volume

		MARGUERITE AVE			MCARTHUR AVE			
Time Period		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	0	0	1	1	1
07:15	07:30	0	0	0	0	0	0	0
07:30	07:45	0	0	0	0	1	1	1
07:45	08:00	0	0	0	0	1	1	1
08:00	08:15	0	0	0	0	2	2	2
08:15	08:30	1	0	1	1	1	2	3
08:30	08:45	1	0	1	0	1	1	2
08:45	09:00	0	0	0	0	0	0	0
09:00	09:15	0	0	0	0	1	1	1
09:15	09:30	0	0	0	0	0	0	0
09:30	09:45	0	0	0	0	1	1	1
09:45	10:00	0	0	0	0	2	2	2
11:30	11:45	0	0	0	1	0	1	1
11:45	12:00	0	0	0	0	1	1	1
12:00	12:15	0	0	0	1	0	1	1
12:15	12:30	0	0	0	0	0	0	0
12:30	12:45	0	0	0	0	0	0	0
12:45	13:00	0	0	0	0	0	0	0
13:00	13:15	1	0	1	0	0	0	1
13:15	13:30	0	0	0	1	0	1	1
15:00	15:15	0	0	0	1	1	2	2
15:15	15:30	0	0	0	1	0	1	1
15:30	15:45	0	0	0	0	1	1	1
15:45	16:00	0	0	0	0	0	0	0
16:00	16:15	0	0	0	0	2	2	2
16:15	16:30	0	0	0	2	0	2	2
16:30	16:45	0	0	0	1	0	1	1
16:45	17:00	0	0	0	2	0	2	2
17:00	17:15	0	0	0	0	3	3	3
17:15	17:30	0	0	0	1	0	1	1
17:30	17:45	0	0	0	0	2	2	2
17:45	18:00	1	0	1	1	0	1	2
Total		4	0	4	13	21	34	38

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MARGUERITE AVE @ MCARTHUR AVE

Survey Date: Tuesday, March 26, 2019 **WO No:** 38444

Start Time: 07:00 **Device:** Miovision

Full Study Pedestrian Volume

	MARGUERITE AVE			MCARTHUR AVE			
Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	3	20	**23**	9	2	**11**	**34**
07:15 07:30	1	12	**13**	8	2	**10**	**23**
07:30 07:45	0	12	**12**	6	1	**7**	**19**
07:45 08:00	6	18	**24**	4	1	**5**	**29**
08:00 08:15	5	14	**19**	6	2	**8**	**27**
08:15 08:30	6	19	**25**	10	2	**12**	**37**
08:30 08:45	7	19	**26**	12	4	**16**	**42**
08:45 09:00	3	22	**25**	7	1	**8**	**33**
09:00 09:15	4	13	**17**	10	2	**12**	**29**
09:15 09:30	1	9	**10**	8	1	**9**	**19**
09:30 09:45	1	5	**6**	4	3	**7**	**13**
09:45 10:00	1	5	**6**	4	0	**4**	**10**
11:30 11:45	0	4	**4**	3	1	**4**	**8**
11:45 12:00	0	9	**9**	7	0	**7**	**16**
12:00 12:15	5	18	**23**	28	1	**29**	**52**
12:15 12:30	9	4	**13**	25	3	**28**	**41**
12:30 12:45	10	7	**17**	21	3	**24**	**41**
12:45 13:00	4	18	**22**	15	1	**16**	**38**
13:00 13:15	4	11	**15**	13	3	**16**	**31**
13:15 13:30	3	10	**13**	6	1	**7**	**20**
15:00 15:15	9	24	**33**	9	0	**9**	**42**
15:15 15:30	2	11	**13**	7	0	**7**	**20**
15:30 15:45	7	21	**28**	6	5	**11**	**39**
15:45 16:00	9	19	**28**	4	3	**7**	**35**
16:00 16:15	6	26	**32**	3	2	**5**	**37**
16:15 16:30	8	10	**18**	8	2	**10**	**28**
16:30 16:45	4	24	**28**	7	3	**10**	**38**
16:45 17:00	8	10	**18**	8	3	**11**	**29**
17:00 17:15	3	15	**18**	7	1	**8**	**26**
17:15 17:30	6	11	**17**	7	4	**11**	**28**
17:30 17:45	3	5	**8**	5	0	**5**	**13**
17:45 18:00	3	4	**7**	1	2	**3**	**10**
Total	141	429	**570**	278	59	**337**	**907**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MARGUERITE AVE @ MCARTHUR AVE

Survey Date: Tuesday, March 26, 2019 **WO No:** 38444

Start Time: 07:00 **Device:** Miovision

Full Study Heavy Vehicles

		MARGUERITE AVE									MCARTHUR AVE									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**3**	0	1	0	**3**	**6**	**3**
07:15	07:30	0	0	2	**3**	0	0	0	**0**	**3**	0	1	0	**3**	1	2	0	**6**	**9**	**6**
07:30	07:45	0	0	0	**0**	0	0	0	**0**	**0**	0	1	0	**6**	0	5	0	**6**	**12**	**6**
07:45	08:00	0	0	0	**1**	0	0	0	**0**	**1**	0	2	0	**4**	1	2	0	**5**	**9**	**5**
08:00	08:15	0	0	0	**0**	0	0	0	**0**	**0**	0	1	0	**4**	0	3	0	**4**	**8**	**4**
08:15	08:30	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**3**	0	1	0	**3**	**6**	**3**
08:30	08:45	1	0	0	**2**	0	0	0	**0**	**2**	0	1	0	**6**	1	4	0	**6**	**12**	**7**
08:45	09:00	0	0	0	**0**	0	0	0	**0**	**0**	0	4	0	**8**	0	4	0	**8**	**16**	**8**
09:00	09:15	0	0	0	**0**	0	0	0	**0**	**0**	0	3	0	**10**	0	7	0	**10**	**20**	**10**
09:15	09:30	0	0	0	**1**	0	0	0	**0**	**1**	0	2	1	**5**	0	2	0	**4**	**9**	**5**
09:30	09:45	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**5**	0	3	0	**5**	**10**	**5**
09:45	10:00	0	0	0	**2**	0	0	0	**0**	**2**	0	4	2	**6**	0	0	0	**4**	**10**	**6**
11:30	11:45	0	0	0	**0**	0	0	0	**0**	**0**	0	6	0	**11**	0	5	0	**11**	**22**	**11**
11:45	12:00	0	0	0	**0**	0	0	0	**0**	**0**	0	1	0	**1**	0	0	0	**1**	**2**	**1**
12:00	12:15	0	0	0	**1**	0	0	0	**0**	**1**	0	3	0	**5**	1	2	0	**6**	**11**	**6**
12:15	12:30	0	0	0	**0**	0	0	0	**0**	**0**	0	3	0	**3**	0	0	0	**3**	**6**	**3**
12:30	12:45	0	0	0	**2**	0	0	0	**0**	**2**	0	4	0	**10**	2	6	0	**12**	**22**	**12**
12:45	13:00	0	0	0	**0**	0	0	0	**0**	**0**	0	8	0	**10**	0	2	0	**10**	**20**	**10**
13:00	13:15	0	0	0	**0**	0	0	0	**0**	**0**	0	3	0	**5**	0	2	0	**5**	**10**	**5**
13:15	13:30	0	0	0	**0**	0	0	0	**0**	**0**	0	3	0	**7**	0	4	0	**7**	**14**	**7**
15:00	15:15	0	0	1	**1**	0	0	0	**0**	**1**	0	4	0	**6**	0	2	0	**7**	**13**	**7**
15:15	15:30	0	0	0	**0**	0	0	0	**0**	**0**	0	1	0	**4**	0	3	0	**4**	**8**	**4**
15:30	15:45	0	0	0	**0**	0	0	0	**0**	**0**	0	3	0	**7**	0	4	0	**7**	**14**	**7**
15:45	16:00	0	0	1	**2**	0	0	0	**0**	**2**	0	3	0	**5**	1	2	0	**7**	**12**	**7**
16:00	16:15	1	0	0	**1**	0	0	0	**0**	**1**	0	3	0	**6**	0	2	0	**5**	**11**	**6**
16:15	16:30	0	0	0	**1**	0	0	0	**0**	**1**	0	2	0	**5**	1	3	0	**6**	**11**	**6**
16:30	16:45	0	0	0	**0**	0	0	0	**0**	**0**	0	3	0	**4**	0	1	0	**4**	**8**	**4**
16:45	17:00	1	0	0	**2**	0	0	0	**0**	**2**	0	4	1	**7**	0	1	0	**5**	**12**	**7**
17:00	17:15	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**2**	0	0	0	**2**	**4**	**2**
17:15	17:30	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**4**	0	2	0	**4**	**8**	**4**
17:30	17:45	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**3**	0	1	0	**3**	**6**	**3**
17:45	18:00	0	0	0	**1**	0	0	0	**0**	**1**	0	3	0	**4**	1	1	0	**5**	**9**	**5**
Total:	None	3	0	4	**20**	0	0	0	**0**	**20**	0	88	4	**172**	9	77	0	**178**	**350**	**185**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MARGUERITE AVE @ MCARTHUR AVE

Survey Date: Tuesday, March 26, 2019 **WO No:** 38444

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute U-Turn Total

		MARGUERITE AVE		MCARTHUR AVE		
Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		0	0	0	0	0

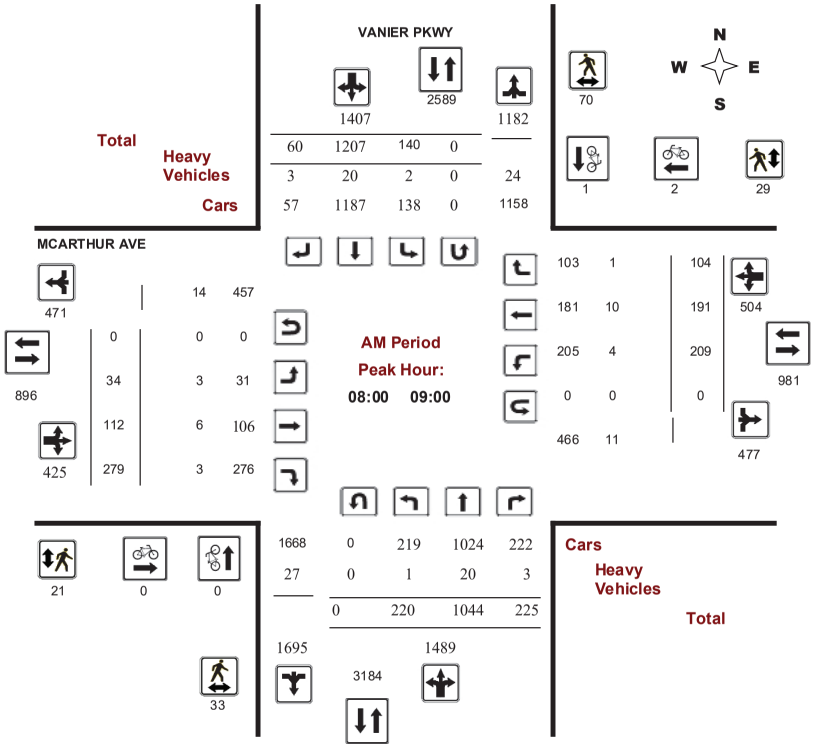
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

MCARTHUR AVE @ VANIER PKWY

Survey Date: Tuesday, March 26, 2019 **WO No:** 38463

Start Time: 07:00 **Device:** Miovision



Comments

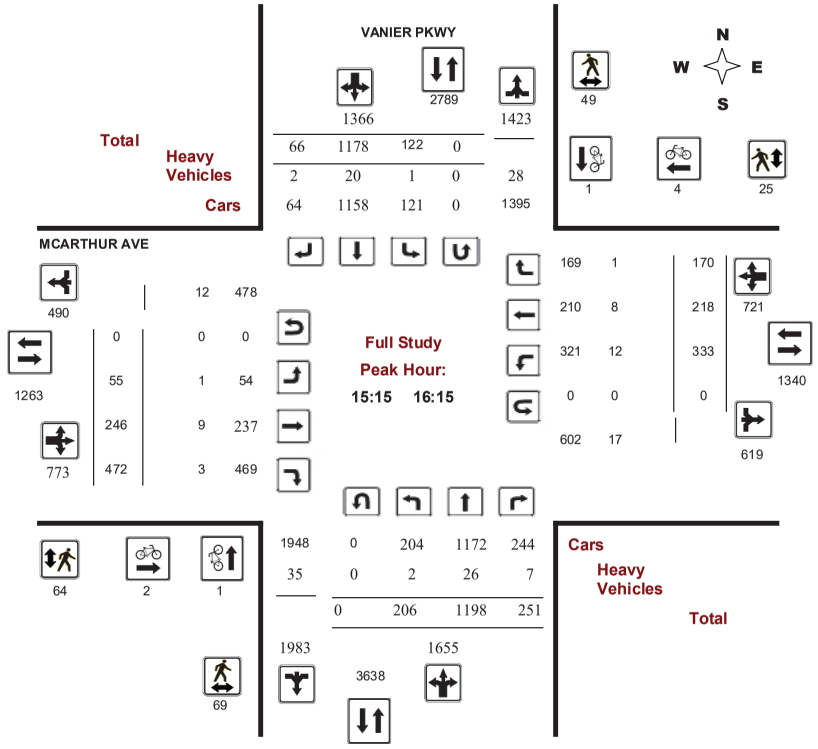
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

MCARTHUR AVE @ VANIER PKWY

Survey Date: Tuesday, March 26, 2019 **WO No:** 38463

Start Time: 07:00 **Device:** Miovision



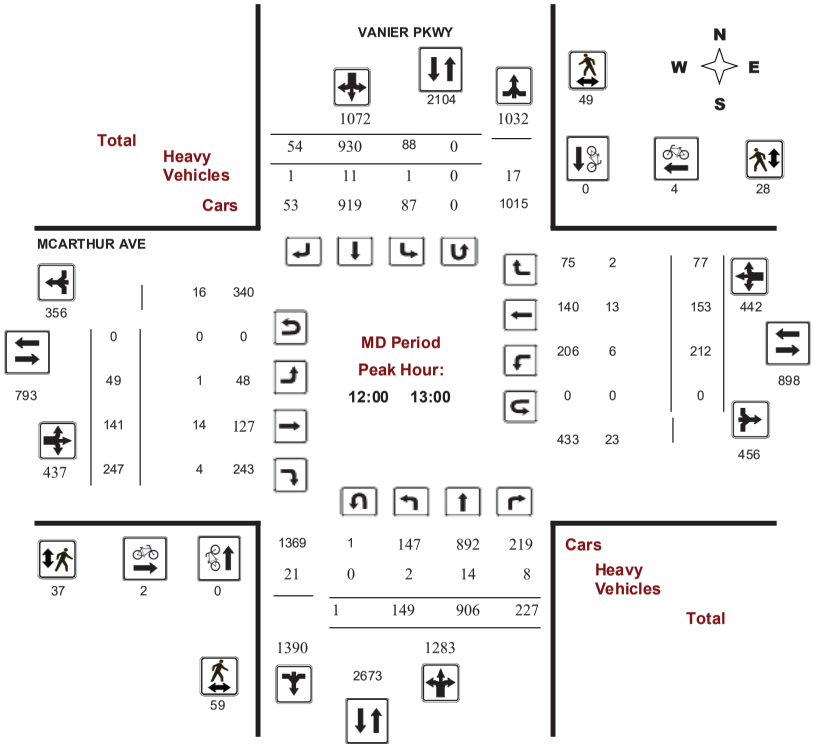
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

MCARTHUR AVE @ VANIER PKWY

Survey Date: Tuesday, March 26, 2019 **WO No:** 38463

Start Time: 07:00 **Device:** Miovision



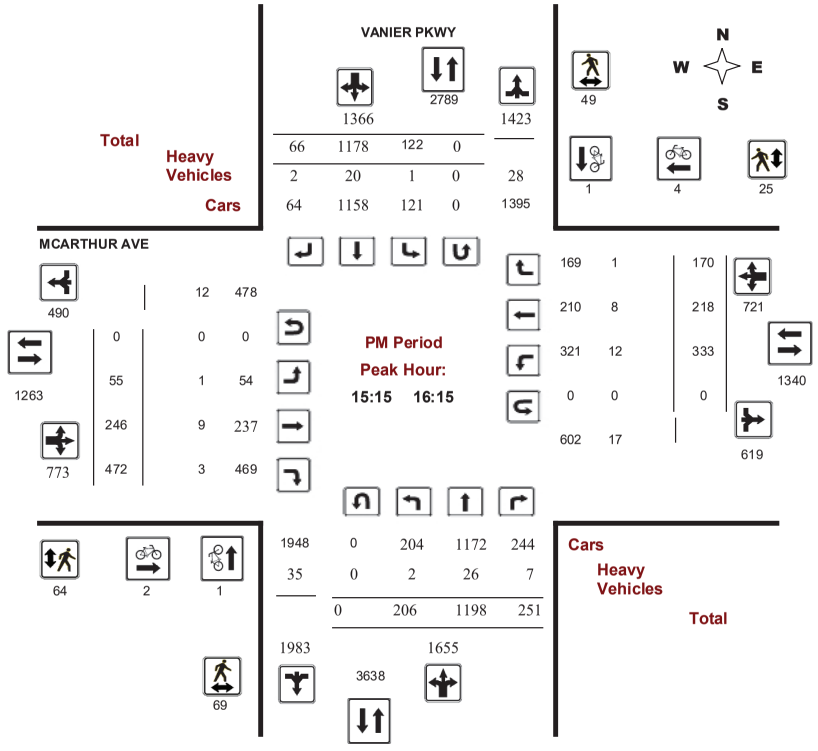
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

MCARTHUR AVE @ VANIER PKWY

Survey Date: Tuesday, March 26, 2019 **WO No:** 38463

Start Time: 07:00 **Device:** Miovision



Transportation Services - Traffic Services

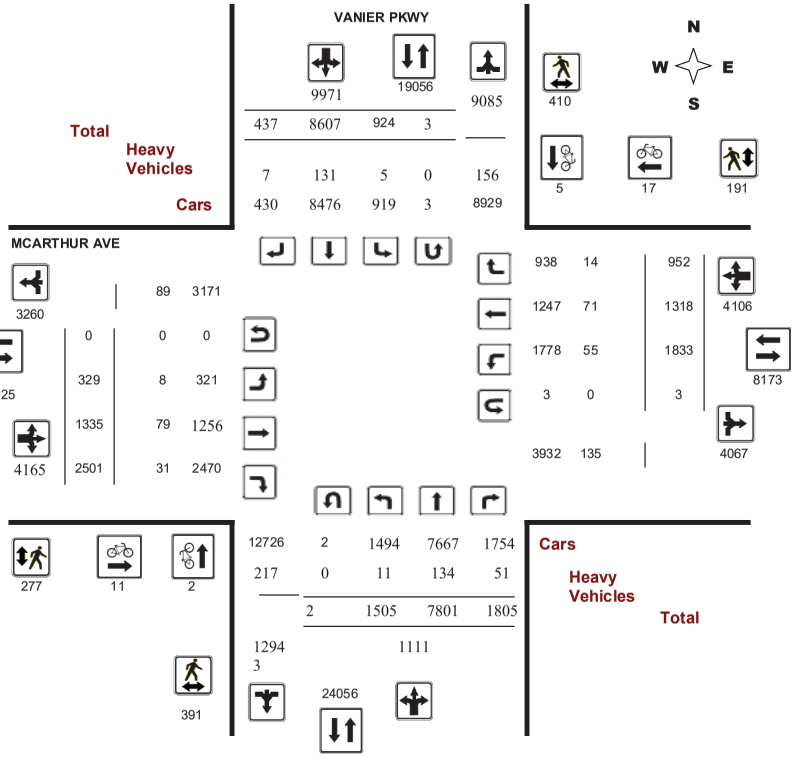
Turning Movement Count - Study Results

MCARTHUR AVE @ VANIER PKWY

Survey Date: Tuesday, March 26, 2019 **WO No:** 38463

Start Time: 07:00 **Device:** Miovision

Full Study Diagram



Transportation Services - Traffic Services

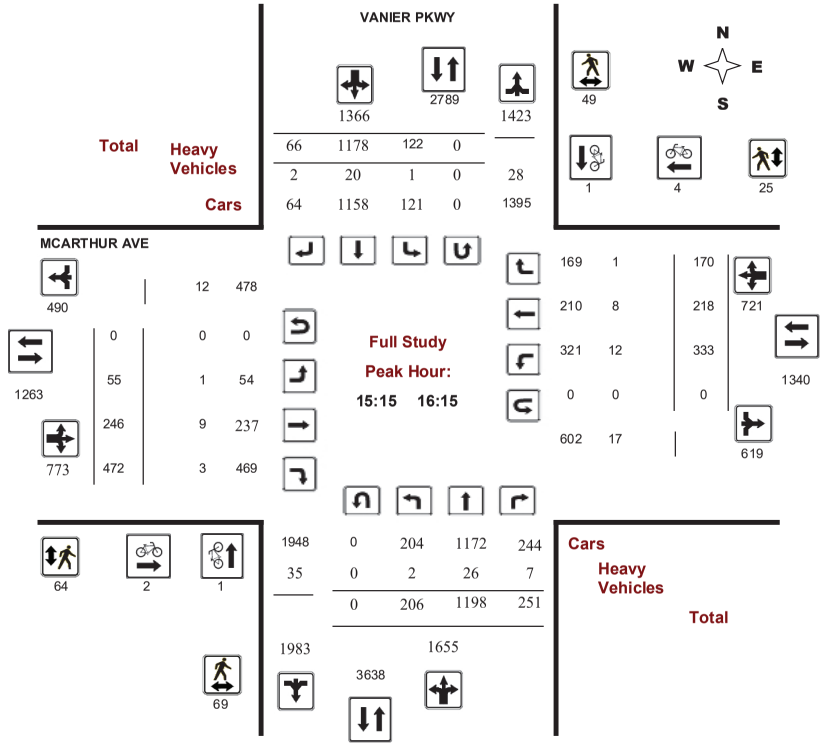
Turning Movement Count - Study Results

MCARTHUR AVE @ VANIER PKWY

Survey Date: Tuesday, March 26, 2019 **WO No:** 38463

Start Time: 07:00 **Device:** Miovision

Full Study Peak Hour Diagram



Transportation Services - Traffic Services

Turning Movement Count - Study Results

MCARTHUR AVE @ VANIER PKWY

Survey Date: Tuesday, March 26, 2019 **WO No:** 38463

Start Time: 07:00 **Device:** Miovision

Full Study Summary (8 HR Standard)

Survey Date: Tuesday, March 26, 2019

Total Observed U-Turns

Northbound: 2 Southbound: 3

Eastbound: 0 Westbound: 3

AADT Factor 1.39

	VANIER PKWY								MCARTHUR AVE									
	Northbound				Southbound				Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	200	794	163	**1157**	175	1027	45	**1247**	**2404**	19	106	186	**311**	201	162	96	**459**	**770**	**3174**
08:00 09:00	220	1044	225	**1489**	140	1207	60	**1407**	**2896**	34	112	279	**425**	209	191	104	**504**	**929**	**3825**
09:00 10:00	202	923	195	**1320**	80	1142	49	**1271**	**2591**	35	107	196	**338**	194	108	114	**416**	**754**	**3345**
11:30 12:30	135	867	199	**1201**	87	941	50	**1078**	**2279**	31	129	240	**400**	204	129	82	**415**	**815**	**3094**
12:30 13:30	151	769	214	**1134**	78	979	56	**1113**	**2247**	46	129	250	**425**	224	141	71	**436**	**861**	**3108**
15:00 16:00	200	1196	255	**1651**	119	1148	65	**1332**	**2983**	54	231	477	**762**	349	209	195	**753**	**1515**	**4498**
16:00 17:00	207	1144	271	**1622**	103	1066	54	**1223**	**2845**	55	286	492	**833**	245	216	140	**601**	**1434**	**4279**
17:00 18:00	190	1064	283	**1537**	142	1097	58	**1297**	**2834**	55	235	381	**671**	207	162	150	**519**	**1190**	**4024**
Sub Total	1505	7801	1805	**11111**	924	8607	437	**9968**	**21079**	329	1335	2501	**4165**	1833	1318	952	**4103**	**8268**	**29347**
U Turns				**2**				**3**	**5**				**0**				**3**	**3**	**8**
Total	1505	7801	1805	**11113**	924	8607	437	**9971**	**21084**	329	1335	2501	**4165**	1833	1318	952	**4106**	**8271**	**29355**
EQ 12Hr	2092	10843	2509	**15447**	1284	11964	607	**13860**	**29307**	457	1856	3476	**5789**	2548	1832	1323	**5707**	**11497**	**40803**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	2092	10843	2509	**15447**	1284	11964	607	**13860**	**29307**	457	1856	3476	**5789**	2548	1832	1323	**5707**	**11497**	**40803**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1**					
AVG 24Hr	2740	14205	3287	**20236**	1683	15672	796	**18156**	**38392**	599	2431	4554	**7584**	3338	2400	1733	**7477**	**15061**	**53453**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MCARTHUR AVE @ VANIER PKWY

Survey Date: Tuesday, March 26, 2019 **WO No:** 38463

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute Increments

		VANIER PKWY									MCARTHUR AVE									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	47	160	40	247	26	305	11	342	1153	3	19	31	53	48	27	17	92	1153	734
07:15	07:30	50	161	42	253	57	270	10	337	1144	4	22	41	67	53	35	25	113	1144	770
07:30	07:45	42	217	39	298	50	175	17	242	1070	3	36	62	101	53	53	20	127	1070	768
07:45	08:00	61	256	42	359	42	277	7	329	1366	9	29	52	90	47	47	34	130	1366	908
08:00	08:15	54	277	51	382	36	286	15	337	1423	6	35	77	118	43	41	15	99	1423	936
08:15	08:30	60	245	53	358	33	287	18	338	1396	11	26	63	100	56	43	38	137	1396	933
08:30	08:45	49	275	52	376	31	367	14	412	1592	6	17	73	96	57	51	26	134	1592	1018
08:45	09:00	57	247	69	373	40	267	13	320	1362	11	34	66	111	53	56	25	134	1362	938
09:00	09:15	69	235	54	358	22	315	9	346	1411	8	28	59	95	54	37	36	127	1411	926
09:15	09:30	49	248	47	344	20	275	17	312	1311	7	25	41	73	47	22	37	106	1311	835
09:30	09:45	56	222	45	323	17	282	13	312	1286	11	28	52	91	62	21	22	105	1286	831
09:45	10:00	28	218	49	295	21	270	10	301	1187	9	26	44	79	31	28	19	78	1187	753
11:30	11:45	37	192	38	267	20	235	6	261	1093	4	26	64	94	53	40	17	110	1093	732
11:45	12:00	31	200	61	292	28	258	15	301	1176	5	27	54	86	43	22	23	88	1176	767
12:00	12:15	26	230	54	310	22	203	14	239	1129	10	48	66	124	51	42	20	113	1129	786
12:15	12:30	41	245	46	332	17	245	15	277	1246	12	28	56	96	57	25	22	104	1246	809
12:30	12:45	44	206	64	314	21	239	14	274	1194	16	31	64	111	61	48	20	129	1194	828
12:45	13:00	38	225	63	327	28	243	11	282	1208	11	34	61	106	43	38	15	96	1208	811
13:00	13:15	29	191	46	266	17	229	17	263	1130	15	34	69	118	70	32	27	129	1130	776
13:15	13:30	40	147	41	228	12	268	14	294	1056	4	30	56	90	50	23	9	82	1056	694
15:00	15:15	45	305	70	420	23	264	12	299	1571	12	58	123	193	84	47	64	195	1571	1107
15:15	15:30	49	320	59	428	37	325	9	371	1684	14	48	105	167	88	48	33	169	1684	1135
15:30	15:45	50	291	65	406	29	228	20	277	1493	13	69	128	210	97	67	53	217	1493	1110
15:45	16:00	56	280	61	397	30	331	24	385	1654	15	56	121	192	80	47	45	172	1654	1146
16:00	16:15	51	307	66	424	26	294	13	333	1596	13	73	118	204	68	56	39	163	1596	1124
16:15	16:30	67	277	70	414	23	238	15	276	1450	15	81	141	237	50	65	39	154	1450	1081
16:30	16:45	39	303	71	413	18	292	13	323	1561	18	69	115	202	66	49	31	146	1561	1084
16:45	17:00	50	257	64	371	36	242	13	291	1380	9	63	118	190	61	46	31	138	1380	990
17:00	17:15	53	255	77	385	36	290	16	342	1503	10	49	123	182	51	40	47	138	1503	1047
17:15	17:30	37	266	66	370	34	298	20	352	1483	11	70	101	182	53	54	31	138	1483	1042
17:30	17:45	54	242	67	363	38	270	11	319	1390	18	46	92	156	54	37	32	123	1390	961
17:45	18:00	46	301	73	420	34	239	11	284	1414	16	70	65	151	49	31	40	120	1414	975
Total:		1505	7801	1805	1111	924	8607	437	9971	43112	329	1335	2501	4165	1833	1318	952	4106	43112	29,355

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MCARTHUR AVE @ VANIER PKWY

Survey Date: Tuesday, March 26, 2019 **WO No:** 38463

Start Time: 07:00 **Device:** Miovision

Full Study Cyclist Volume

		VANIER PKWY			MCARTHUR AVE			
Time Period		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	0	1	2	3	3
07:15	07:30	0	0	0	0	1	1	1
07:30	07:45	0	0	0	0	0	0	0
07:45	08:00	0	0	0	0	0	0	0
08:00	08:15	0	0	0	0	1	1	1
08:15	08:30	0	1	1	0	0	0	1
08:30	08:45	0	0	0	0	1	1	1
08:45	09:00	0	0	0	0	0	0	0
09:00	09:15	0	0	0	0	0	0	0
09:15	09:30	0	0	0	0	1	1	1
09:30	09:45	0	0	0	0	2	2	2
09:45	10:00	0	0	0	0	0	0	0
11:30	11:45	0	0	0	0	0	0	0
11:45	12:00	0	0	0	0	1	1	1
12:00	12:15	0	0	0	1	0	1	1
12:15	12:30	0	0	0	1	3	4	4
12:30	12:45	0	0	0	0	0	0	0
12:45	13:00	0	0	0	0	1	1	1
13:00	13:15	0	0	0	0	0	0	0
13:15	13:30	0	0	0	0	0	0	0
15:00	15:15	0	0	0	0	0	0	0
15:15	15:30	0	0	0	0	0	0	0
15:30	15:45	0	1	1	0	0	0	1
15:45	16:00	1	0	1	0	3	3	4
16:00	16:15	0	0	0	2	1	3	3
16:15	16:30	0	0	0	3	0	3	3
16:30	16:45	1	0	1	2	0	2	3
16:45	17:00	0	0	0	0	0	0	0
17:00	17:15	0	1	1	0	0	0	1
17:15	17:30	0	0	0	1	0	1	1
17:30	17:45	0	1	1	0	0	0	1
17:45	18:00	0	1	1	0	0	0	1
Total		2	5	7	11	17	28	35

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MCARTHUR AVE @ VANIER PKWY

Survey Date: Tuesday, March 26, 2019 **WO No:** 38463

Start Time: 07:00 **Device:** Miovision

Full Study Pedestrian Volume

		VANIER PKWY			MCARTHUR AVE			
Time Period		NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00	07:15	5	22	**27**	2	6	**8**	**35**
07:15	07:30	2	15	**17**	1	6	**7**	**24**
07:30	07:45	6	15	**21**	0	6	**6**	**27**
07:45	08:00	12	18	**30**	2	15	**17**	**47**
08:00	08:15	11	11	**22**	6	9	**15**	**37**
08:15	08:30	9	20	**29**	3	9	**12**	**41**
08:30	08:45	6	14	**20**	2	5	**7**	**27**
08:45	09:00	7	25	**32**	10	6	**16**	**48**
09:00	09:15	1	8	**9**	0	2	**2**	**11**
09:15	09:30	0	8	**8**	4	2	**6**	**14**
09:30	09:45	0	2	**2**	4	4	**8**	**10**
09:45	10:00	4	5	**9**	3	4	**7**	**16**
11:30	11:45	14	7	**21**	10	5	**15**	**36**
11:45	12:00	10	17	**27**	9	3	**12**	**39**
12:00	12:15	21	11	**32**	9	8	**17**	**49**
12:15	12:30	15	9	**24**	13	9	**22**	**46**
12:30	12:45	12	10	**22**	4	7	**11**	**33**
12:45	13:00	11	19	**30**	11	4	**15**	**45**
13:00	13:15	13	9	**22**	8	5	**13**	**35**
13:15	13:30	13	9	**22**	5	4	**9**	**31**
15:00	15:15	15	25	**40**	13	8	**21**	**61**
15:15	15:30	9	8	**17**	8	5	**13**	**30**
15:30	15:45	13	14	**27**	12	8	**20**	**47**
15:45	16:00	23	6	**29**	22	6	**28**	**57**
16:00	16:15	24	21	**45**	22	6	**28**	**73**
16:15	16:30	22	13	**35**	17	6	**23**	**58**
16:30	16:45	21	15	**36**	18	5	**23**	**59**
16:45	17:00	17	19	**36**	9	11	**20**	**56**
17:00	17:15	14	14	**28**	14	1	**15**	**43**
17:15	17:30	24	11	**35**	13	4	**17**	**52**
17:30	17:45	18	8	**26**	13	4	**17**	**43**
17:45	18:00	19	2	**21**	10	8	**18**	**39**
Total	.....	391	410	**801**	277	191	**468**	**1269**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MCARTHUR AVE @ VANIER PKWY

Survey Date: Tuesday, March 26, 2019 **WO No:** 38463

Start Time: 07:00 **Device:** Miovision

Full Study Heavy Vehicles

		VANIER PKWY									MCARTHUR AVE									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	5	1	**15**	0	5	0	**12**	**27**	0	3	0	**6**	4	3	2	**13**	**19**	**23**
07:15	07:30	1	5	1	**12**	1	2	0	**8**	**20**	0	1	0	**4**	3	2	0	**8**	**12**	**16**
07:30	07:45	1	4	2	**12**	0	3	0	**8**	**20**	0	3	1	**8**	1	3	1	**10**	**18**	**19**
07:45	08:00	0	5	0	**9**	0	2	0	**7**	**16**	0	2	1	**6**	1	3	0	**6**	**12**	**14**
08:00	08:15	0	7	2	**14**	0	3	0	**11**	**25**	1	1	1	**6**	1	3	0	**7**	**13**	**19**
08:15	08:30	0	1	0	**6**	0	4	1	**6**	**12**	0	1	0	**2**	1	0	0	**2**	**4**	**8**
08:30	08:45	0	7	0	**17**	1	8	2	**20**	**37**	1	0	1	**7**	1	3	1	**6**	**13**	**25**
08:45	09:00	1	5	1	**14**	1	5	0	**12**	**26**	1	4	1	**11**	1	4	0	**11**	**22**	**24**
09:00	09:15	1	5	3	**22**	0	7	0	**14**	**36**	1	3	3	**13**	3	5	1	**15**	**28**	**32**
09:15	09:30	0	5	4	**21**	0	10	1	**16**	**37**	0	3	0	**6**	2	2	0	**11**	**17**	**27**
09:30	09:45	1	5	2	**14**	0	4	0	**9**	**23**	0	3	0	**6**	2	2	0	**9**	**15**	**19**
09:45	10:00	0	6	1	**12**	0	2	0	**10**	**22**	1	2	1	**5**	2	1	1	**7**	**12**	**17**
11:30	11:45	0	2	1	**11**	0	5	0	**7**	**18**	0	4	2	**11**	1	5	0	**11**	**22**	**20**
11:45	12:00	0	3	4	**14**	0	5	0	**9**	**23**	0	1	2	**3**	0	0	1	**6**	**9**	**16**
12:00	12:15	0	1	1	**11**	0	6	0	**7**	**18**	0	3	0	**6**	3	3	0	**10**	**16**	**17**
12:15	12:30	0	3	0	**5**	0	2	0	**6**	**11**	0	1	0	**2**	0	1	1	**3**	**5**	**8**
12:30	12:45	1	8	3	**16**	0	1	1	**11**	**27**	1	2	1	**13**	2	7	0	**14**	**27**	**27**
12:45	13:00	1	2	4	**13**	1	2	0	**6**	**19**	0	8	3	**14**	1	2	1	**17**	**31**	**25**
13:00	13:15	0	6	2	**16**	0	3	0	**10**	**26**	1	4	2	**9**	3	2	0	**11**	**20**	**23**
13:15	13:30	1	1	1	**8**	0	3	0	**5**	**13**	0	1	1	**5**	1	2	1	**6**	**11**	**12**
15:00	15:15	0	2	2	**12**	0	3	0	**6**	**18**	0	4	1	**6**	4	1	1	**12**	**18**	**18**
15:15	15:30	1	9	1	**19**	1	3	0	**14**	**33**	1	1	0	**5**	5	2	0	**10**	**15**	**24**
15:30	15:45	1	6	2	**24**	0	9	0	**15**	**39**	0	2	2	**7**	4	2	0	**10**	**17**	**28**
15:45	16:00	0	2	1	**13**	0	7	2	**11**	**24**	0	1	1	**5**	2	1	0	**5**	**10**	**17**
16:00	16:15	0	9	3	**14**	0	1	0	**11**	**25**	0	5	0	**8**	1	3	1	**13**	**21**	**23**
16:15	16:30	1	5	1	**15**	0	5	0	**10**	**25**	0	3	3	**10**	0	3	0	**7**	**17**	**21**
16:30	16:45	0	4	0	**9**	0	3	0	**7**	**16**	0	3	1	**5**	1	1	0	**5**	**10**	**13**
16:45	17:00	0	2	2	**11**	0	5	0	**8**	**19**	0	2	1	**4**	1	1	1	**7**	**11**	**15**
17:00	17:15	0	3	1	**7**	0	2	0	**5**	**12**	0	1	1	**2**	0	0	0	**2**	**4**	**8**
17:15	17:30	0	3	1	**9**	0	3	0	**7**	**16**	0	2	0	**4**	2	2	1	**8**	**12**	**14**
17:30	17:45	0	2	3	**11**	0	4	0	**6**	**17**	0	2	1	**4**	1	1	0	**7**	**11**	**14**
17:45	18:00	0	1	1	**7**	0	4	0	**5**	**12**	0	3	0	**4**	1	1	0	**6**	**10**	**11**
Total:	None	11	134	51	**413**	5	131	7	**299**	**712**	8	79	31	**207**	55	71	14	**275**	**482**	**597**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MCARTHUR AVE @ VANIER PKWY

Survey Date: Tuesday, March 26, 2019 **WO No:** 38463

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute U-Turn Total

Time Period		VANIER PKWY Northbound U-Turn Total	VANIER PKWY Southbound U-Turn Total	MCARTHUR AVE Eastbound U-Turn Total	MCARTHUR AVE Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	1	1
07:45	08:00	0	3	0	2	5
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	1	0	0	0	1
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	1	0	0	0	1
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		2	3	0	3	8

Appendix C

Synchro Intersection Worksheets – Existing Conditions

DRAFT



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	467	362	0	695	13	244	10	35	17	25	15
Future Volume (vph)	3	467	362	0	695	13	244	10	35	17	25	15
Satd. Flow (prot)	0	2865	0	0	3167	0	1595	1336	0	0	1519	0
Flt Permitted		0.953					0.950				0.247	
Satd. Flow (perm)	0	2730	0	0	3167	0	1581	1336	0	0	377	0
Satd. Flow (RTOR)					2			39			15	
Lane Group Flow (vph)	0	924	0	0	786	0	271	50	0	0	64	0
Turn Type	Perm	NA			NA		Prot	NA		Perm	NA	
Protected Phases		2			6		13	10			8	
Permitted Phases	2									8		
Detector Phase	2	2			6		13	10		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	28.0	28.0			28.0		11.5	36.5		16.5	16.5	
Total Split (s)	29.0	29.0			29.0		24.0	49.0		17.0	17.0	
Total Split (%)	30.5%	30.5%			30.5%		25.3%	51.6%		17.9%	17.9%	
Yellow Time (s)	3.0	3.0			3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.7	3.7			3.7		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		6.7			6.7		6.5	6.5			6.5	
Lead/Lag							Lag					
Lead-Lag Optimize?							Yes					
Recall Mode	C-Max	C-Max			C-Max		None	None		None	None	
Act Effct Green (s)		41.9			41.9		22.9	22.9			10.5	
Actuated g/C Ratio		0.44			0.44		0.24	0.24			0.11	
v/c Ratio		0.77			0.56		0.70	0.14			1.16	
Control Delay		28.8			22.4		43.0	12.2			207.6	
Queue Delay		0.0			29.2		0.0	0.0			0.0	
Total Delay		28.8			51.6		43.0	12.2			207.6	
LOS		C			D		D	B			F	
Approach Delay		28.8			51.6			38.2			207.6	
Approach LOS		C			D			D			F	
Queue Length 50th (m)		74.3			55.3		45.1	1.6			~11.4	
Queue Length 95th (m)		#115.3			79.0		68.3	9.8			#37.8	
Internal Link Dist (m)		194.5			52.8			112.9			59.0	
Turn Bay Length (m)							90.0					
Base Capacity (vph)		1203			1397		386	619			55	
Starvation Cap Reductn		0			642		0	0			0	
Spillback Cap Reductn		0			0		0	0			0	
Storage Cap Reductn		0			0		0	0			0	
Reduced v/c Ratio		0.77			1.04		0.70	0.08			1.16	

Intersection Summary
Cycle Length: 95
Actuated Cycle Length: 95
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Lane Group	Ø14
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	14
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	3.0
Total Split (s)	25.0
Total Split (%)	26%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

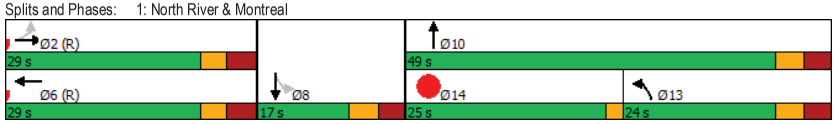
Maximum v/c Ratio: 1.16

Intersection Signal Delay: 44.3	Intersection LOS: D
Intersection Capacity Utilization 61.4%	ICU Level of Service B
Analysis Period (min) 15	

~ 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: 1: North River & Montreal



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	431	88	53	689	19	38
Future Volume (vph)	431	88	53	689	19	38
Satd. Flow (prot)	3131	0	0	3182	1658	1401
Flt Permitted				0.870	0.950	
Satd. Flow (perm)	3131	0	0	2777	1649	1379
Satd. Flow (RTOR)	57					42
Lane Group Flow (vph)	577	0	0	825	21	42
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases			6		4	4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	39.9		15.9	15.9	19.5	19.5
Total Split (s)	56.0		56.0	56.0	24.0	24.0
Total Split (%)	70.0%		70.0%	70.0%	30.0%	30.0%
Yellow Time (s)	3.3		3.3	3.3	3.3	3.3
All-Red Time (s)	2.6		2.6	2.6	2.2	2.2
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	5.9			5.9	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	None	None
Act Effct Green (s)	66.4			66.4	10.8	10.8
Actuated g/C Ratio	0.83			0.83	0.14	0.14
v/c Ratio	0.22			0.36	0.09	0.19
Control Delay	2.9			3.9	30.6	12.2
Queue Delay	0.3			0.0	0.0	0.0
Total Delay	3.2			3.9	30.6	12.2
LOS	A			A	C	B
Approach Delay	3.2			3.9	18.3	
Approach LOS	A			A	B	
Queue Length 50th (m)	10.6			20.1	2.9	0.0
Queue Length 95th (m)	19.5			35.2	8.6	8.1
Internal Link Dist (m)	52.8			262.4	214.6	
Turn Bay Length (m)					35.0	
Base Capacity (vph)	2607			2303	381	351
Starvation Cap Reductn	1352			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.46			0.36	0.06	0.12

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Lanes, Volumes, Timings
2: Montgomery & Montreal

09/21/2021

Maximum v/c Ratio: 0.36

Intersection Signal Delay: 4.3	Intersection LOS: A
Intersection Capacity Utilization 73.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Montgomery & Montreal



Lanes, Volumes, Timings
4: Vanier & Montreal

09/21/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	281	134	165	475	194	180	857	166	213	1096	137
Future Volume (vph)	35	281	134	165	475	194	180	857	166	213	1096	137
Satd. Flow (prot)	1642	3028	0	1658	3018	0	1642	4764	1483	1642	4764	1483
Flt Permitted	0.326			0.265			0.950			0.950		
Satd. Flow (perm)	549	3028	0	452	3018	0	1625	4764	1393	1620	4764	1386
Satd. Flow (RTOR)		54			49				184			138
Lane Group Flow (vph)	39	461	0	183	744	0	200	952	184	237	1218	152
Turn Type	Perm	NA		pm+pt	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	39.6	39.6		10.7	39.6		11.1	28.9	28.9	11.1	28.9	28.9
Total Split (s)	40.0	40.0		16.0	56.0		29.0	55.0	55.0	29.0	55.0	55.0
Total Split (%)	28.6%	28.6%		11.4%	40.0%		20.7%	39.3%	39.3%	20.7%	39.3%	39.3%
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.3	3.3		2.4	3.3		2.4	2.2	2.2	2.4	2.2	2.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6		5.7	6.6		6.1	5.9	5.9	6.1	5.9	5.9
Lead/Lag	Lag	Lag		Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	30.0	30.0		46.9	46.0		20.8	52.9	52.9	22.5	54.7	54.7
Actuated g/C Ratio	0.21	0.21		0.34	0.33		0.15	0.38	0.38	0.16	0.39	0.39
v/c Ratio	0.33	0.67		0.77	0.73		0.82	0.53	0.29	0.90	0.65	0.24
Control Delay	53.3	48.9		56.5	42.8		87.7	35.4	11.1	92.1	38.3	7.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.3	48.9		56.5	42.8		87.7	35.4	11.1	92.1	38.3	7.3
LOS	D	D		E	D		F	D	B	F	D	A
Approach Delay		49.2			45.5			39.9			43.3	
Approach LOS		D			D			D			D	
Queue Length 50th (m)	8.9	53.4		36.5	86.7		58.4	51.0	10.6	64.7	106.6	2.5
Queue Length 95th (m)	20.6	71.8		#61.6	109.4		m73.6	64.5	m20.2	#110.5	124.7	17.7
Internal Link Dist (m)		262.4			185.9			154.6			239.2	
Turn Bay Length (m)	35.0			50.0			135.0		135.0	135.0		135.0
Base Capacity (vph)	130	763		239	1096		270	1801	641	272	1860	625
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.60		0.77	0.68		0.74	0.53	0.29	0.87	0.65	0.24

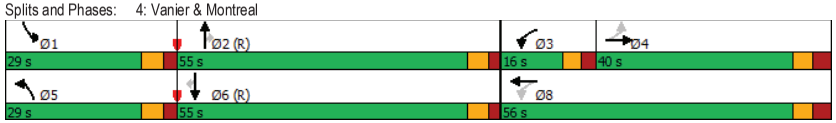
Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 102 (73%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 43.4	Intersection LOS: D
Intersection Capacity Utilization 88.9%	ICU Level of Service E
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Vanier & Montreal



Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	27	34	274	0	0	397
Future Vol, veh/h	27	34	274	0	0	397
Conflicting Peds, #/hr	3	0	0	90	90	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	500	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	7	2	8	2	2	2
Mvmt Flow	30	38	304	0	0	441

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	748	304	0	-	-	-
Stage 1	304	-	-	-	-	-
Stage 2	444	-	-	-	-	-
Critical Hdwy	6.47	6.22	-	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	-	-	-	-
Pot Cap-1 Maneuver	373	736	-	0	0	-
Stage 1	737	-	-	0	0	-
Stage 2	636	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	372	736	-	-	-	-
Mov Cap-2 Maneuver	372	-	-	-	-	-
Stage 1	737	-	-	-	-	-
Stage 2	635	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	372	736	-
HCM Lane V/C Ratio	-	0.081	0.051	-
HCM Control Delay (s)	-	15.5	10.2	-
HCM Lane LOS	-	C	B	-
HCM 95th %tile Q(veh)	-	0.3	0.2	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	30	85	5	70
Future Vol, veh/h	0	0	30	85	5	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	33	94	6	78

Major/Minor	Major2		Minor1		
Conflicting Flow All	0	0	160	0	
Stage 1	-	-	0	-	
Stage 2	-	-	160	-	
Critical Hdwy	4.12	-	6.42	6.22	
Critical Hdwy Stg 1	-	-	-	-	
Critical Hdwy Stg 2	-	-	5.42	-	
Follow-up Hdwy	2.218	-	3.518	3.318	
Pot Cap-1 Maneuver	-	-	831	-	
Stage 1	-	-	-	-	
Stage 2	-	-	869	-	
Platoon blocked, %		-			
Mov Cap-1 Maneuver	-	-	831	-	
Mov Cap-2 Maneuver	-	-	831	-	
Stage 1	-	-	-	-	
Stage 2	-	-	869	-	

Approach	WB	NB
HCM Control Delay, s		
HCM LOS		-

Minor Lane/Major Mvmt	NBLn1	WBL	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	55	10	5	15	20	20	5	5	0	10	15	90
Future Vol, veh/h	55	10	5	15	20	20	5	5	0	10	15	90
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	61	11	6	17	22	22	6	6	0	11	17	100

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	129	107	67	116	157	6	117	0	0	6	0	0
Stage 1	89	89	-	18	18	-	-	-	-	-	-	-
Stage 2	40	18	-	98	139	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	844	783	997	861	735	1077	1471	-	-	1615	-	-
Stage 1	918	821	-	1001	880	-	-	-	-	-	-	-
Stage 2	975	880	-	908	782	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	801	774	997	839	727	1077	1471	-	-	1615	-	-
Mov Cap-2 Maneuver	801	774	-	839	727	-	-	-	-	-	-	-
Stage 1	914	815	-	997	876	-	-	-	-	-	-	-
Stage 2	927	876	-	884	777	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.9	9.5	3.7	0.6
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1471	-	-	808	860	1615	-	-
HCM Lane V/C Ratio	0.004	-	-	0.096	0.071	0.007	-	-
HCM Control Delay (s)	7.5	0	-	9.9	9.5	7.2	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.2	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	6	3	8	9	165	3	115	29	322	98	4
Future Volume (vph)	1	6	3	8	9	165	3	115	29	322	98	4
Satd. Flow (prot)	0	1660	0	0	1705	1441	0	1624	0	1492	1687	0
Flt Permitted		0.983			0.898			0.997		0.654		
Satd. Flow (perm)	0	1634	0	0	1563	1341	0	1621	0	938	1687	0
Satd. Flow (RTOR)		3				183		26				
Lane Group Flow (vph)	0	11	0	0	19	183	0	163	0	358	113	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	25.6	25.6		25.6	25.6	25.6	31.1	31.1		31.1	31.1	
Total Split (s)	28.0	28.0		28.0	28.0	28.0	42.0	42.0		42.0	42.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%	40.0%	60.0%	60.0%		60.0%	60.0%	
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3	2.3	2.8	2.8		2.8	2.8	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)		5.6			5.6	5.6		6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	C-Min	C-Min		C-Min	C-Min	
Act Effct Green (s)		14.0			14.0	14.0		44.3		44.3	44.3	
Actuated g/C Ratio		0.20			0.20	0.20		0.63		0.63	0.63	
v/c Ratio		0.03			0.06	0.44		0.16		0.60	0.11	
Control Delay		17.0			16.5	10.5		5.9		15.1	6.7	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		17.0			16.5	10.5		5.9		15.1	6.7	
LOS		B			B	B		A		B	A	
Approach Delay		17.0			11.1			5.9			13.1	
Approach LOS		B			B			A			B	
Queue Length 50th (m)		0.9			2.6	7.7		5.0		19.2	4.0	
Queue Length 95th (m)		4.0			m5.1	27.6		16.6		#67.0	13.3	
Internal Link Dist (m)		22.5			128.8			367.7			94.3	
Turn Bay Length (m)						60.0				55.0		
Base Capacity (vph)		524			500	553		1035		593	1068	
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		0.02			0.04	0.33		0.16		0.60	0.11	

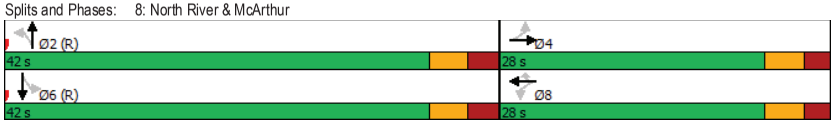
Intersection Summary
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 11.3	Intersection LOS: B
Intersection Capacity Utilization 69.5%	ICU Level of Service C
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: North River & McArthur



Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	361	318	79	10	16
Future Vol, veh/h	10	361	318	79	10	16
Conflicting Peds, #/hr	100	0	0	100	1	9
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	10	2	5	3	2	2
Mvmt Flow	11	401	353	88	11	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	541	0	-	0	921	506
Stage 1	-	-	-	-	497	-
Stage 2	-	-	-	-	424	-
Critical Hdwy	4.2	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.29	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	988	-	-	-	300	566
Stage 1	-	-	-	-	611	-
Stage 2	-	-	-	-	660	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	911	-	-	-	251	518
Mov Cap-2 Maneuver	-	-	-	-	251	-
Stage 1	-	-	-	-	554	-
Stage 2	-	-	-	-	609	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	15.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	911	-	-	-	368
HCM Lane V/C Ratio	0.012	-	-	-	0.079
HCM Control Delay (s)	9	0	-	-	15.6
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	353	19	46	395	9	31
Future Volume (vph)	353	19	46	395	9	31
Satd. Flow (prot)	1728	0	0	1721	1523	1483
Flt Permitted				0.929	0.950	
Satd. Flow (perm)	1728	0	0	1604	1425	1426
Satd. Flow (RTOR)	6					34
Lane Group Flow (vph)	413	0	0	490	10	34
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases			6		4	4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	27.5		23.5	23.5	24.5	24.5
Total Split (s)	45.0		45.0	45.0	25.0	25.0
Total Split (%)	64.3%		64.3%	64.3%	35.7%	35.7%
Yellow Time (s)	3.3		3.3	3.3	3.3	3.3
All-Red Time (s)	2.2		2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	5.5			5.5	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	None	None
Act Effct Green (s)	53.8			53.8	13.6	13.6
Actuated g/C Ratio	0.77			0.77	0.19	0.19
v/c Ratio	0.31			0.40	0.04	0.11
Control Delay	3.5			8.1	20.2	8.4
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	3.5			8.1	20.2	8.4
LOS	A			A	C	A
Approach Delay	3.5			8.1	11.1	
Approach LOS	A			A	B	
Queue Length 50th (m)	2.3			39.0	1.2	0.0
Queue Length 95th (m)	27.0			m55.9	4.1	5.9
Internal Link Dist (m)	36.3			7.3	144.2	
Turn Bay Length (m)					30.0	
Base Capacity (vph)	1329			1232	396	421
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	0.31			0.40	0.03	0.08

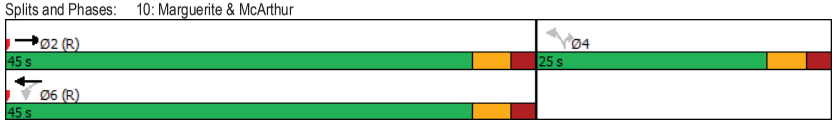
Intersection Summary
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.40

Intersection Signal Delay: 6.3	Intersection LOS: A
Intersection Capacity Utilization 69.6%	ICU Level of Service C
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: Marguerite & McArthur



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	116	290	209	191	104	220	1044	225	140	1207	60
Future Volume (vph)	34	116	290	209	191	104	220	1044	225	140	1207	60
Satd. Flow (prot)	1551	1695	1483	3216	1695	1483	1658	3316	1483	1658	3316	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1438	1695	1398	3009	1695	1320	1645	3316	1355	1635	3316	1342
Satd. Flow (RTOR)			241			120			219			121
Lane Group Flow (vph)	38	129	322	232	212	116	244	1160	250	156	1341	67
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.2	36.2	36.2	11.2	36.2	36.2	11.1	36.1	36.1	11.1	36.1	36.1
Total Split (s)	20.0	36.2	36.2	20.0	36.2	36.2	24.0	59.8	59.8	24.0	59.8	59.8
Total Split (%)	14.3%	25.9%	25.9%	14.3%	25.9%	25.9%	17.1%	42.7%	42.7%	17.1%	42.7%	42.7%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.9	2.9	2.9	2.9	2.9	2.9	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	12.0	26.0	26.0	13.1	29.5	29.5	21.8	59.8	59.8	16.4	54.4	54.4
Actuated g/C Ratio	0.09	0.19	0.19	0.09	0.21	0.21	0.16	0.43	0.43	0.12	0.39	0.39
v/c Ratio	0.29	0.41	0.71	0.77	0.59	0.31	0.95	0.82	0.36	0.80	1.04	0.11
Control Delay	69.1	46.8	23.8	79.1	57.5	9.3	102.2	42.9	7.0	86.9	70.0	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.1	46.8	23.8	79.1	57.5	9.3	102.2	42.9	7.0	86.9	70.0	2.8
LOS	E	D	C	E	E	A	F	D	A	F	E	A
Approach Delay		33.4			56.4			46.2			68.8	
Approach LOS		C			E			D			E	
Queue Length 50th (m)	11.0	30.9	28.7	32.7	53.2	0.0	~79.3	159.2	5.4	45.4	~124.6	0.0
Queue Length 95th (m)	22.8	44.0	49.9	#48.7	80.0	15.0	#132.7	#200.7	24.7	m#72.9	#246.0	m2.8
Internal Link Dist (m)		122.9			191.2			195.1			202.5	
Turn Bay Length (m)	50.0		100.0	120.0		115.0	90.0		90.0	90.0		90.0
Base Capacity (vph)	152	363	488	317	363	377	258	1417	704	211	1288	595
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.36	0.66	0.73	0.58	0.31	0.95	0.82	0.36	0.74	1.04	0.11

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 100 (71%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.04

Intersection Signal Delay: 54.4	Intersection LOS: D
Intersection Capacity Utilization 93.2%	ICU Level of Service F
Analysis Period (min) 15	

~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Vanier & McArthur



Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑↑	
Traffic Vol, veh/h	0	384	431	0	5	15
Future Vol, veh/h	0	384	431	0	5	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	427	479	0	6	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	906	479
Stage 1	-	-	-	-	479	-
Stage 2	-	-	-	-	427	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	0	-	-	0	307	587
Stage 1	0	-	-	0	623	-
Stage 2	0	-	-	0	658	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	307	587
Mov Cap-2 Maneuver	-	-	-	-	307	-
Stage 1	-	-	-	-	623	-
Stage 2	-	-	-	-	658	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.9
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	478
HCM Lane V/C Ratio	-	-	0.046
HCM Control Delay (s)	-	-	12.9
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.1

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↓	
Traffic Vol, veh/h	0	20	20	0	0	37
Future Vol, veh/h	0	20	20	0	0	37
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	22	22	0	0	41

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	44	22
Stage 1	-	-	-	-	22	-
Stage 2	-	-	-	-	22	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	0	-	-	0	967	1055
Stage 1	0	-	-	0	1001	-
Stage 2	0	-	-	0	1001	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	967	1055
Mov Cap-2 Maneuver	-	-	-	-	967	-
Stage 1	-	-	-	-	1001	-
Stage 2	-	-	-	-	1001	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	1055
HCM Lane V/C Ratio	-	-	0.039
HCM Control Delay (s)	-	-	8.6
HCM Lane LOS	-	-	A
HCM 95th %tile Q(veh)	-	-	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↱			↑↑↱		↰	↱			↕	
Traffic Volume (vph)	3	596	410	0	665	18	356	17	32	21	15	21
Future Volume (vph)	3	596	410	0	665	18	356	17	32	21	15	21
Satd. Flow (prot)	0	2825	0	0	3236	0	1658	1448	0	0	1509	0
Flt Permitted		0.953					0.950				0.260	
Satd. Flow (perm)	0	2692	0	0	3236	0	1633	1448	0	0	390	0
Satd. Flow (RTOR)					2			36			19	
Lane Group Flow (vph)	0	1121	0	0	759	0	396	55	0	0	63	0
Turn Type	Perm	NA			NA		Prot	NA		Perm	NA	
Protected Phases		2			6		13	10			8	
Permitted Phases	2									8		
Detector Phase	2	2			6		13	10		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	36.7	36.7			31.0		11.5	36.5		16.5	16.5	
Total Split (s)	39.0	39.0			39.0		31.0	64.0		17.0	17.0	
Total Split (%)	32.5%	32.5%			32.5%		25.8%	53.3%		14.2%	14.2%	
Yellow Time (s)	3.0	3.0			3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.7	3.7			3.7		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		6.7			6.7		6.5	6.5			6.5	
Lead/Lag							Lag					
Lead-Lag Optimize?							Yes					
Recall Mode	C-Max	C-Max			C-Max		None	None		None	None	
Act Effct Green (s)		48.2			48.2		41.6	41.6			10.5	
Actuated g/C Ratio		0.40			0.40		0.35	0.35			0.09	
v/c Ratio		1.04			0.58		0.69	0.10			1.24	
Control Delay		73.1			29.7		42.0	13.8			236.8	
Queue Delay		0.0			53.4		0.0	0.0			0.0	
Total Delay		73.1			83.2		42.0	13.8			236.8	
LOS		E			F		D	B			F	
Approach Delay		73.1			83.2			38.6			236.8	
Approach LOS		E			F			D			F	
Queue Length 50th (m)		135.5			69.7		82.1	3.0			~14.0	
Queue Length 95th (m)		#183.4			88.2		119.4	12.4			#43.4	
Internal Link Dist (m)		179.1			52.8			112.9			59.0	
Turn Bay Length (m)							90.0					
Base Capacity (vph)		1080			1299		575	712			51	
Starvation Cap Reductn		0			750		0	0			0	
Spillback Cap Reductn		0			0		0	0			0	
Storage Cap Reductn		0			0		0	0			0	
Reduced v/c Ratio		1.04			1.38		0.69	0.08			1.24	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated

Lane Group	Ø14
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	14
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	20.0
Total Split (s)	33.0
Total Split (%)	28%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

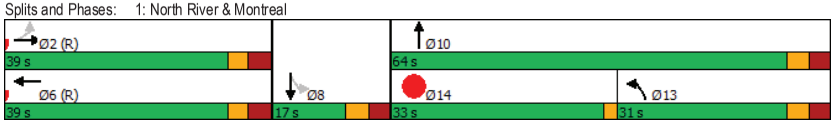
Maximum v/c Ratio: 1.24

Intersection Signal Delay: 74.1	Intersection LOS: E
Intersection Capacity Utilization 73.5%	ICU Level of Service D
Analysis Period (min) 15	

~ 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: 1: North River & Montreal



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	552	97	56	580	108	66
Future Volume (vph)	552	97	56	580	108	66
Satd. Flow (prot)	3185	0	0	3268	1658	1401
Flt Permitted				0.820	0.950	
Satd. Flow (perm)	3185	0	0	2686	1640	1346
Satd. Flow (RTOR)	48					73
Lane Group Flow (vph)	721	0	0	706	120	73
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases			6		4	4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	5.0	5.0
Minimum Split (s)	39.9		23.9	23.9	23.7	23.7
Total Split (s)	76.0		76.0	76.0	24.0	24.0
Total Split (%)	76.0%		76.0%	76.0%	24.0%	24.0%
Yellow Time (s)	3.3		3.3	3.3	3.3	3.3
All-Red Time (s)	2.6		2.6	2.6	2.2	2.2
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	5.9			5.9	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	None	None
Act Effct Green (s)	76.0			76.0	12.6	12.6
Actuated g/C Ratio	0.76			0.76	0.13	0.13
v/c Ratio	0.30			0.35	0.58	0.31
Control Delay	4.1			4.8	51.9	12.7
Queue Delay	1.5			0.0	0.0	0.0
Total Delay	5.6			4.8	51.9	12.7
LOS	A			A	D	B
Approach Delay	5.6			4.8	37.1	
Approach LOS	A			A	D	
Queue Length 50th (m)	17.1			19.1	22.3	0.0
Queue Length 95th (m)	29.1			32.8	37.9	11.6
Internal Link Dist (m)	52.8			262.4	214.6	
Turn Bay Length (m)					35.0	
Base Capacity (vph)	2432			2041	303	308
Starvation Cap Reductn	1457			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.74			0.35	0.40	0.24

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 9.0	Intersection LOS: A
Intersection Capacity Utilization 69.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Montgomery & Montreal

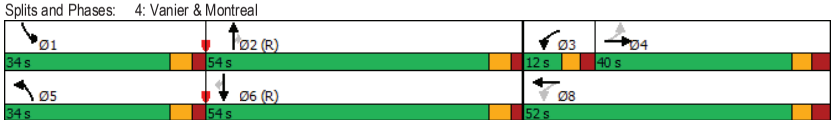


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	366	177	156	333	198	229	1011	210	142	1019	94
Future Volume (vph)	51	366	177	156	333	198	229	1011	210	142	1019	94
Satd. Flow (prot)	1626	3019	0	1658	2941	0	1658	4764	1483	1658	4764	1483
Flt Permitted	0.408			0.167			0.950			0.950		
Satd. Flow (perm)	671	3019	0	286	2941	0	1630	4764	1390	1640	4764	1346
Satd. Flow (RTOR)		55			92				233			120
Lane Group Flow (vph)	57	604	0	173	590	0	254	1123	233	158	1132	104
Turn Type	Perm	NA		pm+pt	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	39.6	39.6		10.7	39.6		11.1	28.9	28.9	11.1	28.9	28.9
Total Split (s)	40.0	40.0		12.0	52.0		34.0	54.0	54.0	34.0	54.0	54.0
Total Split (%)	28.6%	28.6%		8.6%	37.1%		24.3%	38.6%	38.6%	24.3%	38.6%	38.6%
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.3	3.3		2.4	3.3		2.4	2.2	2.2	2.4	2.2	2.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6		5.7	6.6		6.1	5.9	5.9	6.1	5.9	5.9
Lead/Lag	Lag	Lag		Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	31.3	31.3		44.2	43.3		25.0	59.5	59.5	18.6	53.1	53.1
Actuated g/C Ratio	0.22	0.22		0.32	0.31		0.18	0.42	0.42	0.13	0.38	0.38
v/c Ratio	0.38	0.84		1.14	0.61		0.86	0.55	0.32	0.72	0.63	0.18
Control Delay	53.4	58.5		153.6	36.9		84.0	28.5	7.0	75.6	38.4	4.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.4	58.5		153.6	36.9		84.0	28.5	7.0	75.6	38.4	4.3
LOS	D	E		F	D		F	C	A	E	D	A
Approach Delay		58.1			63.4			34.1			40.0	
Approach LOS		E			E			C			D	
Queue Length 50th (m)	13.3	76.5		~41.3	60.8		74.4	55.4	11.8	42.6	97.2	0.0
Queue Length 95th (m)	27.3	98.6		#88.1	80.1		m81.5	m61.5	m14.7	63.4	115.3	9.4
Internal Link Dist (m)		262.4			230.0			154.5			139.4	
Turn Bay Length (m)	35.0			50.0			135.0		135.0	135.0		135.0
Base Capacity (vph)	160	762		152	1015		330	2024	724	330	1806	584
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.79		1.14	0.58		0.77	0.55	0.32	0.48	0.63	0.18

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 56 (40%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.14
Intersection Signal Delay: 44.6 Intersection LOS: D
Intersection Capacity Utilization 90.1% ICU Level of Service E
Analysis Period (min) 15
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Vanier & Montreal



Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	115	47	370	0	0	434
Future Vol, veh/h	115	47	370	0	0	434
Conflicting Peds, #/hr	2	2	0	66	66	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	500	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	3	2	2	4
Mvmt Flow	128	52	411	0	0	482

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	895	413	0	-	-	-
Stage 1	411	-	-	-	-	-
Stage 2	484	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	311	639	-	0	0	-
Stage 1	669	-	-	0	0	-
Stage 2	620	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	310	638	-	-	-	-
Mov Cap-2 Maneuver	310	-	-	-	-	-
Stage 1	669	-	-	-	-	-
Stage 2	619	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.6	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	310	638	-
HCM Lane V/C Ratio	-	0.412	0.082	-
HCM Control Delay (s)	-	24.5	11.1	-
HCM Lane LOS	-	C	B	-
HCM 95th %tile Q(veh)	-	1.9	0.3	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	30	45	10	100
Future Vol, veh/h	0	0	30	45	10	100
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	33	50	11	111

Major/Minor	Major2		Minor1	
Conflicting Flow All	0	0	116	0
Stage 1	-	-	0	-
Stage 2	-	-	116	-
Critical Hdwy	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	5.42	-
Follow-up Hdwy	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	880	-
Stage 1	-	-	-	-
Stage 2	-	-	909	-
Platoon blocked, %		-		
Mov Cap-1 Maneuver	-	-	880	-
Mov Cap-2 Maneuver	-	-	880	-
Stage 1	-	-	-	-
Stage 2	-	-	909	-

Approach	WB	NB
HCM Control Delay, s		
HCM LOS		-

Minor Lane/Major Mvmt	NBLn1	WBL	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	70	20	10	5	10	20	5	10	0	15	20	60
Future Vol, veh/h	70	20	10	5	10	20	5	10	0	15	20	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	78	22	11	6	11	22	6	11	0	17	22	67

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	130	113	56	129	146	11	89	0	0	11	0	0
Stage 1	90	90	-	23	23	-	-	-	-	-	-	-
Stage 2	40	23	-	106	123	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	843	777	1011	844	745	1070	1506	-	-	1608	-	-
Stage 1	917	820	-	995	876	-	-	-	-	-	-	-
Stage 2	975	876	-	900	794	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	807	765	1011	807	734	1070	1506	-	-	1608	-	-
Mov Cap-2 Maneuver	807	765	-	807	734	-	-	-	-	-	-	-
Stage 1	913	811	-	991	872	-	-	-	-	-	-	-
Stage 2	939	872	-	856	785	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.1	9.1	2.5	1.1
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1506	-	-	814	909	1608	-	-
HCM Lane V/C Ratio	0.004	-	-	0.137	0.043	0.01	-	-
HCM Control Delay (s)	7.4	0	-	10.1	9.1	7.3	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.1	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↰	↱		↕		↰	↕	
Traffic Volume (vph)	4	25	6	24	11	217	2	148	36	409	139	1
Future Volume (vph)	4	25	6	24	11	217	2	148	36	409	139	1
Satd. Flow (prot)	0	1633	0	0	1570	1483	0	1636	0	1642	1709	0
Flt Permitted		0.978			0.815			0.999		0.629		
Satd. Flow (perm)	0	1593	0	0	1288	1334	0	1634	0	976	1709	0
Satd. Flow (RTOR)		7				241		27				
Lane Group Flow (vph)	0	39	0	0	39	241	0	206	0	454	155	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	25.6	25.6		25.6	25.6	25.6	31.1	31.1		31.1	31.1	
Total Split (s)	26.0	26.0		26.0	26.0	26.0	49.0	49.0		49.0	49.0	
Total Split (%)	34.7%	34.7%		34.7%	34.7%	34.7%	65.3%	65.3%		65.3%	65.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3	2.3	2.8	2.8		2.8	2.8	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)		5.6			5.6	5.6		6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	C-Min	C-Min		C-Min	C-Min	
Act Effct Green (s)		16.0			16.0	16.0		47.3		47.3	47.3	
Actuated g/C Ratio		0.21			0.21	0.21		0.63		0.63	0.63	
v/c Ratio		0.11			0.14	0.51		0.20		0.74	0.14	
Control Delay		19.2			21.6	14.3		6.5		21.1	7.1	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		19.2			21.6	14.3		6.5		21.1	7.1	
LOS		B			C	B		A		C	A	
Approach Delay		19.2			15.3			6.5			17.5	
Approach LOS		B			B			A			B	
Queue Length 50th (m)		3.4			4.7	4.0		10.9		46.1	9.3	
Queue Length 95th (m)		10.1			12.4	35.6		20.5		#103.6	17.2	
Internal Link Dist (m)		22.5			128.8			119.0			94.3	
Turn Bay Length (m)						60.0				55.0		
Base Capacity (vph)		438			350	538		1040		615	1077	
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		0.09			0.11	0.45		0.20		0.74	0.14	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 15.0	Intersection LOS: B
Intersection Capacity Utilization 74.1%	ICU Level of Service D
Analysis Period (min) 15	

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

Splits and Phases: 8: North River & McArthur



Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	469	267	92	26	4
Future Vol, veh/h	7	469	267	92	26	4
Conflicting Peds, #/hr	76	0	0	76	0	9
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	3	3	2	8	2
Mvmt Flow	8	521	297	102	29	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	475	0	-	0	961	433
Stage 1	-	-	-	-	424	-
Stage 2	-	-	-	-	537	-
Critical Hdwy	4.12	-	-	-	6.48	6.22
Critical Hdwy Stg 1	-	-	-	-	5.48	-
Critical Hdwy Stg 2	-	-	-	-	5.48	-
Follow-up Hdwy	2.218	-	-	-	3.572	3.318
Pot Cap-1 Maneuver	1087	-	-	-	277	623
Stage 1	-	-	-	-	648	-
Stage 2	-	-	-	-	574	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1023	-	-	-	243	582
Mov Cap-2 Maneuver	-	-	-	-	243	-
Stage 1	-	-	-	-	603	-
Stage 2	-	-	-	-	540	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	20.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1023	-	-	-	263
HCM Lane V/C Ratio	0.008	-	-	-	0.127
HCM Control Delay (s)	8.5	0	-	-	20.7
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	481	21	40	346	20	52
Future Volume (vph)	481	21	40	346	20	52
Satd. Flow (prot)	1730	0	0	1731	1610	1483
Flt Permitted				0.915	0.950	
Satd. Flow (perm)	1730	0	0	1589	1541	1425
Satd. Flow (RTOR)	5					58
Lane Group Flow (vph)	557	0	0	428	22	58
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases			6		4	4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	27.5		23.5	23.5	24.5	24.5
Total Split (s)	50.0		50.0	50.0	25.0	25.0
Total Split (%)	66.7%		66.7%	66.7%	33.3%	33.3%
Yellow Time (s)	3.3		3.3	3.3	3.3	3.3
All-Red Time (s)	2.2		2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	5.5			5.5	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	None	None
Act Effct Green (s)	54.6			54.6	13.6	13.6
Actuated g/C Ratio	0.73			0.73	0.18	0.18
v/c Ratio	0.44			0.37	0.08	0.19
Control Delay	6.1			7.2	23.6	8.3
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	6.1			7.2	23.6	8.3
LOS	A			A	C	A
Approach Delay	6.1			7.2	12.6	
Approach LOS	A			A	B	
Queue Length 50th (m)	13.9			18.6	2.8	0.0
Queue Length 95th (m)	40.8			48.7	7.5	8.1
Internal Link Dist (m)	36.3			7.3	144.2	
Turn Bay Length (m)					30.0	
Base Capacity (vph)	1261			1157	400	413
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	0.44			0.37	0.06	0.14

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.44

Intersection Signal Delay: 7.0	Intersection LOS: A
Intersection Capacity Utilization 73.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 10: Marguerite & McArthur



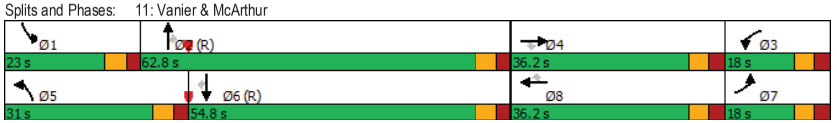
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	228	435	333	218	170	206	1198	251	122	1178	66
Future Volume (vph)	55	228	435	333	218	170	206	1198	251	122	1178	66
Satd. Flow (prot)	1658	1712	1483	3154	1712	1483	1658	3316	1469	1658	3316	1469
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1577	1712	1323	2797	1712	1360	1618	3316	1354	1643	3316	1223
Satd. Flow (RTOR)			261			189			221			168
Lane Group Flow (vph)	61	253	483	370	242	189	229	1331	279	136	1309	73
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.2	36.2	36.2	11.2	36.2	36.2	11.1	36.1	36.1	11.1	36.1	36.1
Total Split (s)	18.0	36.2	36.2	18.0	36.2	36.2	31.0	62.8	62.8	23.0	54.8	54.8
Total Split (%)	12.9%	25.9%	25.9%	12.9%	25.9%	25.9%	22.1%	44.9%	44.9%	16.4%	39.1%	39.1%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.9	2.9	2.9	2.9	2.9	2.9	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	10.7	30.0	30.0	11.8	33.6	33.6	22.7	58.4	58.4	15.2	50.9	50.9
Actuated g/C Ratio	0.08	0.21	0.21	0.08	0.24	0.24	0.16	0.42	0.42	0.11	0.36	0.36
v/c Ratio	0.48	0.69	0.99	1.40	0.59	0.40	0.85	0.96	0.40	0.76	1.09	0.13
Control Delay	74.6	61.7	63.4	244.7	55.6	8.7	84.3	56.7	8.5	77.1	88.3	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.6	61.7	63.4	244.7	55.6	8.7	84.3	56.7	8.5	77.1	88.3	2.1
LOS	E	E	E	F	E	A	F	E	A	E	F	A
Approach Delay		63.7			131.9			52.8			83.2	
Approach LOS		E			F			D			F	
Queue Length 50th (m)	16.3	65.2	71.6	~70.2	61.9	0.0	61.2	191.0	9.9	38.3	~209.8	0.1
Queue Length 95th (m)	31.3	95.6	#144.1	#101.9	91.5	20.4	#99.1	#242.0	31.2	m55.6	m#244.6	m2.7
Internal Link Dist (m)		122.9			174.6			194.2			202.0	
Turn Bay Length (m)	50.0		100.0	120.0		115.0	90.0		90.0	90.0		90.0
Base Capacity (vph)	139	366	488	265	410	469	294	1383	693	200	1205	551
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.69	0.99	1.40	0.59	0.40	0.78	0.96	0.40	0.68	1.09	0.13

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 54 (39%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.40
Intersection Signal Delay: 76.6 Intersection LOS: E
Intersection Capacity Utilization 100.7% ICU Level of Service G
Analysis Period (min) 15
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Vanier & McArthur



Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↾	
Traffic Vol, veh/h	0	533	386	0	8	8
Future Vol, veh/h	0	533	386	0	8	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	592	429	0	9	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	1021	429
Stage 1	-	-	-	-	429	-
Stage 2	-	-	-	-	592	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	0	-	-	0	262	626
Stage 1	0	-	-	0	657	-
Stage 2	0	-	-	0	553	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	262	626
Mov Cap-2 Maneuver	-	-	-	-	262	-
Stage 1	-	-	-	-	657	-
Stage 2	-	-	-	-	553	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	15.2
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	369
HCM Lane V/C Ratio	-	-	0.048
HCM Control Delay (s)	-	-	15.2
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.2

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↾	
Traffic Vol, veh/h	0	35	15	0	0	19
Future Vol, veh/h	0	35	15	0	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	39	17	0	0	21

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	56	17
Stage 1	-	-	-	-	17	-
Stage 2	-	-	-	-	39	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	0	-	-	0	952	1062
Stage 1	0	-	-	0	1006	-
Stage 2	0	-	-	0	983	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	952	1062
Mov Cap-2 Maneuver	-	-	-	-	952	-
Stage 1	-	-	-	-	1006	-
Stage 2	-	-	-	-	983	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	1062
HCM Lane V/C Ratio	-	-	0.02
HCM Control Delay (s)	-	-	8.5
HCM Lane LOS	-	-	A
HCM 95th %tile Q(veh)	-	-	0.1

Appendix D

Collision Data

DRAFT

Accident Date	Accident Year	Accident Time	Location	Environment Condition	Light	Traffic Control	Traffic Control Condition	Classification Of Accident	Initial Impact Type	Road Surface Condition
2/7/2015	2015	12:45	DUNDAS ST @ MCARTHUR AVE	01 - Clear	01 - Daylight	02 - Stop sign		02 - Non-fatal injury	02 - Angle	01 - Dry
2/27/2015	2015	17:18	DUNDAS ST @ MCARTHUR AVE	01 - Clear	01 - Daylight	02 - Stop sign		03 - P.D. only	05 - Turning movement	01 - Dry
9/30/2016	2016	12:59	DUNDAS ST @ MCARTHUR AVE	01 - Clear	01 - Daylight	02 - Stop sign		03 - P.D. only	03 - Rear end	01 - Dry
12/5/2016	2016	14:27	DUNDAS ST @ MCARTHUR AVE	03 - Snow	01 - Daylight	02 - Stop sign		03 - P.D. only	02 - Angle	02 - Wet
6/13/2018	2018	12:28	DUNDAS ST @ MCARTHUR AVE (0009192)	01 - Clear	01 - Daylight	02 - Stop sign		03 - P.D. only	02 - Angle	01 - Dry
6/12/2019	2019	7:34	DUNDAS ST @ MCARTHUR AVE (0009192)	01 - Clear	01 - Daylight	02 - Stop sign		02 - Non-fatal injury	05 - Turning movement	01 - Dry
2/26/2015	2015	15:50	MARGUERITE AVE @ MCARTHUR AVE	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	02 - Angle	01 - Dry
11/7/2015	2015	15:15	MARGUERITE AVE @ MCARTHUR AVE	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
5/27/2016	2016	16:41	MARGUERITE AVE @ MCARTHUR AVE	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	02 - Angle	02 - Wet
2/18/2016	2016	22:45	MAYFIELD ST @ MCARTHUR AVE	01 - Clear	07 - Dark	02 - Stop sign		02 - Non-fatal injury	02 - Angle	06 - Ice
8/31/2016	2016	13:39	MAYFIELD ST @ MCARTHUR AVE	01 - Clear	01 - Daylight	02 - Stop sign		02 - Non-fatal injury	02 - Angle	01 - Dry
2/28/2017	2017	16:40	MAYFIELD ST @ MCARTHUR AVE	01 - Clear	01 - Daylight	02 - Stop sign		03 - P.D. only	99 - Other	01 - Dry
10/17/2017	2017	15:50	MAYFIELD ST @ MCARTHUR AVE	01 - Clear	01 - Daylight	02 - Stop sign		03 - P.D. only	02 - Angle	01 - Dry
1/16/2018	2018	14:39	MAYFIELD ST @ MCARTHUR AVE (0009190)	01 - Clear	01 - Daylight	02 - Stop sign		03 - P.D. only	02 - Angle	02 - Wet
1/22/2018	2018	15:47	MAYFIELD ST @ MCARTHUR AVE (0009190)	03 - Snow	01 - Daylight	02 - Stop sign		03 - P.D. only	02 - Angle	03 - Loose snow
7/11/2018	2018	17:49	MAYFIELD ST @ MCARTHUR AVE (0009190)	01 - Clear	01 - Daylight	02 - Stop sign		03 - P.D. only	02 - Angle	01 - Dry
10/13/2018	2018	19:16	MAYFIELD ST @ MCARTHUR AVE (0009190)	01 - Clear	07 - Dark	02 - Stop sign		02 - Non-fatal injury	02 - Angle	01 - Dry
5/23/2019	2019	13:53	MAYFIELD ST @ MCARTHUR AVE (0009190)	01 - Clear	01 - Daylight	02 - Stop sign		03 - P.D. only	02 - Angle	01 - Dry
10/24/2019	2019	13:56	MAYFIELD ST @ MCARTHUR AVE (0009190)	01 - Clear	01 - Daylight	02 - Stop sign		03 - P.D. only	03 - Rear end	01 - Dry
1/31/2019	2019	21:55	MAYFIELD ST btwn MONTGOMERY ST & MCARTHUR AVE (__3ZA1B7)	03 - Snow	07 - Dark	10 - No control		03 - P.D. only	04 - Sideswipe	05 - Packed snow
1/7/2015	2015	8:44	MCARTHUR AVE @ VANIER PKWY	03 - Snow	01 - Daylight	01 - Traffic signal		03 - P.D. only	99 - Other	05 - Packed snow
1/17/2015	2015	22:30	MCARTHUR AVE @ VANIER PKWY	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	01 - Dry
1/29/2015	2015	19:15	MCARTHUR AVE @ VANIER PKWY	03 - Snow	07 - Dark	01 - Traffic signal		02 - Non-fatal injury	04 - Sideswipe	03 - Loose snow
2/2/2015	2015	10:30	MCARTHUR AVE @ VANIER PKWY	03 - Snow	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	05 - Packed snow
2/6/2015	2015	10:25	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	02 - Angle	04 - Slush
2/13/2015	2015	17:40	MCARTHUR AVE @ VANIER PKWY	01 - Clear	05 - Dusk	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	01 - Dry
3/24/2015	2015	13:57	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	01 - Dry
6/28/2015	2015	17:03	MCARTHUR AVE @ VANIER PKWY	02 - Rain	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	02 - Wet
7/15/2015	2015	18:25	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	01 - Dry
8/17/2015	2015	14:05	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
9/12/2015	2015	12:50	MCARTHUR AVE @ VANIER PKWY	02 - Rain	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	02 - Wet
10/8/2015	2015	15:47	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	01 - Dry
11/18/2015	2015	20:23	MCARTHUR AVE @ VANIER PKWY	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
12/13/2015	2015	13:49	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	02 - Angle	01 - Dry
12/25/2015	2015	20:03	MCARTHUR AVE @ VANIER PKWY	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	01 - Dry
12/30/2015	2015	8:06	MCARTHUR AVE @ VANIER PKWY	05 - Drifting Snow	03 - Dawn	01 - Traffic signal		03 - P.D. only	02 - Angle	02 - Wet
12/31/2015	2015	15:25	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
1/29/2016	2016	12:44	MCARTHUR AVE @ VANIER PKWY	03 - Snow	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	02 - Wet
1/31/2016	2016	10:29	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2/9/2016	2016	14:30	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	02 - Angle	02 - Wet
3/22/2016	2016	12:06	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	01 - Dry
4/12/2016	2016	1:17	MCARTHUR AVE @ VANIER PKWY	01 - Clear	07 - Dark	01 - Traffic signal		01 - Fatal injury	02 - Angle	02 - Wet
4/20/2016	2016	23:33	MCARTHUR AVE @ VANIER PKWY	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	02 - Angle	01 - Dry
5/18/2016	2016	13:00	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
6/29/2016	2016	12:55	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	01 - Dry
7/2/2016	2016	17:30	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
7/12/2016	2016	12:07	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	01 - Dry
7/21/2016	2016	16:59	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
7/29/2016	2016	11:20	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
8/25/2016	2016	18:30	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
9/21/2016	2016	22:43	MCARTHUR AVE @ VANIER PKWY	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
10/12/2016	2016	10:38	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
10/20/2016	2016	8:38	MCARTHUR AVE @ VANIER PKWY	02 - Rain	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	02 - Wet
10/24/2016	2016	13:02	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
11/1/2016	2016	15:20	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	01 - Dry
11/4/2016	2016	7:20	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
11/22/2016	2016	19:06	MCARTHUR AVE @ VANIER PKWY	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	03 - Rear end	02 - Wet
12/13/2016	2016	7:45	MCARTHUR AVE @ VANIER PKWY	01 - Clear	03 - Dawn	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	04 - Slush
1/31/2017	2017	8:29	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	06 - Ice
2/8/2017	2017	10:09	MCARTHUR AVE @ VANIER PKWY	03 - Snow	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	02 - Wet
3/6/2017	2017	12:22	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
3/8/2017	2017	8:13	MCARTHUR AVE @ VANIER PKWY	04 - Freezing Rain	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	06 - Ice
3/23/2017	2017	7:29	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
4/15/2017	2017	16:55	MCARTHUR AVE @ VANIER PKWY	02 - Rain	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	02 - Wet
4/28/2017	2017	15:30	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
5/11/2017	2017	6:20	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
6/7/2017	2017	11:14	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
6/14/2017	2017	22:00	MCARTHUR AVE @ VANIER PKWY	01 - Clear	07 - Dark	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	01 - Dry
6/15/2017	2017	23:24	MCARTHUR AVE @ VANIER PKWY	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
6/24/2017	2017	16:15	MCARTHUR AVE @ VANIER PKWY	02 - Rain	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	02 - Wet
7/11/2017	2017	12:49	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	01 - Dry
7/26/2017	2017	9:25	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
8/15/2017	2017	14:50	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
8/24/2017	2017	10:05	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	01 - Dry
8/25/2017	2017	16:04	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	02 - Angle	01 - Dry
9/1/2017	2017	15:36	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	01 - Dry
9/9/2017	2017	13:23	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	01 - Dry
11/24/2017	2017	17:15	MCARTHUR AVE @ VANIER PKWY	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	03 - Rear end	02 - Wet
11/25/2017	2017	11:40	MCARTHUR AVE @ VANIER PKWY	02 - Rain	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	02 - Wet
12/4/2017	2017	19:29	MCARTHUR AVE @ VANIER PKWY	01 - Clear	07 - Dark	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	01 - Dry
12/8/2017	2017	14:08	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
12/16/2017	2017	15:30	MCARTHUR AVE @ VANIER PKWY	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	04 - Slush
12/31/2017	2017	21:00	MCARTHUR AVE @ VANIER PKWY	03 - Snow	07 - Dark	01 - Traffic signal		03 - P.D. only	03 - Rear end	06 - Ice
1/5/2018	2018	20:41	MCARTHUR AVE @ VANIER PKWY (0004626)	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	03 - Rear end	02 - Wet
2/7/2018	2018	11:15	MCARTHUR AVE @ VANIER PKWY (0004626)	03 - Snow	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	05 - Packed snow
3/3/2018	2018	14:14	MCARTHUR AVE @ VANIER PKWY (0004626)	02 - Rain	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	02 - Wet
5/30/2018	2018	12:42	MCARTHUR AVE @ VANIER PKWY (0004626)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
6/8/2018	2018	2:15	MCARTHUR AVE @ VANIER PKWY (0004626)	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	01 - Dry
7/26/2018	2018	18:15	MCARTHUR AVE @ VANIER PKWY (0004626)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
8/14/2018	2018	15:21	MCARTHUR AVE @ VANIER PKWY (0004626)	02 - Rain	01 - Daylight	01 - Traffic signal		03 - P.D. only	07 - SMV other	02 - Wet
8/21/2018	2018	17:46	MCARTHUR AVE @ VANIER PKWY (0004626)	02 - Rain	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	02 - Wet
10/27/2018	2018	13:08	MCARTHUR AVE @ VANIER PKWY (0004626)	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	01 - Dry
10/29/2018	2018	18:18	MCARTHUR AVE @ VANIER PKWY (0004626)	02 - Rain	07 - Dark	01 - Traffic signal		03 - P.D. only	03 - Rear end	02 - Wet
11/5/2018	2018	13:00	MCARTHUR AVE @ VANIER PKWY (0004626)	02 - Rain	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	02 - Wet
11/23/2018	2018	11:19	MCARTHUR AVE @ VANIER PKWY (0004626)	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	02 - Wet
12/22/2018	2018	5:01	MCARTHUR AVE @ VANIER PKWY (0004626)	03 - Snow	07 - Dark	01 - Traffic signal		03 - P.D. only	07 - SMV other	05 - Packed snow
1/9/2019	2019	12:25	MCARTHUR AVE @ VANIER PKWY (0004626)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	01 - Dry
1/14/2019	2019	9:15	MCARTHUR AVE @ VANIER PKWY (0004626)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	01 - Dry
1/17/2019	2019	10:15	MCARTHUR AVE @ VANIER PKWY (0004626)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
1/17/2019	2019	20:00	MCARTHUR AVE @ VANIER PKWY (0004626)	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	03 - Loose snow
1/23/2019	2019	11:08	MCARTHUR AVE @ VANIER PKWY (0004626)	03 - Snow	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	02 - Angle	05 - Packed snow

1/23/2019	2019	11:15	MCARTHUR AVE @ VANIER PKWY (0004626)	03 - Snow	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	05 - Packed snow
2/4/2019	2019	0:09	MCARTHUR AVE @ VANIER PKWY (0004626)	03 - Snow	07 - Dark	01 - Traffic signal		03 - P.D. only	02 - Angle	03 - Loose snow
2/5/2019	2019	6:45	MCARTHUR AVE @ VANIER PKWY (0004626)	01 - Clear	03 - Dawn	01 - Traffic signal		03 - P.D. only	03 - Rear end	02 - Wet
2/10/2019	2019	12:35	MCARTHUR AVE @ VANIER PKWY (0004626)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2/17/2019	2019	9:15	MCARTHUR AVE @ VANIER PKWY (0004626)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry

Appendix E

Synchro Intersection Worksheets – 2026 Future Background Conditions

DRAFT

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	487	377	0	751	13	313	10	35	17	25	15
Future Volume (vph)	3	487	377	0	751	13	313	10	35	17	25	15
Satd. Flow (prot)	0	2865	0	0	3168	0	1595	1336	0	0	1518	0
Flt Permitted		0.953					0.950				0.247	
Satd. Flow (perm)	0	2730	0	0	3168	0	1581	1336	0	0	377	0
Satd. Flow (RTOR)					2			35			15	
Lane Group Flow (vph)	0	867	0	0	764	0	313	45	0	0	57	0
Turn Type	Perm	NA			NA		Prot	NA		Perm	NA	
Protected Phases		2			6		13	10			8	
Permitted Phases	2									8		
Detector Phase	2	2			6		13	10		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	28.0	28.0			27.7		11.5	36.5		16.5	16.5	
Total Split (s)	29.0	29.0			29.0		24.0	49.0		17.0	17.0	
Total Split (%)	30.5%	30.5%			30.5%		25.3%	51.6%		17.9%	17.9%	
Yellow Time (s)	3.0	3.0			3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.7	3.7			3.7		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		6.7			6.7		6.5	6.5			6.5	
Lead/Lag							Lag					
Lead-Lag Optimize?							Yes					
Recall Mode	C-Max	C-Max			C-Max		None	None		None	None	
Act Effct Green (s)		36.6			36.6		28.2	28.2			10.5	
Actuated g/C Ratio		0.39			0.39		0.30	0.30			0.11	
v/c Ratio		0.82			0.63		0.66	0.11			1.04	
Control Delay		34.6			26.5		37.0	11.3			169.4	
Queue Delay		0.0			52.0		0.0	0.0			0.0	
Total Delay		34.6			78.5		37.0	11.3			169.4	
LOS		C			E		D	B			F	
Approach Delay		34.6			78.5			33.8			169.4	
Approach LOS		C			E			C			F	
Queue Length 50th (m)		73.1			57.7		50.5	1.3			~8.7	
Queue Length 95th (m)		#109.3			79.4		77.2	8.9			#33.4	
Internal Link Dist (m)		194.5			52.8			112.9			59.0	
Turn Bay Length (m)							90.0					
Base Capacity (vph)		1051			1221		473	617			55	
Starvation Cap Reductn		0			565		0	0			0	
Spillback Cap Reductn		0			0		0	0			0	
Storage Cap Reductn		0			0		0	0			0	
Reduced v/c Ratio		0.82			1.16		0.66	0.07			1.04	

Intersection Summary
Cycle Length: 95
Actuated Cycle Length: 95
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Lane Group	Ø14
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	14
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	3.0
Total Split (s)	25.0
Total Split (%)	26%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

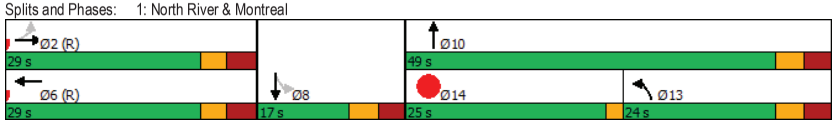
Maximum v/c Ratio: 1.04

Intersection Signal Delay: 54.6	Intersection LOS: D
Intersection Capacity Utilization 66.5%	ICU Level of Service C
Analysis Period (min) 15	

~ 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: 1: North River & Montreal



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	438	101	119	684	81	207
Future Volume (vph)	438	101	119	684	81	207
Satd. Flow (prot)	3121	0	0	3177	1658	1401
Flt Permitted				0.775	0.950	
Satd. Flow (perm)	3121	0	0	2475	1649	1379
Satd. Flow (RTOR)	66					207
Lane Group Flow (vph)	539	0	0	803	81	207
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases			6		4	4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	39.9		15.9	15.9	19.5	19.5
Total Split (s)	56.0		56.0	56.0	24.0	24.0
Total Split (%)	70.0%		70.0%	70.0%	30.0%	30.0%
Yellow Time (s)	3.3		3.3	3.3	3.3	3.3
All-Red Time (s)	2.6		2.6	2.6	2.2	2.2
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	5.9			5.9	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	None	None
Act Effct Green (s)	57.6			57.6	11.0	11.0
Actuated g/C Ratio	0.72			0.72	0.14	0.14
v/c Ratio	0.24			0.45	0.36	0.56
Control Delay	3.7			5.8	35.6	11.3
Queue Delay	0.8			0.0	0.0	0.0
Total Delay	4.5			5.8	35.6	11.3
LOS	A			A	D	B
Approach Delay	4.5			5.8	18.2	
Approach LOS	A			A	B	
Queue Length 50th (m)	9.5			20.3	11.5	0.0
Queue Length 95th (m)	17.7			36.5	22.8	17.0
Internal Link Dist (m)	52.8			138.9	214.6	
Turn Bay Length (m)					35.0	
Base Capacity (vph)	2267			1783	381	478
Starvation Cap Reductn	1369			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.60			0.45	0.21	0.43

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Lanes, Volumes, Timings
2: Montgomery & Montreal

09/27/2021

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 7.6	Intersection LOS: A
Intersection Capacity Utilization 74.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Montgomery & Montreal



Lanes, Volumes, Timings
4: Vanier & Montreal

09/27/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	386	171	168	505	194	191	883	166	213	1132	145
Future Volume (vph)	57	386	171	168	505	194	191	883	166	213	1132	145
Satd. Flow (prot)	1642	1695	1483	1658	3027	0	1642	4575	0	1642	4764	1483
Flt Permitted	0.377			0.143			0.950			0.950		
Satd. Flow (perm)	633	1695	1385	245	3027	0	1623	4575	0	1610	4764	1386
Satd. Flow (RTOR)			165		44			30				145
Lane Group Flow (vph)	57	386	171	168	699	0	191	1049	0	213	1132	145
Turn Type	Perm	NA	Perm	pm+pt	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8								6
Detector Phase	4	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	39.6	39.6	39.6	10.7	39.6		11.1	28.9		11.1	28.9	28.9
Total Split (s)	40.0	40.0	40.0	16.0	56.0		29.0	55.0		29.0	55.0	55.0
Total Split (%)	28.6%	28.6%	28.6%	11.4%	40.0%		20.7%	39.3%		20.7%	39.3%	39.3%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	3.3	3.3	3.3	2.4	3.3		2.4	2.2		2.4	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	5.7	6.6		6.1	5.9		6.1	5.9	5.9
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	33.0	33.0	33.0	49.9	49.0		20.1	51.2		21.2	52.3	52.3
Actuated g/C Ratio	0.24	0.24	0.24	0.36	0.35		0.14	0.37		0.15	0.37	0.37
v/c Ratio	0.38	0.96	0.38	0.88	0.64		0.81	0.62		0.86	0.64	0.24
Control Delay	53.6	89.9	9.4	75.4	38.7		91.1	33.7		87.8	38.6	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	53.6	89.9	9.4	75.4	38.7		91.1	33.7		87.8	38.6	5.6
LOS	D	F	A	E	D		F	C		F	D	A
Approach Delay		64.1			45.8			42.5			42.4	
Approach LOS		E			D			D			D	
Queue Length 50th (m)	13.3	106.2	1.3	33.0	79.6		55.9	50.0		57.4	96.1	0.0
Queue Length 95th (m)	27.7	#168.2	20.0	#67.1	101.1		m74.8	68.2		#96.3	113.9	14.4
Internal Link Dist (m)		99.5			86.1			154.6			239.2	
Turn Bay Length (m)	35.0			50.0			135.0			135.0		135.0
Base Capacity (vph)	151	404	456	190	1096		268	1691		268	1779	608
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.38	0.96	0.38	0.88	0.64		0.71	0.62		0.79	0.64	0.24

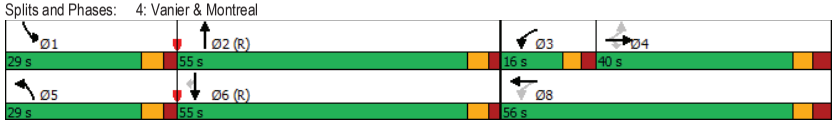
Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 102 (73%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 46.3	Intersection LOS: D
Intersection Capacity Utilization 90.9%	ICU Level of Service E
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Vanier & Montreal



Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	27	53	278	0	0	409
Future Vol, veh/h	27	53	278	0	0	409
Conflicting Peds, #/hr	3	0	0	90	90	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	500	-	-	1000	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	7	2	8	2	2	2
Mvmt Flow	27	53	278	0	0	409

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	486	278	0	-	-	-
Stage 1	278	-	-	-	-	-
Stage 2	208	-	-	-	-	-
Critical Hdwy	6.705	6.23	-	-	-	-
Critical Hdwy Stg 1	5.505	-	-	-	-	-
Critical Hdwy Stg 2	5.905	-	-	-	-	-
Follow-up Hdwy	3.5665	3.319	-	-	-	-
Pot Cap-1 Maneuver	514	760	-	0	0	-
Stage 1	755	-	-	0	0	-
Stage 2	794	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	513	760	-	-	-	-
Mov Cap-2 Maneuver	513	-	-	-	-	-
Stage 1	755	-	-	-	-	-
Stage 2	792	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	513	760	-
HCM Lane V/C Ratio	-	0.053	0.07	-
HCM Control Delay (s)	-	12.4	10.1	-
HCM Lane LOS	-	B	B	-
HCM 95th %tile Q(veh)	-	0.2	0.2	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	30	104	5	114
Future Vol, veh/h	0	0	30	104	5	114
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	30	104	5	114

Major/Minor	Major2		Minor1	
Conflicting Flow All	0	0	164	0
Stage 1	-	-	0	-
Stage 2	-	-	164	-
Critical Hdwy	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	5.42	-
Follow-up Hdwy	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	827	-
Stage 1	-	-	-	-
Stage 2	-	-	865	-
Platoon blocked, %		-		
Mov Cap-1 Maneuver	-	-	827	-
Mov Cap-2 Maneuver	-	-	827	-
Stage 1	-	-	-	-
Stage 2	-	-	865	-

Approach	WB	NB
HCM Control Delay, s		
HCM LOS		-

Minor Lane/Major Mvmt	NBLn1	WBL	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-

Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	50	5	25	39	70	5	5	0	10	27	90
Future Vol, veh/h	59	50	5	25	39	70	5	5	0	10	27	90
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	59	50	5	25	39	70	5	5	0	10	27	90

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	162	107	72	135	152	5	117	0	0	5	0	0
Stage 1	92	92	-	15	15	-	-	-	-	-	-	-
Stage 2	70	15	-	120	137	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	803	783	990	836	740	1078	1471	-	-	1616	-	-
Stage 1	915	819	-	1005	883	-	-	-	-	-	-	-
Stage 2	940	883	-	884	783	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	715	775	990	785	733	1078	1471	-	-	1616	-	-
Mov Cap-2 Maneuver	715	775	-	785	733	-	-	-	-	-	-	-
Stage 1	912	813	-	1002	880	-	-	-	-	-	-	-
Stage 2	837	880	-	820	778	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.7	9.7	3.7	0.6
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1471	-	-	750	893	1616	-	-
HCM Lane V/C Ratio	0.003	-	-	0.152	0.15	0.006	-	-
HCM Control Delay (s)	7.5	0	-	10.7	9.7	7.2	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.5	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	6	3	8	9	169	3	115	32	334	98	4
Future Volume (vph)	1	6	3	8	9	169	3	115	32	334	98	4
Satd. Flow (prot)	0	1652	0	0	1705	1441	0	1618	0	1658	1685	0
Flt Permitted		0.982			0.902			0.997		0.662		
Satd. Flow (perm)	0	1623	0	0	1570	1341	0	1614	0	1053	1685	0
Satd. Flow (RTOR)		3				169		29				
Lane Group Flow (vph)	0	10	0	0	17	169	0	150	0	334	102	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	25.6	25.6		25.6	25.6	25.6	31.1	31.1		31.1	31.1	
Total Split (s)	28.0	28.0		28.0	28.0	28.0	42.0	42.0		42.0	42.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%	40.0%	60.0%	60.0%		60.0%	60.0%	
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3	2.3	2.8	2.8		2.8	2.8	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)		5.6			5.6	5.6		6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	C-Min	C-Min		C-Min	C-Min	
Act Effct Green (s)		14.0			14.0	14.0		44.3		44.3	44.3	
Actuated g/C Ratio		0.20			0.20	0.20		0.63		0.63	0.63	
v/c Ratio		0.03			0.05	0.42		0.15		0.50	0.10	
Control Delay		16.8			17.1	9.9		5.7		11.7	6.6	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		16.8			17.1	9.9		5.7		11.7	6.6	
LOS		B			B	A		A		B	A	
Approach Delay		16.8			10.5			5.7			10.5	
Approach LOS		B			B			A			B	
Queue Length 50th (m)		0.8			2.2	6.6		4.3		16.3	3.6	
Queue Length 95th (m)		3.7			m4.7	15.0		15.0		50.8	12.3	
Internal Link Dist (m)		22.5			128.8			367.7			94.3	
Turn Bay Length (m)						60.0				55.0		
Base Capacity (vph)		521			502	544		1032		666	1066	
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		0.02			0.03	0.31		0.15		0.50	0.10	

Intersection Summary
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.50

Intersection Signal Delay: 9.7	Intersection LOS: A
Intersection Capacity Utilization 69.5%	ICU Level of Service C
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: North River & McArthur



Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	13	373	322	120	10	16
Future Vol, veh/h	13	373	322	120	10	16
Conflicting Peds, #/hr	100	0	0	100	1	9
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	10	2	5	3	2	2
Mvmt Flow	13	373	322	120	10	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	542	0	-	0	882	491
Stage 1	-	-	-	-	482	-
Stage 2	-	-	-	-	400	-
Critical Hdwy	4.2	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.29	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	988	-	-	-	317	578
Stage 1	-	-	-	-	621	-
Stage 2	-	-	-	-	677	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	911	-	-	-	265	529
Mov Cap-2 Maneuver	-	-	-	-	265	-
Stage 1	-	-	-	-	562	-
Stage 2	-	-	-	-	624	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	15.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	911	-	-	-	382
HCM Lane V/C Ratio	0.014	-	-	-	0.068
HCM Control Delay (s)	9	0	-	-	15.1
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	353	19	50	429	12	31
Future Volume (vph)	353	19	50	429	12	31
Satd. Flow (prot)	1728	0	0	1721	1523	1483
Flt Permitted				0.934	0.950	
Satd. Flow (perm)	1728	0	0	1613	1425	1426
Satd. Flow (RTOR)	6					31
Lane Group Flow (vph)	372	0	0	479	12	31
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases			6		4	4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	27.5		23.5	23.5	24.5	24.5
Total Split (s)	45.0		45.0	45.0	25.0	25.0
Total Split (%)	64.3%		64.3%	64.3%	35.7%	35.7%
Yellow Time (s)	3.3		3.3	3.3	3.3	3.3
All-Red Time (s)	2.2		2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	5.5			5.5	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	None	None
Act Effct Green (s)	53.8			53.8	13.6	13.6
Actuated g/C Ratio	0.77			0.77	0.19	0.19
v/c Ratio	0.28			0.39	0.04	0.10
Control Delay	2.5			7.4	20.4	8.5
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	2.5			7.4	20.4	8.5
LOS	A			A	C	A
Approach Delay	2.5			7.4	11.9	
Approach LOS	A			A	B	
Queue Length 50th (m)	2.0			35.2	1.4	0.0
Queue Length 95th (m)	17.5			m51.0	4.7	5.5
Internal Link Dist (m)	36.3			7.3	144.2	
Turn Bay Length (m)					30.0	
Base Capacity (vph)	1329			1239	396	419
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	0.28			0.39	0.03	0.07

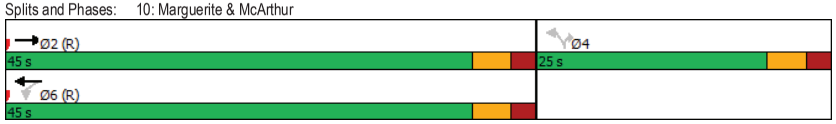
Intersection Summary
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.39

Intersection Signal Delay: 5.6	Intersection LOS: A
Intersection Capacity Utilization 71.7%	ICU Level of Service C
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: Marguerite & McArthur



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	138	302	209	204	112	248	1080	225	159	1353	85
Future Volume (vph)	34	138	302	209	204	112	248	1080	225	159	1353	85
Satd. Flow (prot)	1551	1695	1483	3216	1695	1483	1658	3316	1483	1658	3316	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1437	1695	1398	3012	1695	1320	1645	3316	1355	1633	3316	1342
Satd. Flow (RTOR)			244			120			212			121
Lane Group Flow (vph)	34	138	302	209	204	112	248	1080	225	159	1353	85
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.2	36.2	36.2	11.2	36.2	36.2	11.1	36.1	36.1	11.1	36.1	36.1
Total Split (s)	20.0	36.2	36.2	20.0	36.2	36.2	24.0	59.8	59.8	24.0	59.8	59.8
Total Split (%)	14.3%	25.9%	25.9%	14.3%	25.9%	25.9%	17.1%	42.7%	42.7%	17.1%	42.7%	42.7%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.9	2.9	2.9	2.9	2.9	2.9	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	10.8	26.1	26.1	12.9	33.2	33.2	22.2	59.9	59.9	16.5	54.2	54.2
Actuated g/C Ratio	0.08	0.19	0.19	0.09	0.24	0.24	0.16	0.43	0.43	0.12	0.39	0.39
v/c Ratio	0.29	0.44	0.66	0.71	0.51	0.28	0.95	0.76	0.32	0.82	1.06	0.14
Control Delay	70.2	48.6	20.0	75.0	52.2	8.2	101.2	40.2	5.7	92.1	73.1	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.2	48.6	20.0	75.0	52.2	8.2	101.2	40.2	5.7	92.1	73.1	3.5
LOS	E	D	B	E	D	A	F	D	A	F	E	A
Approach Delay		31.9			51.9			45.0			71.3	
Approach LOS		C			D			D			E	
Queue Length 50th (m)	9.5	33.0	21.4	29.2	50.9	0.0	~81.6	142.8	2.2	46.3	~125.4	0.0
Queue Length 95th (m)	21.3	44.6	32.7	42.8	77.1	13.8	#135.0	172.1	19.3	m#73.8	#250.1	m2.8
Internal Link Dist (m)		122.9			191.2			195.1			202.5	
Turn Bay Length (m)	50.0		100.0	120.0		115.0	90.0		90.0	90.0		90.0
Base Capacity (vph)	152	363	491	317	409	409	262	1418	700	211	1282	593
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.38	0.62	0.66	0.50	0.27	0.95	0.76	0.32	0.75	1.06	0.14

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 100 (71%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.06

Intersection Signal Delay: 54.5	Intersection LOS: D
Intersection Capacity Utilization 102.3%	ICU Level of Service G
Analysis Period (min) 15	

~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Vanier & McArthur



Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↾	
Traffic Vol, veh/h	0	396	473	0	27	15
Future Vol, veh/h	0	396	473	0	27	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	396	473	0	27	15

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	869	473
Stage 1	-	-	-	-	473	-
Stage 2	-	-	-	-	396	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	0	-	-	0	322	591
Stage 1	0	-	-	0	627	-
Stage 2	0	-	-	0	680	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	322	591
Mov Cap-2 Maneuver	-	-	-	-	322	-
Stage 1	-	-	-	-	627	-
Stage 2	-	-	-	-	680	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	15.5
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	385
HCM Lane V/C Ratio	-	-	0.109
HCM Control Delay (s)	-	-	15.5
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.4

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	40	20	20	0	0	37
Future Vol, veh/h	40	20	20	0	0	37
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	20	20	0	0	37

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	20	0	-	0	120	20
Stage 1	-	-	-	-	20	-
Stage 2	-	-	-	-	100	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1596	-	-	-	876	1058
Stage 1	-	-	-	-	1003	-
Stage 2	-	-	-	-	924	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1596	-	-	-	854	1058
Mov Cap-2 Maneuver	-	-	-	-	854	-
Stage 1	-	-	-	-	978	-
Stage 2	-	-	-	-	924	-

Approach	EB	WB	SB
HCM Control Delay, s	4.9	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1596	-	-	-	1058
HCM Lane V/C Ratio	0.025	-	-	-	0.035
HCM Control Delay (s)	7.3	0	-	-	8.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	652	457	0	699	18	398	17	32	21	15	21
Future Volume (vph)	3	652	457	0	699	18	398	17	32	21	15	21
Satd. Flow (prot)	0	2820	0	0	3237	0	1658	1449	0	0	1508	0
Flt Permitted		0.953					0.950				0.261	
Satd. Flow (perm)	0	2687	0	0	3237	0	1633	1449	0	0	391	0
Satd. Flow (RTOR)					2			32			19	
Lane Group Flow (vph)	0	1112	0	0	717	0	398	49	0	0	57	0
Turn Type	Perm	NA			NA		Prot	NA		Perm	NA	
Protected Phases		2			6		13	10			8	
Permitted Phases	2									8		
Detector Phase	2	2			6		13	10		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	36.7	36.7			30.7		11.5	43.2		16.5	16.5	
Total Split (s)	39.0	39.0			39.0		31.0	64.0		17.0	17.0	
Total Split (%)	32.5%	32.5%			32.5%		25.8%	53.3%		14.2%	14.2%	
Yellow Time (s)	3.0	3.0			3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.7	3.7			3.7		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		6.7			6.7		6.5	6.5			6.5	
Lead/Lag							Lag					
Lead-Lag Optimize?							Yes					
Recall Mode	C-Max	C-Max			C-Max		None	None		None	None	
Act Effct Green (s)		47.9			47.9		41.9	41.9			10.5	
Actuated g/C Ratio		0.40			0.40		0.35	0.35			0.09	
v/c Ratio		1.04			0.55		0.69	0.09			1.12	
Control Delay		73.2			29.2		41.8	14.2			198.9	
Queue Delay		0.0			53.7		0.0	0.0			0.0	
Total Delay		73.2			83.0		41.8	14.2			198.9	
LOS		E			F		D	B			F	
Approach Delay		73.2			83.0			38.8			198.9	
Approach LOS		E			F			D			F	
Queue Length 50th (m)		134.3			65.0		82.4	2.7			~11.0	
Queue Length 95th (m)		#181.4			82.3		119.8	11.5			#38.9	
Internal Link Dist (m)		179.1			52.8			112.9			59.0	
Turn Bay Length (m)							90.0					
Base Capacity (vph)		1072			1292		579	710			51	
Starvation Cap Reductn		0			760		0	0			0	
Spillback Cap Reductn		0			0		0	0			0	
Storage Cap Reductn		0			0		0	0			0	
Reduced v/c Ratio		1.04			1.35		0.69	0.07			1.12	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated

Lane Group	Ø14
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	14
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	20.0
Total Split (s)	33.0
Total Split (%)	28%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Maximum v/c Ratio: 1.12

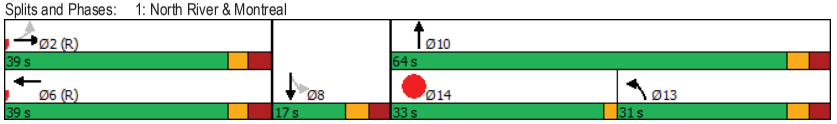
Intersection Signal Delay: 72.7	Intersection LOS: E
Intersection Capacity Utilization 79.2%	ICU Level of Service D

Analysis Period (min) 15

~ 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: 1: North River & Montreal



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	572	133	256	566	157	185
Future Volume (vph)	572	133	256	566	157	185
Satd. Flow (prot)	3158	0	0	3224	1658	1401
Flt Permitted				0.614	0.950	
Satd. Flow (perm)	3158	0	0	2000	1640	1346
Satd. Flow (RTOR)	68					185
Lane Group Flow (vph)	705	0	0	822	157	185
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	4	
Permitted Phases			6			4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	39.5		23.5	23.5	19.5	19.5
Total Split (s)	76.0		76.0	76.0	24.0	24.0
Total Split (%)	76.0%		76.0%	76.0%	24.0%	24.0%
Yellow Time (s)	3.3		3.3	3.3	3.3	3.3
All-Red Time (s)	2.2		2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	5.5			5.5	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	None	None
Act Effct Green (s)	74.5			74.5	14.5	14.5
Actuated g/C Ratio	0.74			0.74	0.14	0.14
v/c Ratio	0.30			0.55	0.65	0.52
Control Delay	4.4			7.7	53.0	11.3
Queue Delay	1.5			0.0	0.0	0.0
Total Delay	5.9			7.7	53.0	11.3
LOS	A			A	D	B
Approach Delay	5.9			7.7	30.4	
Approach LOS	A			A	C	
Queue Length 50th (m)	17.4			30.6	29.1	0.0
Queue Length 95th (m)	28.3			51.8	47.6	17.7
Internal Link Dist (m)	52.8			138.9	214.6	
Turn Bay Length (m)					35.0	
Base Capacity (vph)	2369			1490	306	399
Starvation Cap Reductn	1417			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.74			0.55	0.51	0.46

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 11.2	Intersection LOS: B
Intersection Capacity Utilization 76.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Montgomery & Montreal



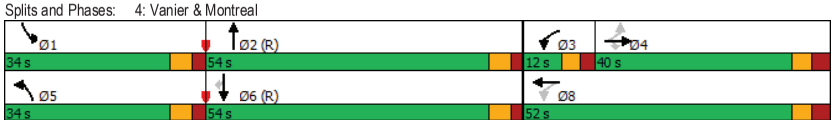
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	432	201	164	423	198	264	1042	210	142	1058	117
Future Volume (vph)	64	432	201	164	423	198	264	1042	210	142	1058	117
Satd. Flow (prot)	1626	1695	1483	1658	2976	0	1658	4564	0	1658	4764	1483
Flt Permitted	0.387			0.102			0.950			0.950		
Satd. Flow (perm)	638	1695	1375	175	2976	0	1627	4564	0	1633	4764	1346
Satd. Flow (RTOR)			173		58			33				120
Lane Group Flow (vph)	64	432	201	164	621	0	264	1252	0	142	1058	117
Turn Type	Perm	NA	Perm	pm+pt	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8								6
Detector Phase	4	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	39.6	39.6	39.6	10.7	39.6		11.1	28.9		11.1	28.9	28.9
Total Split (s)	40.0	40.0	40.0	12.0	52.0		34.0	54.0		34.0	54.0	54.0
Total Split (%)	28.6%	28.6%	28.6%	8.6%	37.1%		24.3%	38.6%		24.3%	38.6%	38.6%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	3.3	3.3	3.3	2.4	3.3		2.4	2.2		2.4	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	5.7	6.6		6.1	5.9		6.1	5.9	5.9
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	33.4	33.4	33.4	46.3	45.4		25.5	58.7		17.3	50.5	50.5
Actuated g/C Ratio	0.24	0.24	0.24	0.33	0.32		0.18	0.42		0.12	0.36	0.36
v/c Ratio	0.42	1.07	0.44	1.32	0.62		0.87	0.65		0.70	0.62	0.21
Control Delay	55.2	114.4	12.4	222.9	39.2		89.3	27.2		75.9	39.2	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	55.2	114.4	12.4	222.9	39.2		89.3	27.2		75.9	39.2	5.9
LOS	E	F	B	F	D		F	C		E	D	A
Approach Delay		79.5			77.5			38.0			40.2	
Approach LOS		E			E			D			D	
Queue Length 50th (m)	15.1	~132.0	6.1	~43.6	69.5		77.3	54.3		38.2	90.3	0.0
Queue Length 95th (m)	30.8	#196.9	27.8	#90.6	89.8		m89.9	70.5		58.2	106.1	12.6
Internal Link Dist (m)		99.5			86.1			154.5			217.9	
Turn Bay Length (m)	35.0			50.0			135.0			135.0		135.0
Base Capacity (vph)	152	404	459	124	1004		330	1933		330	1717	562
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.42	1.07	0.44	1.32	0.62		0.80	0.65		0.43	0.62	0.21

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 56 (40%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.32
Intersection Signal Delay: 52.6 Intersection LOS: D
Intersection Capacity Utilization 93.7% ICU Level of Service F
Analysis Period (min) 15
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Vanier & Montreal



Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	115	57	382	0	0	442
Future Vol, veh/h	115	57	382	0	0	442
Conflicting Peds, #/hr	2	2	0	66	66	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	500	-	-	1000	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	3	2	2	4
Mvmt Flow	115	57	382	0	0	442

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	605	384	0	-	-	-
Stage 1	382	-	-	-	-	-
Stage 2	223	-	-	-	-	-
Critical Hdwy	6.63	6.23	-	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	-	-
Pot Cap-1 Maneuver	445	663	-	0	0	-
Stage 1	689	-	-	0	0	-
Stage 2	793	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	444	662	-	-	-	-
Mov Cap-2 Maneuver	444	-	-	-	-	-
Stage 1	689	-	-	-	-	-
Stage 2	791	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	444	662	-
HCM Lane V/C Ratio	-	0.259	0.086	-
HCM Control Delay (s)	-	15.9	11	-
HCM Lane LOS	-	C	B	-
HCM 95th %tile Q(veh)	-	1	0.3	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	30	55	10	221
Future Vol, veh/h	0	0	30	55	10	221
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	30	55	10	221

Major/Minor	Major2		Minor1	
Conflicting Flow All	0	0	115	0
Stage 1	-	-	0	-
Stage 2	-	-	115	-
Critical Hdwy	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	5.42	-
Follow-up Hdwy	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	881	-
Stage 1	-	-	-	-
Stage 2	-	-	910	-
Platoon blocked, %		-		
Mov Cap-1 Maneuver	-	-	881	-
Mov Cap-2 Maneuver	-	-	881	-
Stage 1	-	-	-	-
Stage 2	-	-	910	-

Approach	WB	NB
HCM Control Delay, s		
HCM LOS		-

Minor Lane/Major Mvmt	NBLn1	WBL	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-

Intersection	
Int Delay, s/veh	8.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	82	129	10	10	20	48	5	10	0	15	28	60
Future Vol, veh/h	82	129	10	10	20	48	5	10	0	15	28	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	82	129	10	10	20	48	5	10	0	15	28	60

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	142	108	58	178	138	10	88	0	0	10	0	0
Stage 1	88	88	-	20	20	-	-	-	-	-	-	-
Stage 2	54	20	-	158	118	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	828	782	1008	784	753	1071	1508	-	-	1610	-	-
Stage 1	920	822	-	999	879	-	-	-	-	-	-	-
Stage 2	958	879	-	844	798	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	767	772	1008	670	743	1071	1508	-	-	1610	-	-
Mov Cap-2 Maneuver	767	772	-	670	743	-	-	-	-	-	-	-
Stage 1	917	814	-	996	876	-	-	-	-	-	-	-
Stage 2	891	876	-	696	790	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.5	9.4	2.5	1.1
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1508	-	-	778	900	1610	-	-
HCM Lane V/C Ratio	0.003	-	-	0.284	0.087	0.009	-	-
HCM Control Delay (s)	7.4	0	-	11.5	9.4	7.3	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1.2	0.3	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↰	↱		↕		↰	↕	
Traffic Volume (vph)	4	25	6	24	11	229	2	148	44	417	139	1
Future Volume (vph)	4	25	6	24	11	229	2	148	44	417	139	1
Satd. Flow (prot)	0	1636	0	0	1571	1483	0	1615	0	1642	1709	0
Flt Permitted		0.976			0.824			0.999		0.636		
Satd. Flow (perm)	0	1593	0	0	1303	1334	0	1615	0	985	1709	0
Satd. Flow (RTOR)		6				229		33				
Lane Group Flow (vph)	0	35	0	0	35	229	0	194	0	417	140	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	25.6	25.6		25.6	25.6	25.6	31.1	31.1		31.1	31.1	
Total Split (s)	26.0	26.0		26.0	26.0	26.0	49.0	49.0		49.0	49.0	
Total Split (%)	34.7%	34.7%		34.7%	34.7%	34.7%	65.3%	65.3%		65.3%	65.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3	2.3	2.8	2.8		2.8	2.8	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)		5.6			5.6	5.6		6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	C-Min	C-Min		C-Min	C-Min	
Act Effct Green (s)		16.0			16.0	16.0		47.3		47.3	47.3	
Actuated g/C Ratio		0.21			0.21	0.21		0.63		0.63	0.63	
v/c Ratio		0.10			0.13	0.49		0.19		0.67	0.13	
Control Delay		19.2			19.9	12.7		6.2		17.6	7.0	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		19.2			19.9	12.7		6.2		17.6	7.0	
LOS		B			B	B		A		B	A	
Approach Delay		19.2			13.7			6.2			14.9	
Approach LOS		B			B			A			B	
Queue Length 50th (m)		3.1			3.9	4.8		9.7		39.2	8.3	
Queue Length 95th (m)		9.4			m10.3	32.7		18.8		#90.2	15.7	
Internal Link Dist (m)		22.5			128.8			119.0			94.3	
Turn Bay Length (m)						60.0				55.0		
Base Capacity (vph)		437			354	529		1030		621	1077	
Starvation Cap Reductn		0			0	0		0		0	0	
Spillback Cap Reductn		0			0	0		0		0	0	
Storage Cap Reductn		0			0	0		0		0	0	
Reduced v/c Ratio		0.08			0.10	0.43		0.19		0.67	0.13	

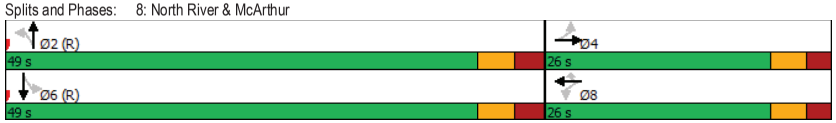
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 13.2	Intersection LOS: B
Intersection Capacity Utilization 74.6%	ICU Level of Service D
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: North River & McArthur



Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	477	279	204	26	4
Future Vol, veh/h	15	477	279	204	26	4
Conflicting Peds, #/hr	76	0	0	76	0	9
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	3	3	2	8	2
Mvmt Flow	15	477	279	204	26	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	559	0	-	0	964	466
Stage 1	-	-	-	-	457	-
Stage 2	-	-	-	-	507	-
Critical Hdwy	4.12	-	-	-	6.48	6.22
Critical Hdwy Stg 1	-	-	-	-	5.48	-
Critical Hdwy Stg 2	-	-	-	-	5.48	-
Follow-up Hdwy	2.218	-	-	-	3.572	3.318
Pot Cap-1 Maneuver	1012	-	-	-	276	597
Stage 1	-	-	-	-	625	-
Stage 2	-	-	-	-	593	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	952	-	-	-	239	558
Mov Cap-2 Maneuver	-	-	-	-	239	-
Stage 1	-	-	-	-	576	-
Stage 2	-	-	-	-	558	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	20.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	952	-	-	-	259
HCM Lane V/C Ratio	0.016	-	-	-	0.116
HCM Control Delay (s)	8.8	0	-	-	20.7
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	481	21	51	438	28	52
Future Volume (vph)	481	21	51	438	28	52
Satd. Flow (prot)	1730	0	0	1731	1610	1483
Flt Permitted				0.917	0.950	
Satd. Flow (perm)	1730	0	0	1592	1541	1425
Satd. Flow (RTOR)	5					52
Lane Group Flow (vph)	502	0	0	489	28	52
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases			6		4	4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	27.5		23.5	23.5	24.5	24.5
Total Split (s)	50.0		50.0	50.0	25.0	25.0
Total Split (%)	66.7%		66.7%	66.7%	33.3%	33.3%
Yellow Time (s)	3.3		3.3	3.3	3.3	3.3
All-Red Time (s)	2.2		2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	5.5			5.5	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	None	None
Act Effct Green (s)	54.6			54.6	13.6	13.6
Actuated g/C Ratio	0.73			0.73	0.18	0.18
v/c Ratio	0.40			0.42	0.10	0.17
Control Delay	5.3			7.8	24.1	8.4
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	5.3			7.8	24.1	8.4
LOS	A			A	C	A
Approach Delay	5.3			7.8	13.9	
Approach LOS	A			A	B	
Queue Length 50th (m)	6.4			22.5	3.6	0.0
Queue Length 95th (m)	36.8			58.2	8.8	7.7
Internal Link Dist (m)	36.3			7.3	144.2	
Turn Bay Length (m)					30.0	
Base Capacity (vph)	1261			1159	400	408
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	0.40			0.42	0.07	0.13

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.42

Intersection Signal Delay: 7.1	Intersection LOS: A
Intersection Capacity Utilization 79.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 10: Marguerite & McArthur



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	241	443	333	255	193	285	1246	251	132	1274	82
Future Volume (vph)	55	241	443	333	255	193	285	1246	251	132	1274	82
Satd. Flow (prot)	1658	1712	1483	3154	1712	1483	1658	3316	1469	1658	3316	1469
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1578	1712	1323	2791	1712	1360	1616	3316	1354	1641	3316	1223
Satd. Flow (RTOR)			262			193			212			168
Lane Group Flow (vph)	55	241	443	333	255	193	285	1246	251	132	1274	82
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.2	36.2	36.2	11.2	36.2	36.2	11.1	36.1	36.1	11.1	36.1	36.1
Total Split (s)	18.0	36.2	36.2	18.0	36.2	36.2	31.0	62.8	62.8	23.0	54.8	54.8
Total Split (%)	12.9%	25.9%	25.9%	12.9%	25.9%	25.9%	22.1%	44.9%	44.9%	16.4%	39.1%	39.1%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.9	2.9	2.9	2.9	2.9	2.9	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	10.6	27.4	27.4	14.4	33.6	33.6	24.9	58.7	58.7	14.9	48.7	48.7
Actuated g/C Ratio	0.08	0.20	0.20	0.10	0.24	0.24	0.18	0.42	0.42	0.11	0.35	0.35
v/c Ratio	0.44	0.72	0.94	1.02	0.62	0.41	0.97	0.90	0.36	0.75	1.10	0.15
Control Delay	72.3	65.2	51.9	116.6	56.8	8.7	102.0	47.9	7.2	82.3	96.5	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.3	65.2	51.9	116.6	56.8	8.7	102.0	47.9	7.2	82.3	96.5	2.5
LOS	E	E	D	F	E	A	F	D	A	F	F	A
Approach Delay		57.8			70.4			50.8			90.0	
Approach LOS		E			E			D			F	
Queue Length 50th (m)	14.7	61.6	54.8	~59.2	65.8	0.0	79.3	170.6	6.5	38.0	~198.6	0.0
Queue Length 95th (m)	28.9	90.8	#119.1	#90.0	96.3	20.4	#135.3	#216.0	25.5	m56.4	m#229.2	m3.4
Internal Link Dist (m)		122.9			174.6			182.4			202.0	
Turn Bay Length (m)	50.0		100.0	120.0		115.0	90.0		90.0	90.0		90.0
Base Capacity (vph)	139	366	489	325	410	473	294	1389	690	200	1153	534
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.66	0.91	1.02	0.62	0.41	0.97	0.90	0.36	0.66	1.10	0.15

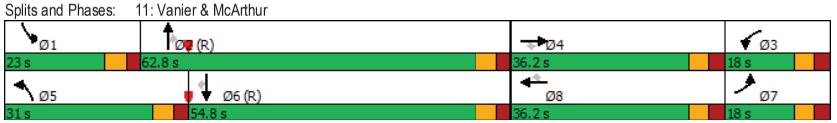
Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 54 (39%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 67.3	Intersection LOS: E
Intersection Capacity Utilization 108.2%	ICU Level of Service G
Analysis Period (min) 15	

~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Vanier & McArthur



Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↾	
Traffic Vol, veh/h	0	541	501	0	21	8
Future Vol, veh/h	0	541	501	0	21	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	541	501	0	21	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	1042	501
Stage 1	-	-	-	-	501	-
Stage 2	-	-	-	-	541	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	0	-	-	0	254	570
Stage 1	0	-	-	0	609	-
Stage 2	0	-	-	0	583	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	254	570
Mov Cap-2 Maneuver	-	-	-	-	254	-
Stage 1	-	-	-	-	609	-
Stage 2	-	-	-	-	583	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	18.3
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	300
HCM Lane V/C Ratio	-	-	0.097
HCM Control Delay (s)	-	-	18.3
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.3

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↾	↱		↾	
Traffic Vol, veh/h	109	35	15	0	0	19
Future Vol, veh/h	109	35	15	0	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	109	35	15	0	0	19

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	15	0	-	0	268	15
Stage 1	-	-	-	-	15	-
Stage 2	-	-	-	-	253	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1603	-	-	-	721	1065
Stage 1	-	-	-	-	1008	-
Stage 2	-	-	-	-	789	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1603	-	-	-	671	1065
Mov Cap-2 Maneuver	-	-	-	-	671	-
Stage 1	-	-	-	-	938	-
Stage 2	-	-	-	-	789	-

Approach	EB	WB	SB
HCM Control Delay, s	5.6	0	8.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1603	-	-	-	1065
HCM Lane V/C Ratio	0.068	-	-	-	0.018
HCM Control Delay (s)	7.4	0	-	-	8.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1

Appendix F

Synchro Intersection Worksheets – 2031 Future Background Conditions

DRAFT

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	487	377	0	751	13	313	10	35	17	25	15
Future Volume (vph)	3	487	377	0	751	13	313	10	35	17	25	15
Satd. Flow (prot)	0	2865	0	0	3168	0	1595	1336	0	0	1518	0
Flt Permitted		0.953					0.950				0.247	
Satd. Flow (perm)	0	2730	0	0	3168	0	1581	1336	0	0	377	0
Satd. Flow (RTOR)					2			35			15	
Lane Group Flow (vph)	0	867	0	0	764	0	313	45	0	0	57	0
Turn Type	Perm	NA			NA		Prot	NA		Perm	NA	
Protected Phases		2			6		13	10			8	
Permitted Phases	2									8		
Detector Phase	2	2			6		13	10		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	28.0	28.0			27.7		11.5	36.5		16.5	16.5	
Total Split (s)	29.0	29.0			29.0		24.0	49.0		17.0	17.0	
Total Split (%)	30.5%	30.5%			30.5%		25.3%	51.6%		17.9%	17.9%	
Yellow Time (s)	3.0	3.0			3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.7	3.7			3.7		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		6.7			6.7		6.5	6.5			6.5	
Lead/Lag							Lag					
Lead-Lag Optimize?							Yes					
Recall Mode	C-Max	C-Max			C-Max		None	None		None	None	
Act Effct Green (s)		36.6			36.6		28.2	28.2			10.5	
Actuated g/C Ratio		0.39			0.39		0.30	0.30			0.11	
v/c Ratio		0.82			0.63		0.66	0.11			1.04	
Control Delay		34.6			26.5		37.0	11.3			169.4	
Queue Delay		0.0			52.0		0.0	0.0			0.0	
Total Delay		34.6			78.5		37.0	11.3			169.4	
LOS		C			E		D	B			F	
Approach Delay		34.6			78.5			33.8			169.4	
Approach LOS		C			E			C			F	
Queue Length 50th (m)		73.1			57.7		50.5	1.3			~8.7	
Queue Length 95th (m)		#109.3			79.4		77.2	8.9			#33.4	
Internal Link Dist (m)		194.5			52.8			112.9			59.0	
Turn Bay Length (m)							90.0					
Base Capacity (vph)		1051			1221		473	617			55	
Starvation Cap Reductn		0			565		0	0			0	
Spillback Cap Reductn		0			0		0	0			0	
Storage Cap Reductn		0			0		0	0			0	
Reduced v/c Ratio		0.82			1.16		0.66	0.07			1.04	

Intersection Summary
Cycle Length: 95
Actuated Cycle Length: 95
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Lane Group	Ø14
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	14
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	3.0
Total Split (s)	25.0
Total Split (%)	26%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

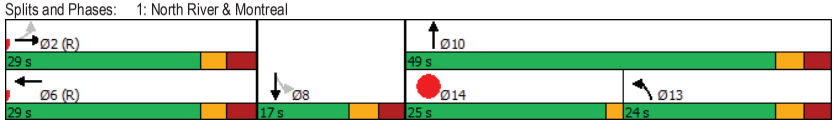
Maximum v/c Ratio: 1.04

Intersection Signal Delay: 54.6	Intersection LOS: D
Intersection Capacity Utilization 66.5%	ICU Level of Service C
Analysis Period (min) 15	

~ 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: 1: North River & Montreal



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	438	101	119	684	81	207
Future Volume (vph)	438	101	119	684	81	207
Satd. Flow (prot)	3121	0	0	3177	1658	1401
Flt Permitted				0.775	0.950	
Satd. Flow (perm)	3121	0	0	2475	1649	1379
Satd. Flow (RTOR)	66					207
Lane Group Flow (vph)	539	0	0	803	81	207
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases			6		4	4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	39.9		15.9	15.9	19.5	19.5
Total Split (s)	56.0		56.0	56.0	24.0	24.0
Total Split (%)	70.0%		70.0%	70.0%	30.0%	30.0%
Yellow Time (s)	3.3		3.3	3.3	3.3	3.3
All-Red Time (s)	2.6		2.6	2.6	2.2	2.2
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	5.9			5.9	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	None	None
Act Effct Green (s)	57.6			57.6	11.0	11.0
Actuated g/C Ratio	0.72			0.72	0.14	0.14
v/c Ratio	0.24			0.45	0.36	0.56
Control Delay	3.7			5.8	35.6	11.3
Queue Delay	0.8			0.0	0.0	0.0
Total Delay	4.5			5.8	35.6	11.3
LOS	A			A	D	B
Approach Delay	4.5			5.8	18.2	
Approach LOS	A			A	B	
Queue Length 50th (m)	9.5			20.3	11.5	0.0
Queue Length 95th (m)	17.7			36.5	22.8	17.0
Internal Link Dist (m)	52.8			138.9	214.6	
Turn Bay Length (m)					35.0	
Base Capacity (vph)	2267			1783	381	478
Starvation Cap Reductn	1369			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.60			0.45	0.21	0.43

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Lanes, Volumes, Timings
2: Montgomery & Montreal

09/21/2021

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 7.6	Intersection LOS: A
Intersection Capacity Utilization 74.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Montgomery & Montreal



Lanes, Volumes, Timings
4: Vanier & Montreal

09/21/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	386	171	168	505	194	191	905	166	213	1161	145
Future Volume (vph)	57	386	171	168	505	194	191	905	166	213	1161	145
Satd. Flow (prot)	1642	1695	1483	1658	3027	0	1642	4581	0	1642	4764	1483
Flt Permitted	0.377			0.143			0.950			0.950		
Satd. Flow (perm)	633	1695	1385	245	3027	0	1624	4581	0	1611	4764	1386
Satd. Flow (RTOR)			165		44			29				145
Lane Group Flow (vph)	57	386	171	168	699	0	191	1071	0	213	1161	145
Turn Type	Perm	NA	Perm	pm+pt	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8								6
Detector Phase	4	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	39.6	39.6	39.6	10.7	39.6		11.1	28.9		11.1	28.9	28.9
Total Split (s)	40.0	40.0	40.0	16.0	56.0		29.0	55.0		29.0	55.0	55.0
Total Split (%)	28.6%	28.6%	28.6%	11.4%	40.0%		20.7%	39.3%		20.7%	39.3%	39.3%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	3.3	3.3	3.3	2.4	3.3		2.4	2.2		2.4	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	5.7	6.6		6.1	5.9		6.1	5.9	5.9
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	33.0	33.0	33.0	49.9	49.0		20.1	51.2		21.2	52.3	52.3
Actuated g/C Ratio	0.24	0.24	0.24	0.36	0.35		0.14	0.37		0.15	0.37	0.37
v/c Ratio	0.38	0.96	0.38	0.88	0.64		0.81	0.63		0.86	0.65	0.24
Control Delay	53.6	89.9	9.4	75.4	38.7		90.4	34.5		87.8	39.0	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	53.6	89.9	9.4	75.4	38.7		90.4	34.5		87.8	39.0	5.6
LOS	D	F	A	E	D		F	C		F	D	A
Approach Delay		64.1			45.8			42.9			42.7	
Approach LOS		E			D			D			D	
Queue Length 50th (m)	13.3	106.2	1.3	33.0	79.6		55.8	52.4		57.4	99.4	0.0
Queue Length 95th (m)	27.7	#168.2	20.0	#67.1	101.1		m73.2	69.5		#96.3	117.5	14.4
Internal Link Dist (m)		99.5			86.1			154.6			239.2	
Turn Bay Length (m)	35.0			50.0			135.0			135.0		135.0
Base Capacity (vph)	151	404	456	190	1096		268	1693		268	1779	608
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.38	0.96	0.38	0.88	0.64		0.71	0.63		0.79	0.65	0.24

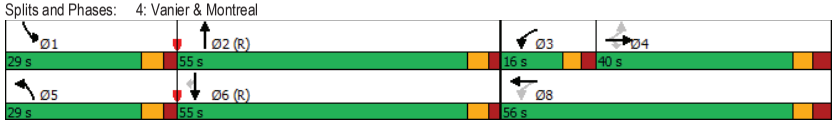
Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 102 (73%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 46.5	Intersection LOS: D
Intersection Capacity Utilization 91.4%	ICU Level of Service F
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Vanier & Montreal



Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	27	53	278	0	0	409
Future Vol, veh/h	27	53	278	0	0	409
Conflicting Peds, #/hr	3	0	0	90	90	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	500	-	-	1000	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	7	2	8	2	2	2
Mvmt Flow	27	53	278	0	0	409

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	486	278	0	-	-	-
Stage 1	278	-	-	-	-	-
Stage 2	208	-	-	-	-	-
Critical Hdwy	6.705	6.23	-	-	-	-
Critical Hdwy Stg 1	5.505	-	-	-	-	-
Critical Hdwy Stg 2	5.905	-	-	-	-	-
Follow-up Hdwy	3.5665	3.319	-	-	-	-
Pot Cap-1 Maneuver	514	760	-	0	0	-
Stage 1	755	-	-	0	0	-
Stage 2	794	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	513	760	-	-	-	-
Mov Cap-2 Maneuver	513	-	-	-	-	-
Stage 1	755	-	-	-	-	-
Stage 2	792	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	513	760	-
HCM Lane V/C Ratio	-	0.053	0.07	-
HCM Control Delay (s)	-	12.4	10.1	-
HCM Lane LOS	-	B	B	-
HCM 95th %tile Q(veh)	-	0.2	0.2	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	30	104	5	114
Future Vol, veh/h	0	0	30	104	5	114
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	30	104	5	114

Major/Minor	Major2		Minor1		
Conflicting Flow All	0	0	164	0	
Stage 1	-	-	0	-	
Stage 2	-	-	164	-	
Critical Hdwy	4.12	-	6.42	6.22	
Critical Hdwy Stg 1	-	-	-	-	
Critical Hdwy Stg 2	-	-	5.42	-	
Follow-up Hdwy	2.218	-	3.518	3.318	
Pot Cap-1 Maneuver	-	-	827	-	
Stage 1	-	-	-	-	
Stage 2	-	-	865	-	
Platoon blocked, %		-			
Mov Cap-1 Maneuver	-	-	827	-	
Mov Cap-2 Maneuver	-	-	827	-	
Stage 1	-	-	-	-	
Stage 2	-	-	865	-	

Approach	WB	NB
HCM Control Delay, s		
HCM LOS		-

Minor Lane/Major Mvmt	NBLn1	WBL	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-

Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	50	5	25	39	70	5	5	0	10	27	90
Future Vol, veh/h	59	50	5	25	39	70	5	5	0	10	27	90
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	59	50	5	25	39	70	5	5	0	10	27	90

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	162	107	72	135	152	5	117	0	0	5	0	0
Stage 1	92	92	-	15	15	-	-	-	-	-	-	-
Stage 2	70	15	-	120	137	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	803	783	990	836	740	1078	1471	-	-	1616	-	-
Stage 1	915	819	-	1005	883	-	-	-	-	-	-	-
Stage 2	940	883	-	884	783	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	715	775	990	785	733	1078	1471	-	-	1616	-	-
Mov Cap-2 Maneuver	715	775	-	785	733	-	-	-	-	-	-	-
Stage 1	912	813	-	1002	880	-	-	-	-	-	-	-
Stage 2	837	880	-	820	778	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.7	9.7	3.7	0.6
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1471	-	-	750	893	1616	-	-
HCM Lane V/C Ratio	0.003	-	-	0.152	0.15	0.006	-	-
HCM Control Delay (s)	7.5	0	-	10.7	9.7	7.2	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.5	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	6	3	8	9	169	3	115	32	334	98	4
Future Volume (vph)	1	6	3	8	9	169	3	115	32	334	98	4
Satd. Flow (prot)	0	1652	0	0	1705	1441	0	1618	0	1658	1685	0
Flt Permitted		0.982			0.902			0.997		0.662		
Satd. Flow (perm)	0	1623	0	0	1570	1341	0	1614	0	1053	1685	0
Satd. Flow (RTOR)		3				169		29				
Lane Group Flow (vph)	0	10	0	0	17	169	0	150	0	334	102	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	25.6	25.6		25.6	25.6	25.6	31.1	31.1		31.1	31.1	
Total Split (s)	28.0	28.0		28.0	28.0	28.0	42.0	42.0		42.0	42.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%	40.0%	60.0%	60.0%		60.0%	60.0%	
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3	2.3	2.8	2.8		2.8	2.8	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)		5.6			5.6	5.6		6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	C-Min	C-Min		C-Min	C-Min	
Act Effct Green (s)		14.0			14.0	14.0		44.3		44.3	44.3	
Actuated g/C Ratio		0.20			0.20	0.20		0.63		0.63	0.63	
v/c Ratio		0.03			0.05	0.42		0.15		0.50	0.10	
Control Delay		16.8			17.1	9.9		5.7		11.7	6.6	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		16.8			17.1	9.9		5.7		11.7	6.6	
LOS		B			B	A		A		B	A	
Approach Delay		16.8			10.6			5.7			10.5	
Approach LOS		B			B			A			B	
Queue Length 50th (m)		0.8			2.2	6.6		4.3		16.3	3.6	
Queue Length 95th (m)		3.7			m4.7	15.0		15.0		50.8	12.3	
Internal Link Dist (m)		22.5			128.8			367.7			94.3	
Turn Bay Length (m)						60.0				55.0		
Base Capacity (vph)		521			502	544		1032		666	1066	
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		0.02			0.03	0.31		0.15		0.50	0.10	

Intersection Summary
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.50

Intersection Signal Delay: 9.7	Intersection LOS: A
Intersection Capacity Utilization 69.5%	ICU Level of Service C
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: North River & McArthur



Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	13	373	322	120	10	16
Future Vol, veh/h	13	373	322	120	10	16
Conflicting Peds, #/hr	100	0	0	100	1	9
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	10	2	5	3	2	2
Mvmt Flow	13	373	322	120	10	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	542	0	-	0	882	491
Stage 1	-	-	-	-	482	-
Stage 2	-	-	-	-	400	-
Critical Hdwy	4.2	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.29	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	988	-	-	-	317	578
Stage 1	-	-	-	-	621	-
Stage 2	-	-	-	-	677	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	911	-	-	-	265	529
Mov Cap-2 Maneuver	-	-	-	-	265	-
Stage 1	-	-	-	-	562	-
Stage 2	-	-	-	-	624	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	15.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	911	-	-	-	382
HCM Lane V/C Ratio	0.014	-	-	-	0.068
HCM Control Delay (s)	9	0	-	-	15.1
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	353	19	50	429	12	31
Future Volume (vph)	353	19	50	429	12	31
Satd. Flow (prot)	1728	0	0	1721	1523	1483
Flt Permitted				0.934	0.950	
Satd. Flow (perm)	1728	0	0	1613	1425	1426
Satd. Flow (RTOR)	6					31
Lane Group Flow (vph)	372	0	0	479	12	31
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases			6		4	4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	27.5		23.5	23.5	24.5	24.5
Total Split (s)	45.0		45.0	45.0	25.0	25.0
Total Split (%)	64.3%		64.3%	64.3%	35.7%	35.7%
Yellow Time (s)	3.3		3.3	3.3	3.3	3.3
All-Red Time (s)	2.2		2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	5.5			5.5	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	None	None
Act Effct Green (s)	53.8			53.8	13.6	13.6
Actuated g/C Ratio	0.77			0.77	0.19	0.19
v/c Ratio	0.28			0.39	0.04	0.10
Control Delay	2.5			7.5	20.4	8.5
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	2.5			7.5	20.4	8.5
LOS	A			A	C	A
Approach Delay	2.5			7.5	11.9	
Approach LOS	A			A	B	
Queue Length 50th (m)	2.0			35.2	1.4	0.0
Queue Length 95th (m)	17.5			m51.0	4.7	5.5
Internal Link Dist (m)	36.3			7.3	144.2	
Turn Bay Length (m)					30.0	
Base Capacity (vph)	1329			1239	396	419
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	0.28			0.39	0.03	0.07

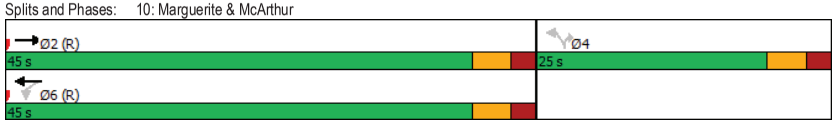
Intersection Summary
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.39

Intersection Signal Delay: 5.6	Intersection LOS: A
Intersection Capacity Utilization 71.7%	ICU Level of Service C
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: Marguerite & McArthur



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	138	302	209	204	112	248	1107	225	159	1384	85
Future Volume (vph)	34	138	302	209	204	112	248	1107	225	159	1384	85
Satd. Flow (prot)	1551	1695	1483	3216	1695	1483	1658	3316	1483	1658	3316	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1437	1695	1398	3012	1695	1320	1646	3316	1355	1634	3316	1342
Satd. Flow (RTOR)			243			120			207			121
Lane Group Flow (vph)	34	138	302	209	204	112	248	1107	225	159	1384	85
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.2	36.2	36.2	11.2	36.2	36.2	11.1	36.1	36.1	11.1	36.1	36.1
Total Split (s)	20.0	36.2	36.2	20.0	36.2	36.2	24.0	59.8	59.8	24.0	59.8	59.8
Total Split (%)	14.3%	25.9%	25.9%	14.3%	25.9%	25.9%	17.1%	42.7%	42.7%	17.1%	42.7%	42.7%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.9	2.9	2.9	2.9	2.9	2.9	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	10.8	26.1	26.1	12.9	33.2	33.2	22.2	59.9	59.9	16.5	54.2	54.2
Actuated g/C Ratio	0.08	0.19	0.19	0.09	0.24	0.24	0.16	0.43	0.43	0.12	0.39	0.39
v/c Ratio	0.29	0.44	0.66	0.71	0.51	0.28	0.95	0.78	0.32	0.82	1.08	0.14
Control Delay	70.2	48.6	20.1	75.0	52.2	8.2	101.2	41.0	6.1	91.9	81.3	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.2	48.6	20.1	75.0	52.2	8.2	101.2	41.0	6.1	91.9	81.3	3.9
LOS	E	D	C	E	D	A	F	D	A	F	F	A
Approach Delay		32.0			51.9			45.5			78.3	
Approach LOS		C			D			D			E	
Queue Length 50th (m)	9.5	33.0	21.6	29.2	50.9	0.0	~81.6	148.2	3.1	45.9	~214.5	0.0
Queue Length 95th (m)	21.3	44.6	32.9	42.8	77.1	13.8	#135.0	178.4	20.4	m#74.5	#259.5	m3.2
Internal Link Dist (m)		122.9			191.2			195.1			202.5	
Turn Bay Length (m)	50.0		100.0	120.0		115.0	90.0		90.0	90.0		90.0
Base Capacity (vph)	152	363	490	317	409	409	262	1418	698	211	1282	593
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.38	0.62	0.66	0.50	0.27	0.95	0.78	0.32	0.75	1.08	0.14

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 100 (71%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 57.5	Intersection LOS: E
Intersection Capacity Utilization 103.2%	ICU Level of Service G
Analysis Period (min) 15	

~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Vanier & McArthur



Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↱	
Traffic Vol, veh/h	0	396	473	0	27	15
Future Vol, veh/h	0	396	473	0	27	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	396	473	0	27	15

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	869	473
Stage 1	-	-	-	-	473	-
Stage 2	-	-	-	-	396	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	0	-	-	0	322	591
Stage 1	0	-	-	0	627	-
Stage 2	0	-	-	0	680	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	322	591
Mov Cap-2 Maneuver	-	-	-	-	322	-
Stage 1	-	-	-	-	627	-
Stage 2	-	-	-	-	680	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	15.5
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	385
HCM Lane V/C Ratio	-	-	0.109
HCM Control Delay (s)	-	-	15.5
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.4

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	40	20	20	0	0	37
Future Vol, veh/h	40	20	20	0	0	37
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	20	20	0	0	37

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	20	0	-	0	120	20
Stage 1	-	-	-	-	20	-
Stage 2	-	-	-	-	100	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1596	-	-	-	876	1058
Stage 1	-	-	-	-	1003	-
Stage 2	-	-	-	-	924	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1596	-	-	-	854	1058
Mov Cap-2 Maneuver	-	-	-	-	854	-
Stage 1	-	-	-	-	978	-
Stage 2	-	-	-	-	924	-

Approach	EB	WB	SB
HCM Control Delay, s	4.9	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1596	-	-	-	1058
HCM Lane V/C Ratio	0.025	-	-	-	0.035
HCM Control Delay (s)	7.3	0	-	-	8.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	652	457	0	699	18	398	17	32	21	15	21
Future Volume (vph)	3	652	457	0	699	18	398	17	32	21	15	21
Satd. Flow (prot)	0	2820	0	0	3237	0	1658	1449	0	0	1508	0
Flt Permitted		0.953					0.950				0.261	
Satd. Flow (perm)	0	2687	0	0	3237	0	1633	1449	0	0	391	0
Satd. Flow (RTOR)					2			32			19	
Lane Group Flow (vph)	0	1112	0	0	717	0	398	49	0	0	57	0
Turn Type	Perm	NA			NA		Prot	NA		Perm	NA	
Protected Phases		2			6		13	10			8	
Permitted Phases	2									8		
Detector Phase	2	2			6		13	10		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	36.7	36.7			30.7		11.5	43.2		16.5	16.5	
Total Split (s)	39.0	39.0			39.0		31.0	64.0		17.0	17.0	
Total Split (%)	32.5%	32.5%			32.5%		25.8%	53.3%		14.2%	14.2%	
Yellow Time (s)	3.0	3.0			3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.7	3.7			3.7		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		6.7			6.7		6.5	6.5			6.5	
Lead/Lag							Lag					
Lead-Lag Optimize?							Yes					
Recall Mode	C-Max	C-Max			C-Max		None	None		None	None	
Act Effct Green (s)		47.9			47.9		41.9	41.9			10.5	
Actuated g/C Ratio		0.40			0.40		0.35	0.35			0.09	
v/c Ratio		1.04			0.55		0.69	0.09			1.12	
Control Delay		73.2			29.2		41.8	14.2			198.9	
Queue Delay		0.0			53.7		0.0	0.0			0.0	
Total Delay		73.2			83.0		41.8	14.2			198.9	
LOS		E			F		D	B			F	
Approach Delay		73.2			83.0			38.8			198.9	
Approach LOS		E			F			D			F	
Queue Length 50th (m)		134.3			65.0		82.4	2.7			~11.0	
Queue Length 95th (m)		#181.4			82.3		119.8	11.5			#38.9	
Internal Link Dist (m)		179.1			52.8			112.9			59.0	
Turn Bay Length (m)							90.0					
Base Capacity (vph)		1072			1292		579	710			51	
Starvation Cap Reductn		0			760		0	0			0	
Spillback Cap Reductn		0			0		0	0			0	
Storage Cap Reductn		0			0		0	0			0	
Reduced v/c Ratio		1.04			1.35		0.69	0.07			1.12	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated

Lane Group	Ø14
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	14
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	20.0
Total Split (s)	33.0
Total Split (%)	28%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

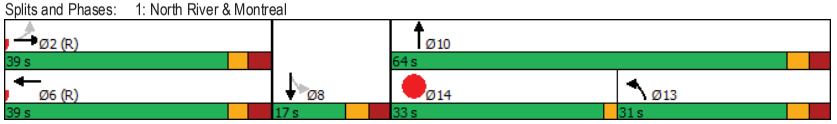
Maximum v/c Ratio: 1.12

Intersection Signal Delay: 72.7	Intersection LOS: E
Intersection Capacity Utilization 79.2%	ICU Level of Service D
Analysis Period (min) 15	

~ 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: 1: North River & Montreal



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	572	133	256	566	157	185
Future Volume (vph)	572	133	256	566	157	185
Satd. Flow (prot)	3158	0	0	3224	1658	1401
Flt Permitted				0.614	0.950	
Satd. Flow (perm)	3158	0	0	2000	1640	1346
Satd. Flow (RTOR)	68					185
Lane Group Flow (vph)	705	0	0	822	157	185
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	4	
Permitted Phases			6			4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	39.5		23.5	23.5	19.5	19.5
Total Split (s)	76.0		76.0	76.0	24.0	24.0
Total Split (%)	76.0%		76.0%	76.0%	24.0%	24.0%
Yellow Time (s)	3.3		3.3	3.3	3.3	3.3
All-Red Time (s)	2.2		2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	5.5			5.5	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	None	None
Act Effct Green (s)	74.5			74.5	14.5	14.5
Actuated g/C Ratio	0.74			0.74	0.14	0.14
v/c Ratio	0.30			0.55	0.65	0.52
Control Delay	4.4			7.7	53.0	11.3
Queue Delay	1.5			0.0	0.0	0.0
Total Delay	5.9			7.7	53.0	11.3
LOS	A			A	D	B
Approach Delay	5.9			7.7	30.4	
Approach LOS	A			A	C	
Queue Length 50th (m)	17.4			30.6	29.1	0.0
Queue Length 95th (m)	28.3			51.8	47.6	17.7
Internal Link Dist (m)	52.8			138.9	214.6	
Turn Bay Length (m)					35.0	
Base Capacity (vph)	2369			1490	306	399
Starvation Cap Reductn	1417			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.74			0.55	0.51	0.46

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 11.2	Intersection LOS: B
Intersection Capacity Utilization 76.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Montgomery & Montreal

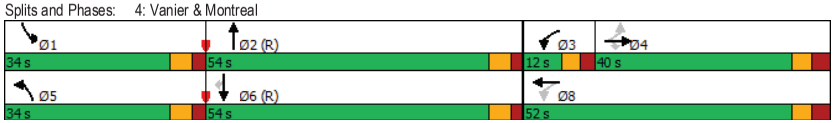


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	432	201	164	423	198	264	1068	210	142	1084	117
Future Volume (vph)	64	432	201	164	423	198	264	1068	210	142	1084	117
Satd. Flow (prot)	1626	1695	1483	1658	2976	0	1658	4565	0	1658	4764	1483
Flt Permitted	0.387			0.102			0.950			0.950		
Satd. Flow (perm)	638	1695	1375	175	2976	0	1628	4565	0	1634	4764	1346
Satd. Flow (RTOR)			173		58			32				120
Lane Group Flow (vph)	64	432	201	164	621	0	264	1278	0	142	1084	117
Turn Type	Perm	NA	Perm	pm+pt	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8								6
Detector Phase	4	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	39.6	39.6	39.6	10.7	39.6		11.1	28.9		11.1	28.9	28.9
Total Split (s)	40.0	40.0	40.0	12.0	52.0		34.0	54.0		34.0	54.0	54.0
Total Split (%)	28.6%	28.6%	28.6%	8.6%	37.1%		24.3%	38.6%		24.3%	38.6%	38.6%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	3.3	3.3	3.3	2.4	3.3		2.4	2.2		2.4	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	5.7	6.6		6.1	5.9		6.1	5.9	5.9
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	33.4	33.4	33.4	46.3	45.4		25.5	58.7		17.3	50.5	50.5
Actuated g/C Ratio	0.24	0.24	0.24	0.33	0.32		0.18	0.42		0.12	0.36	0.36
v/c Ratio	0.42	1.07	0.44	1.32	0.62		0.87	0.66		0.70	0.63	0.21
Control Delay	55.2	114.4	12.4	222.9	39.2		88.3	27.7		75.9	39.5	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	55.2	114.4	12.4	222.9	39.2		88.3	27.7		75.9	39.5	5.9
LOS	E	F	B	F	D		F	C		E	D	A
Approach Delay		79.5			77.5			38.1			40.4	
Approach LOS		E			E			D			D	
Queue Length 50th (m)	15.1	~132.0	6.1	~43.6	69.5		77.3	57.2		38.2	93.1	0.0
Queue Length 95th (m)	30.8	#196.9	27.8	#90.6	89.8		m88.2	m70.5		58.2	109.2	12.6
Internal Link Dist (m)		99.5			86.1			154.5			217.9	
Turn Bay Length (m)	35.0			50.0			135.0			135.0		135.0
Base Capacity (vph)	152	404	459	124	1004		330	1933		330	1717	562
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.42	1.07	0.44	1.32	0.62		0.80	0.66		0.43	0.63	0.21

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 56 (40%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.32
Intersection Signal Delay: 52.5 Intersection LOS: D
Intersection Capacity Utilization 94.2% ICU Level of Service F
Analysis Period (min) 15
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Vanier & Montreal



Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	115	57	382	0	0	442
Future Vol, veh/h	115	57	382	0	0	442
Conflicting Peds, #/hr	2	2	0	66	66	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	500	-	-	1000	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	3	2	2	4
Mvmt Flow	115	57	382	0	0	442

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	605	384	0	-	-	-
Stage 1	382	-	-	-	-	-
Stage 2	223	-	-	-	-	-
Critical Hdwy	6.63	6.23	-	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	-	-
Pot Cap-1 Maneuver	445	663	-	0	0	-
Stage 1	689	-	-	0	0	-
Stage 2	793	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	444	662	-	-	-	-
Mov Cap-2 Maneuver	444	-	-	-	-	-
Stage 1	689	-	-	-	-	-
Stage 2	791	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	444	662	-
HCM Lane V/C Ratio	-	0.259	0.086	-
HCM Control Delay (s)	-	15.9	11	-
HCM Lane LOS	-	C	B	-
HCM 95th %tile Q(veh)	-	1	0.3	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	30	55	10	221
Future Vol, veh/h	0	0	30	55	10	221
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	30	55	10	221

Major/Minor	Major2		Minor1	
Conflicting Flow All	0	0	115	0
Stage 1	-	-	0	-
Stage 2	-	-	115	-
Critical Hdwy	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	5.42	-
Follow-up Hdwy	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	881	-
Stage 1	-	-	-	-
Stage 2	-	-	910	-
Platoon blocked, %		-		
Mov Cap-1 Maneuver	-	-	881	-
Mov Cap-2 Maneuver	-	-	881	-
Stage 1	-	-	-	-
Stage 2	-	-	910	-

Approach	WB	NB
HCM Control Delay, s		
HCM LOS		-

Minor Lane/Major Mvmt	NBLn1	WBL	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-

Intersection	
Int Delay, s/veh	8.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	82	129	10	10	20	48	5	10	0	15	28	60
Future Vol, veh/h	82	129	10	10	20	48	5	10	0	15	28	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	82	129	10	10	20	48	5	10	0	15	28	60

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	142	108	58	178	138	10	88	0	0	10	0	0
Stage 1	88	88	-	20	20	-	-	-	-	-	-	-
Stage 2	54	20	-	158	118	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	828	782	1008	784	753	1071	1508	-	-	1610	-	-
Stage 1	920	822	-	999	879	-	-	-	-	-	-	-
Stage 2	958	879	-	844	798	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	767	772	1008	670	743	1071	1508	-	-	1610	-	-
Mov Cap-2 Maneuver	767	772	-	670	743	-	-	-	-	-	-	-
Stage 1	917	814	-	996	876	-	-	-	-	-	-	-
Stage 2	891	876	-	696	790	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.5	9.4	2.5	1.1
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1508	-	-	778	900	1610	-	-
HCM Lane V/C Ratio	0.003	-	-	0.284	0.087	0.009	-	-
HCM Control Delay (s)	7.4	0	-	11.5	9.4	7.3	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1.2	0.3	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↰	↱		↕		↰	↕	
Traffic Volume (vph)	4	25	6	24	11	229	2	148	44	417	139	1
Future Volume (vph)	4	25	6	24	11	229	2	148	44	417	139	1
Satd. Flow (prot)	0	1636	0	0	1571	1483	0	1615	0	1642	1709	0
Flt Permitted		0.976			0.824			0.999		0.636		
Satd. Flow (perm)	0	1593	0	0	1303	1334	0	1615	0	985	1709	0
Satd. Flow (RTOR)		6				229		33				
Lane Group Flow (vph)	0	35	0	0	35	229	0	194	0	417	140	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	25.6	25.6		25.6	25.6	25.6	31.1	31.1		31.1	31.1	
Total Split (s)	26.0	26.0		26.0	26.0	26.0	49.0	49.0		49.0	49.0	
Total Split (%)	34.7%	34.7%		34.7%	34.7%	34.7%	65.3%	65.3%		65.3%	65.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3	2.3	2.8	2.8		2.8	2.8	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)		5.6			5.6	5.6		6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	C-Min	C-Min		C-Min	C-Min	
Act Effct Green (s)		16.0			16.0	16.0		47.3		47.3	47.3	
Actuated g/C Ratio		0.21			0.21	0.21		0.63		0.63	0.63	
v/c Ratio		0.10			0.13	0.49		0.19		0.67	0.13	
Control Delay		19.2			19.9	12.7		6.2		17.6	7.0	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		19.2			19.9	12.7		6.2		17.6	7.0	
LOS		B			B	B		A		B	A	
Approach Delay		19.2			13.7			6.2			14.9	
Approach LOS		B			B			A			B	
Queue Length 50th (m)		3.1			3.9	4.8		9.7		39.2	8.3	
Queue Length 95th (m)		9.4			m10.3	32.7		18.8		#90.2	15.7	
Internal Link Dist (m)		22.5			128.8			119.0			94.3	
Turn Bay Length (m)						60.0				55.0		
Base Capacity (vph)		437			354	529		1030		621	1077	
Starvation Cap Reductn		0			0	0		0		0	0	
Spillback Cap Reductn		0			0	0		0		0	0	
Storage Cap Reductn		0			0	0		0		0	0	
Reduced v/c Ratio		0.08			0.10	0.43		0.19		0.67	0.13	

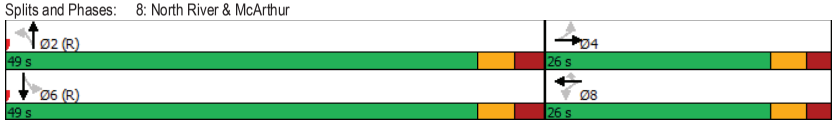
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 13.2	Intersection LOS: B
Intersection Capacity Utilization 74.6%	ICU Level of Service D
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: North River & McArthur



Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	477	279	204	26	4
Future Vol, veh/h	15	477	279	204	26	4
Conflicting Peds, #/hr	76	0	0	76	0	9
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	3	3	2	8	2
Mvmt Flow	15	477	279	204	26	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	559	0	-	0	964	466
Stage 1	-	-	-	-	457	-
Stage 2	-	-	-	-	507	-
Critical Hdwy	4.12	-	-	-	6.48	6.22
Critical Hdwy Stg 1	-	-	-	-	5.48	-
Critical Hdwy Stg 2	-	-	-	-	5.48	-
Follow-up Hdwy	2.218	-	-	-	3.572	3.318
Pot Cap-1 Maneuver	1012	-	-	-	276	597
Stage 1	-	-	-	-	625	-
Stage 2	-	-	-	-	593	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	952	-	-	-	239	558
Mov Cap-2 Maneuver	-	-	-	-	239	-
Stage 1	-	-	-	-	576	-
Stage 2	-	-	-	-	558	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	20.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	952	-	-	-	259
HCM Lane V/C Ratio	0.016	-	-	-	0.116
HCM Control Delay (s)	8.8	0	-	-	20.7
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	481	21	51	438	28	52
Future Volume (vph)	481	21	51	438	28	52
Satd. Flow (prot)	1730	0	0	1731	1610	1483
Flt Permitted				0.917	0.950	
Satd. Flow (perm)	1730	0	0	1592	1541	1425
Satd. Flow (RTOR)	5					52
Lane Group Flow (vph)	502	0	0	489	28	52
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases			6		4	4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	27.5		23.5	23.5	24.5	24.5
Total Split (s)	50.0		50.0	50.0	25.0	25.0
Total Split (%)	66.7%		66.7%	66.7%	33.3%	33.3%
Yellow Time (s)	3.3		3.3	3.3	3.3	3.3
All-Red Time (s)	2.2		2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	5.5			5.5	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	None	None
Act Effct Green (s)	54.6			54.6	13.6	13.6
Actuated g/C Ratio	0.73			0.73	0.18	0.18
v/c Ratio	0.40			0.42	0.10	0.17
Control Delay	5.3			7.8	24.1	8.4
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	5.3			7.8	24.1	8.4
LOS	A			A	C	A
Approach Delay	5.3			7.8	13.9	
Approach LOS	A			A	B	
Queue Length 50th (m)	6.4			22.5	3.6	0.0
Queue Length 95th (m)	36.8			58.2	8.8	7.7
Internal Link Dist (m)	36.3			7.3	144.2	
Turn Bay Length (m)					30.0	
Base Capacity (vph)	1261			1159	400	408
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	0.40			0.42	0.07	0.13

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.42

Intersection Signal Delay: 7.1	Intersection LOS: A
Intersection Capacity Utilization 79.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 10: Marguerite & McArthur



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	241	443	333	255	193	285	1278	251	132	1304	82
Future Volume (vph)	55	241	443	333	255	193	285	1278	251	132	1304	82
Satd. Flow (prot)	1658	1712	1483	3154	1712	1483	1658	3316	1469	1658	3316	1469
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1578	1712	1323	2791	1712	1360	1617	3316	1354	1641	3316	1223
Satd. Flow (RTOR)			261			193			207			168
Lane Group Flow (vph)	55	241	443	333	255	193	285	1278	251	132	1304	82
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.2	36.2	36.2	11.2	36.2	36.2	11.1	36.1	36.1	11.1	36.1	36.1
Total Split (s)	18.0	36.2	36.2	18.0	36.2	36.2	31.0	62.8	62.8	23.0	54.8	54.8
Total Split (%)	12.9%	25.9%	25.9%	12.9%	25.9%	25.9%	22.1%	44.9%	44.9%	16.4%	39.1%	39.1%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.9	2.9	2.9	2.9	2.9	2.9	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	10.6	27.4	27.4	14.4	33.6	33.6	24.9	58.7	58.7	14.9	48.7	48.7
Actuated g/C Ratio	0.08	0.20	0.20	0.10	0.24	0.24	0.18	0.42	0.42	0.11	0.35	0.35
v/c Ratio	0.44	0.72	0.95	1.02	0.62	0.41	0.97	0.92	0.37	0.75	1.13	0.15
Control Delay	72.3	65.2	52.5	116.6	56.8	8.7	102.0	50.3	7.6	82.1	106.2	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.3	65.2	52.5	116.6	56.8	8.7	102.0	50.3	7.6	82.1	106.2	2.7
LOS	E	E	D	F	E	A	F	D	A	F	F	A
Approach Delay		58.1			70.4			52.5			98.5	
Approach LOS		E			E			D			F	
Queue Length 50th (m)	14.7	61.6	55.1	~59.2	65.8	0.0	79.3	177.7	7.4	37.9	~207.6	0.2
Queue Length 95th (m)	28.9	90.8	#119.6	#90.0	96.3	20.4	#135.3	#225.6	26.7	m56.2	m#238.8	m3.6
Internal Link Dist (m)		122.9			174.6			182.4			202.0	
Turn Bay Length (m)	50.0		100.0	120.0		115.0	90.0		90.0	90.0		90.0
Base Capacity (vph)	139	366	488	325	410	473	294	1389	687	200	1153	534
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.66	0.91	1.02	0.62	0.41	0.97	0.92	0.37	0.66	1.13	0.15

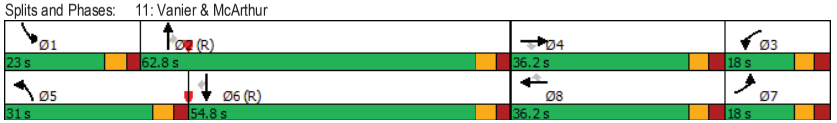
Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 54 (39%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.13

Intersection Signal Delay: 70.6	Intersection LOS: E
Intersection Capacity Utilization 109.1%	ICU Level of Service H
Analysis Period (min) 15	

~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Vanier & McArthur



Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↾	
Traffic Vol, veh/h	0	541	501	0	21	8
Future Vol, veh/h	0	541	501	0	21	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	541	501	0	21	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	1042	501
Stage 1	-	-	-	-	501	-
Stage 2	-	-	-	-	541	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	0	-	-	0	254	570
Stage 1	0	-	-	0	609	-
Stage 2	0	-	-	0	583	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	254	570
Mov Cap-2 Maneuver	-	-	-	-	254	-
Stage 1	-	-	-	-	609	-
Stage 2	-	-	-	-	583	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	18.3
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	300
HCM Lane V/C Ratio	-	-	0.097
HCM Control Delay (s)	-	-	18.3
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.3

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↱		↾	
Traffic Vol, veh/h	109	35	15	0	0	19
Future Vol, veh/h	109	35	15	0	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	109	35	15	0	0	19

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	15	0	-	0	268	15
Stage 1	-	-	-	-	15	-
Stage 2	-	-	-	-	253	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1603	-	-	-	721	1065
Stage 1	-	-	-	-	1008	-
Stage 2	-	-	-	-	789	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1603	-	-	-	671	1065
Mov Cap-2 Maneuver	-	-	-	-	671	-
Stage 1	-	-	-	-	938	-
Stage 2	-	-	-	-	789	-

Approach	EB	WB	SB
HCM Control Delay, s	5.6	0	8.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1603	-	-	-	1065
HCM Lane V/C Ratio	0.068	-	-	-	0.018
HCM Control Delay (s)	7.4	0	-	-	8.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1

Appendix G

MMLOS Analysis

DRAFT

Multi-Modal Level of Service - Intersections Form

Consultant	CGH Transportation Inc.	Project	337 345 Montgomery Street and 94 Selkirk Street
Scenario	Existing/Future	Date	9/24/2021
Comments			

INTERSECTIONS		Montreal Road & North River Road				Montreal Road & Montgomery Street				Montreal & Montgomery (Future)				Montreal & Vanier (Pre-Construction)				Montreal & Vanier (Future)				McArthur & North River				McArthur & Marguerite				McArthur & Vanier			
	Crossing Side	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	4	7	6	5		5	4	4		5	4	4	7	8	5	5	7	8	5	5	4	5	6	5		5	5	5		6	6	7	6
	Median	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m		No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m		No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m		No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m		No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m
	Conflicting Left Turns	Permissive	No left turn / Prohib.	Protected/ Permissive	Protected		Permissive	Permissive	Permissive		Permissive	Permissive	Permissive	Permissive	Protected/ Permissive	Protected	Protected	Permissive	Protected/ Permissive	Protected	Protected	Permissive	Permissive	Permissive	Permissive		Permissive	Permissive	Permissive		Protected	Protected	Protected	Protected
	Conflicting Right Turns	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control		Permissive or yield control	Permissive or yield control	Permissive or yield control		Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control		Permissive or yield control	Permissive or yield control	No right turn		Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control
	Right Turns on Red (RTOR) ?	RTOR allowed	RTOR allowed	RTOR allowed	RTOR prohibited		RTOR allowed	RTOR allowed	RTOR allowed		RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR prohibited	RTOR allowed	RTOR allowed	RTOR prohibited		RTOR allowed	RTOR allowed	RTOR prohibited		RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed
	Ped Signal Leading Interval?	No	No	No	No		No	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No		No	No	No		No	No	No	No
	Right Turn Channel	No Channel	No Channel	No Channel	No Channel		No Channel	No Channel	No Right Turn		No Channel	No Channel	No Right Turn	Conv/I without Receiving Lane	Conv/I without Receiving Lane	Conventional with Receiving Lane	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel		No Channel	No Channel	No Right Turn		Conv/I without Receiving Lane	Conv/I without Receiving Lane	Conv/I without Receiving Lane	Conventional with Receiving Lane
	Corner Radius	5-10m	5-10m	5-10m	5-10m		3-5m	3-5m	No Right Turn		3-5m	3-5m	No Right Turn	15-25m	15-25m	15-25m	15-25m	5-10m	5-10m	5-10m	5-10m	10-15m	5-10m	10-15m	5-10m		5-10m	5-10m	No Right Turn		>25m	15-25m	15-25m	15-25m
	Crosswalk Type	Textured/coloured pavement	Textured/coloured pavement	Textured/coloured pavement	Textured/coloured pavement		Std transverse markings	Std transverse markings	Std transverse markings		Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings		Std transverse markings	Std transverse markings	Std transverse markings		Std transverse markings	Textured/coloured pavement	Textured/coloured pavement	Std transverse markings
	PETSI Score	**57**	**16**	**24**	**52**		**39**	**55**	**63**		**42**	**58**	**66**	**9**	**-7**	**47**	**46**	**8**	**-8**	**49**	**49**	**56**	**38**	**20**	**38**		**38**	**38**	**55**		**29**	**33**	**17**	**27**
	Ped. Exposure to Traffic LoS	D	F	F	D	-	E	D	C	-	E	D	C	F	F	D	D	F	F	D	D	D	E	F	E	-	E	E	D		F	E	F	F
	Cycle Length	120	120	120	120		80	100	100		80	100	100	140	140	140	140	140	140	140	140	75	75	70	70		70	75	75		140	140	140	140
	Effective Walk Time	24	24	50	10		41	12	12		41	12	12	19	7	32	32	19	7	32	32	7	7	18	18		28	33	33		7	7	31	26
	Average Pedestrian Delay	**38**	**38**	**20**	**50**		**10**	**39**	**39**		**10**	**39**	**39**	**52**	**63**	**42**	**42**	**52**	**63**	**42**	**42**	**31**	**31**	**19**	**19**		**13**	**12**	**12**		**63**	**63**	**42**	**46**
	Pedestrian Delay LoS	D	D	C	E	-	B	D	D	-	B	D	D	E	F	E	E	E	F	E	E	D	D	B	B	-	B	B	B		F	F	E	E
	Level of Service	**D**	**F**	**F**	**E**	-	**E**	**D**	**D**	-	**E**	**D**	**D**	**F**	**F**	**E**	**E**	**F**	**F**	**E**	**E**	**D**	**E**	**F**	**E**	-	**E**	**E**	**D**		**F**	**F**	**F**	**F**
		F				**E**				**E**				**F**				**F**				**F**				**E**				**F**			
Bicycle	**Approach From**	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
	Bicycle Lane Arrangement on Approach	Curb Bike Lane, Cycletrack or MUP	Mixed Traffic	Mixed Traffic	Curb Bike Lane, Cycletrack or MUP		Mixed Traffic	Mixed Traffic	Mixed Traffic		Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Mixed Traffic	Mixed Traffic	Pocket Bike Lane	Curb Bike Lane, Cycletrack or MUP		Mixed Traffic	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP		Mixed Traffic	Mixed Traffic	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP
	Right Turn Lane Configuration	Not Applicable			Not Applicable									> 50 m	> 50 m			Not Applicable	Not Applicable	Not Applicable	Not Applicable			Bike lane shifts to the left of right turn	Not Applicable			Not Applicable	Not Applicable		> 50 m	> 50 m	Not Applicable	Not Applicable
	Right Turning Speed	Not Applicable			Not Applicable									>25 km/h	>25 km/h			Not Applicable	Not Applicable	Not Applicable	Not Applicable			>25 km/h	Not Applicable			Not Applicable	Not Applicable		>25 km/h	>25 km/h	Not Applicable	Not Applicable
	Cyclist relative to RT motorists	**Not Applicable**	**#N/A**	**#N/A**	**Not Applicable**	-	**#N/A**	**#N/A**	**#N/A**	-	**#N/A**	**#N/A**	**#N/A**	F	F	**#N/A**	**#N/A**	**Not Applicable**	**Not Applicable**	**Not Applicable**	**Not Applicable**	**#N/A**	**#N/A**	F	**Not Applicable**	-	**#N/A**	**Not Applicable**	**Not Applicable**		F	F	**Not Applicable**	**Not Applicable**
	Separated or Mixed Traffic	Separated	Mixed Traffic	Mixed Traffic	Separated	-	Mixed Traffic	Mixed Traffic	Mixed Traffic	-	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Separated	Separated	Separated	Separated	Mixed Traffic	Mixed Traffic	Separated	Separated	-	Mixed Traffic	Separated	Separated		Mixed Traffic	Mixed Traffic	Separated	Separated
	Left Turn Approach	2-stage, LT box	One lane crossed	No lane crossed	2-stage, LT box		One lane crossed	One lane crossed			One lane crossed	One lane crossed		≥ 2 lanes crossed	≥ 2 lanes crossed	≥ 2 lanes crossed	≥ 2 lanes crossed	2-stage, LT box	2-stage, LT box	2-stage, LT box	2-stage, LT box	No lane crossed	No lane crossed	1 lane crossed	1 lane crossed		No lane crossed	1 lane crossed			≥ 2 lanes crossed	≥ 2 lanes crossed	≥ 2 lanes crossed	≥ 2 lanes crossed
	Operating Speed	> 50 to < 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	> 40 to ≤ 50 km/h		> 40 to ≤ 50 km/h	> 50 to < 60 km/h			> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h		≥ 60 km/h	≥ 60 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	≥ 60 km/h	≥ 60 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h		> 40 to ≤ 50 km/h	> 50 to < 60 km/h			> 50 to < 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h
	Left Turning Cyclist	A	E	C	A	-	E	E	-	-	D	D	-	F	F	E	E	A	A	A	A	C	C	D	D	-	B	D	-		F	F	F	F
	Level of Service	**A**	**#N/A**	**#N/A**	**A**	-	**#N/A**	**#N/A**	**#N/A**	-	**#N/A**	**#N/A**	**#N/A**	**F**	**F**	**#N/A**	**#N/A**	**A**	**A**	**A**	**A**	**#N/A**	**#N/A**	**F**	**D**	-	**#N/A**	**D**	-		**F**	**F**	**F**	**F**
		#N/A				**#N/A**				**#N/A**				**#N/A**				**A**				**#N/A**				**#N/A**				**F**			
Transit	Average Signal Delay		> 40 sec	> 40 sec	> 40 sec			≤ 10 sec	≤ 10 sec			≤ 10 sec	≤ 10 sec	> 40 sec	≤ 40 sec		> 40 sec	> 40 sec	≤ 40 sec		> 40 sec	≤ 30 sec	≤ 10 sec	≤ 20 sec				≤ 10 sec	≤ 10 sec	> 40 sec	> 40 sec	> 40 sec	> 40 sec
	Level of Service	-	**F**	**F**	**F**	-	-	**B**	**B**	-	-	**B**	**B**	**F**	**E**	-	**F**	**F**	**E**	-	**F**	**D**	**B**	**C**	-	-	-	**B**	**B**		**F**	**F**	**F**	**F**
		F				**B**				**B**				**F**				**F**				**D**				**B**				**F**			
Truck	Effective Corner Radius														> 15 m		> 15 m		< 10 m		< 10 m											> 15 m	
	Number of Receiving Lanes on Departure from Intersection														≥ 2		≥ 2		≥ 2		≥ 2											≥ 2	
	Level of Service	-	-	-	-	-	-	-	-	-	-	-	-	-	**A**	-	**A**	-	**D**	-	**D**	-	-	-	-	-	-	-	-		-	**A**	-
		-				-				-				**A**				**D**				-				-				**A**			
Auto	Volume to Capacity Ratio		0.91 - 1.00				0.0 - 0.60				0.0 - 0.60				0.81 - 0.90				0.91 - 1.00				0.0 - 0.60				0.0 - 0.60				> 1.00		
	Level of Service		**E**				**A**				**A**				**D**				**E**				**A**				**A**				**F**		

Appendix H

Synchro Intersection Worksheets – 2026 Future Total Conditions

DRAFT

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	491	377	0	758	13	313	10	35	17	25	15
Future Volume (vph)	3	491	377	0	758	13	313	10	35	17	25	15
Satd. Flow (prot)	0	2865	0	0	3168	0	1595	1336	0	0	1518	0
Flt Permitted		0.953					0.950				0.247	
Satd. Flow (perm)	0	2730	0	0	3168	0	1581	1336	0	0	377	0
Satd. Flow (RTOR)					2			35			15	
Lane Group Flow (vph)	0	871	0	0	771	0	313	45	0	0	57	0
Turn Type	Perm	NA			NA		Prot	NA		Perm	NA	
Protected Phases		2			6		13	10			8	
Permitted Phases	2									8		
Detector Phase	2	2			6		13	10		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	28.0	28.0			27.7		11.5	36.5		16.5	16.5	
Total Split (s)	29.0	29.0			29.0		24.0	49.0		17.0	17.0	
Total Split (%)	30.5%	30.5%			30.5%		25.3%	51.6%		17.9%	17.9%	
Yellow Time (s)	3.0	3.0			3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.7	3.7			3.7		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		6.7			6.7		6.5	6.5			6.5	
Lead/Lag							Lag					
Lead-Lag Optimize?							Yes					
Recall Mode	C-Max	C-Max			C-Max		None	None		None	None	
Act Effct Green (s)		36.6			36.6		28.2	28.2			10.5	
Actuated g/C Ratio		0.39			0.39		0.30	0.30			0.11	
v/c Ratio		0.83			0.63		0.66	0.11			1.04	
Control Delay		34.8			26.6		37.0	11.3			169.4	
Queue Delay		0.0			52.0		0.0	0.0			0.0	
Total Delay		34.8			78.6		37.0	11.3			169.4	
LOS		C			E		D	B			F	
Approach Delay		34.8			78.6			33.8			169.4	
Approach LOS		C			E			C			F	
Queue Length 50th (m)		73.5			58.5		50.5	1.3			~8.7	
Queue Length 95th (m)		#110.1			80.3		77.2	8.9			#33.4	
Internal Link Dist (m)		194.5			52.8			112.9			59.0	
Turn Bay Length (m)							90.0					
Base Capacity (vph)		1051			1221		473	617			55	
Starvation Cap Reductn		0			564		0	0			0	
Spillback Cap Reductn		0			0		0	0			0	
Storage Cap Reductn		0			0		0	0			0	
Reduced v/c Ratio		0.83			1.17		0.66	0.07			1.04	

Intersection Summary
Cycle Length: 95
Actuated Cycle Length: 95
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Lane Group	Ø14
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	14
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	3.0
Total Split (s)	25.0
Total Split (%)	26%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

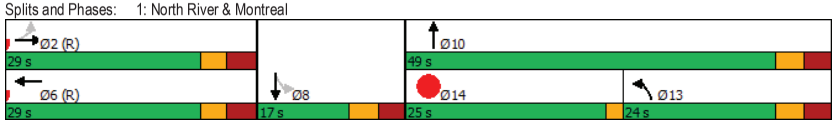
Maximum v/c Ratio: 1.04

Intersection Signal Delay: 54.8	Intersection LOS: D
Intersection Capacity Utilization 66.6%	ICU Level of Service C
Analysis Period (min) 15	

~ 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: 1: North River & Montreal



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	438	105	121	684	88	211
Future Volume (vph)	438	105	121	684	88	211
Satd. Flow (prot)	3117	0	0	3177	1658	1401
Flt Permitted				0.771	0.950	
Satd. Flow (perm)	3117	0	0	2462	1649	1379
Satd. Flow (RTOR)	70					211
Lane Group Flow (vph)	543	0	0	805	88	211
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases			6		4	4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	39.9		15.9	15.9	19.5	19.5
Total Split (s)	56.0		56.0	56.0	24.0	24.0
Total Split (%)	70.0%		70.0%	70.0%	30.0%	30.0%
Yellow Time (s)	3.3		3.3	3.3	3.3	3.3
All-Red Time (s)	2.6		2.6	2.6	2.2	2.2
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	5.9			5.9	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	None	None
Act Effct Green (s)	57.6			57.6	11.0	11.0
Actuated g/C Ratio	0.72			0.72	0.14	0.14
v/c Ratio	0.24			0.45	0.39	0.57
Control Delay	3.7			5.9	36.2	11.3
Queue Delay	0.8			0.0	0.0	0.0
Total Delay	4.5			5.9	36.2	11.3
LOS	A			A	D	B
Approach Delay	4.5			5.9	18.6	
Approach LOS	A			A	B	
Queue Length 50th (m)	9.5			20.5	12.6	0.0
Queue Length 95th (m)	17.7			36.7	24.5	17.1
Internal Link Dist (m)	52.8			138.9	214.6	
Turn Bay Length (m)					35.0	
Base Capacity (vph)	2262			1771	381	481
Starvation Cap Reductn	1361			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.60			0.45	0.23	0.44

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Lanes, Volumes, Timings
2: Montgomery & Montreal

09/21/2021

Maximum v/c Ratio: 0.57	
Intersection Signal Delay: 7.7	Intersection LOS: A
Intersection Capacity Utilization 75.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Montgomery & Montreal



Lanes, Volumes, Timings
4: Vanier & Montreal

09/21/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	388	171	168	506	194	191	883	166	213	1132	146
Future Volume (vph)	59	388	171	168	506	194	191	883	166	213	1132	146
Satd. Flow (prot)	1642	1695	1483	1658	3027	0	1642	4575	0	1642	4764	1483
Flt Permitted	0.376			0.142			0.950			0.950		
Satd. Flow (perm)	631	1695	1385	243	3027	0	1623	4575	0	1610	4764	1386
Satd. Flow (RTOR)			164		44			30				146
Lane Group Flow (vph)	59	388	171	168	700	0	191	1049	0	213	1132	146
Turn Type	Perm	NA	Perm	pm+pt	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8								6
Detector Phase	4	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	39.6	39.6	39.6	10.7	39.6		11.1	28.9		11.1	28.9	28.9
Total Split (s)	40.0	40.0	40.0	16.0	56.0		29.0	55.0		29.0	55.0	55.0
Total Split (%)	28.6%	28.6%	28.6%	11.4%	40.0%		20.7%	39.3%		20.7%	39.3%	39.3%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	3.3	3.3	3.3	2.4	3.3		2.4	2.2		2.4	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	5.7	6.6		6.1	5.9		6.1	5.9	5.9
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	33.1	33.1	33.1	50.0	49.1		20.1	51.1		21.2	52.2	52.2
Actuated g/C Ratio	0.24	0.24	0.24	0.36	0.35		0.14	0.36		0.15	0.37	0.37
v/c Ratio	0.40	0.97	0.38	0.88	0.64		0.81	0.62		0.86	0.64	0.24
Control Delay	54.2	90.4	9.5	75.4	38.7		91.2	33.7		87.8	38.6	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	54.2	90.4	9.5	75.4	38.7		91.2	33.7		87.8	38.6	5.7
LOS	D	F	A	E	D		F	C		F	D	A
Approach Delay		64.5			45.8			42.6			42.4	
Approach LOS		E			D			D			D	
Queue Length 50th (m)	13.8	106.9	1.5	33.0	79.8		55.9	50.0		57.4	96.1	0.0
Queue Length 95th (m)	28.6	#169.4	20.3	#67.5	101.2		m74.8	68.1		#96.3	113.9	14.4
Internal Link Dist (m)		99.5			86.1			154.6			239.2	
Turn Bay Length (m)	35.0			50.0			135.0			135.0		135.0
Base Capacity (vph)	150	404	455	190	1096		268	1689		268	1776	608
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.39	0.96	0.38	0.88	0.64		0.71	0.62		0.79	0.64	0.24

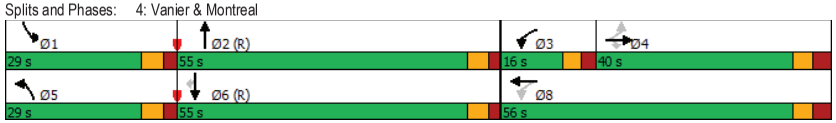
Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 102 (73%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 46.4	Intersection LOS: D
Intersection Capacity Utilization 90.9%	ICU Level of Service E
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Vanier & Montreal



Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	27	53	278	0	0	409
Future Vol, veh/h	27	53	278	0	0	409
Conflicting Peds, #/hr	3	0	0	90	90	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	500	-	-	1000	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	7	2	8	2	2	2
Mvmt Flow	27	53	278	0	0	409

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	486	278	0	-	-	-
Stage 1	278	-	-	-	-	-
Stage 2	208	-	-	-	-	-
Critical Hdwy	6.705	6.23	-	-	-	-
Critical Hdwy Stg 1	5.505	-	-	-	-	-
Critical Hdwy Stg 2	5.905	-	-	-	-	-
Follow-up Hdwy	3.5665	3.319	-	-	-	-
Pot Cap-1 Maneuver	514	760	-	0	0	-
Stage 1	755	-	-	0	0	-
Stage 2	794	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	513	760	-	-	-	-
Mov Cap-2 Maneuver	513	-	-	-	-	-
Stage 1	755	-	-	-	-	-
Stage 2	792	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	513	760	-
HCM Lane V/C Ratio	-	0.053	0.07	-
HCM Control Delay (s)	-	12.4	10.1	-
HCM Lane LOS	-	B	B	-
HCM 95th %tile Q(veh)	-	0.2	0.2	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	39	104	5	119
Future Vol, veh/h	0	0	39	104	5	119
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	39	104	5	119

Major/Minor	Major2		Minor1	
Conflicting Flow All	0	0	182	0
Stage 1	-	-	0	-
Stage 2	-	-	182	-
Critical Hdwy	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	5.42	-
Follow-up Hdwy	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	807	-
Stage 1	-	-	-	-
Stage 2	-	-	849	-
Platoon blocked, %		-		
Mov Cap-1 Maneuver	-	-	807	-
Mov Cap-2 Maneuver	-	-	807	-
Stage 1	-	-	-	-
Stage 2	-	-	849	-

Approach	WB	NB
HCM Control Delay, s		
HCM LOS		-

Minor Lane/Major Mvmt	NBLn1	WBL	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-

Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	55	5	25	48	82	5	5	0	16	27	90
Future Vol, veh/h	59	55	5	25	48	82	5	5	0	16	27	90
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	59	55	5	25	48	82	5	5	0	16	27	90

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	184	119	72	149	164	5	117	0	0	5	0	0
Stage 1	104	104	-	15	15	-	-	-	-	-	-	-
Stage 2	80	15	-	134	149	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	777	771	990	819	729	1078	1471	-	-	1616	-	-
Stage 1	902	809	-	1005	883	-	-	-	-	-	-	-
Stage 2	929	883	-	869	774	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	674	760	990	762	719	1078	1471	-	-	1616	-	-
Mov Cap-2 Maneuver	674	760	-	762	719	-	-	-	-	-	-	-
Stage 1	899	800	-	1002	880	-	-	-	-	-	-	-
Stage 2	809	880	-	796	765	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11	9.9	3.7	0.9
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1471	-	-	721	883	1616	-	-
HCM Lane V/C Ratio	0.003	-	-	0.165	0.176	0.01	-	-
HCM Control Delay (s)	7.5	0	-	11	9.9	7.2	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0.6	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	6	3	10	9	169	3	115	33	334	98	4
Future Volume (vph)	1	6	3	10	9	169	3	115	33	334	98	4
Satd. Flow (prot)	0	1652	0	0	1700	1441	0	1615	0	1658	1685	0
Flt Permitted		0.982			0.887			0.997		0.661		
Satd. Flow (perm)	0	1624	0	0	1544	1341	0	1612	0	1051	1685	0
Satd. Flow (RTOR)		3				169		30				
Lane Group Flow (vph)	0	10	0	0	19	169	0	151	0	334	102	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	25.6	25.6		25.6	25.6	25.6	31.1	31.1		31.1	31.1	
Total Split (s)	28.0	28.0		28.0	28.0	28.0	42.0	42.0		42.0	42.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%	40.0%	60.0%	60.0%		60.0%	60.0%	
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3	2.3	2.8	2.8		2.8	2.8	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)		5.6			5.6	5.6		6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	C-Min	C-Min		C-Min	C-Min	
Act Effct Green (s)		14.0			14.0	14.0		44.3		44.3	44.3	
Actuated g/C Ratio		0.20			0.20	0.20		0.63		0.63	0.63	
v/c Ratio		0.03			0.06	0.42		0.15		0.50	0.10	
Control Delay		16.8			17.3	9.9		5.6		11.7	6.6	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		16.8			17.3	9.9		5.6		11.7	6.6	
LOS		B			B	A		A		B	A	
Approach Delay		16.8			10.6			5.6			10.5	
Approach LOS		B			B			A			B	
Queue Length 50th (m)		0.8			2.4	6.6		4.3		16.3	3.6	
Queue Length 95th (m)		3.7			m5.4	15.0		15.0		50.9	12.3	
Internal Link Dist (m)		22.5			128.8			367.7			94.3	
Turn Bay Length (m)						60.0				55.0		
Base Capacity (vph)		521			494	544		1031		665	1066	
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		0.02			0.04	0.31		0.15		0.50	0.10	

Intersection Summary
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.50

Intersection Signal Delay: 9.7	Intersection LOS: A
Intersection Capacity Utilization 69.5%	ICU Level of Service C
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: North River & McArthur



Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	14	373	322	124	17	18
Future Vol, veh/h	14	373	322	124	17	18
Conflicting Peds, #/hr	100	0	0	100	1	9
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	10	2	5	3	2	2
Mvmt Flow	14	373	322	124	17	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	546	0	-	0	886	493
Stage 1	-	-	-	-	484	-
Stage 2	-	-	-	-	402	-
Critical Hdwy	4.2	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.29	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	984	-	-	-	315	576
Stage 1	-	-	-	-	620	-
Stage 2	-	-	-	-	676	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	908	-	-	-	263	528
Mov Cap-2 Maneuver	-	-	-	-	263	-
Stage 1	-	-	-	-	560	-
Stage 2	-	-	-	-	623	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	16.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	908	-	-	-	355
HCM Lane V/C Ratio	0.015	-	-	-	0.099
HCM Control Delay (s)	9	0	-	-	16.2
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	360	19	50	433	12	31
Future Volume (vph)	360	19	50	433	12	31
Satd. Flow (prot)	1728	0	0	1721	1523	1483
Flt Permitted				0.934	0.950	
Satd. Flow (perm)	1728	0	0	1613	1425	1426
Satd. Flow (RTOR)	6					31
Lane Group Flow (vph)	379	0	0	483	12	31
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases			6		4	4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	27.5		23.5	23.5	24.5	24.5
Total Split (s)	45.0		45.0	45.0	25.0	25.0
Total Split (%)	64.3%		64.3%	64.3%	35.7%	35.7%
Yellow Time (s)	3.3		3.3	3.3	3.3	3.3
All-Red Time (s)	2.2		2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	5.5			5.5	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	None	None
Act Effct Green (s)	53.8			53.8	13.6	13.6
Actuated g/C Ratio	0.77			0.77	0.19	0.19
v/c Ratio	0.29			0.39	0.04	0.10
Control Delay	2.6			7.6	20.4	8.5
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	2.6			7.6	20.4	8.5
LOS	A			A	C	A
Approach Delay	2.6			7.6	11.9	
Approach LOS	A			A	B	
Queue Length 50th (m)	2.2			35.9	1.4	0.0
Queue Length 95th (m)	18.2			m51.6	4.7	5.5
Internal Link Dist (m)	36.3			7.3	144.2	
Turn Bay Length (m)					30.0	
Base Capacity (vph)	1329			1239	396	419
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	0.29			0.39	0.03	0.07

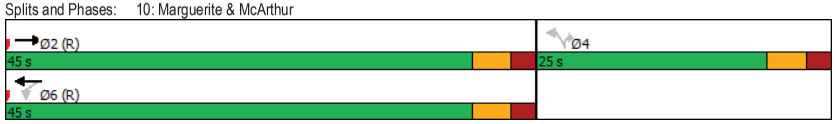
Intersection Summary
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.39

Intersection Signal Delay: 5.7	Intersection LOS: A
Intersection Capacity Utilization 72.3%	ICU Level of Service C
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: Marguerite & McArthur



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	141	306	209	206	112	250	1080	225	159	1353	85
Future Volume (vph)	34	141	306	209	206	112	250	1080	225	159	1353	85
Satd. Flow (prot)	1551	1695	1483	3216	1695	1483	1658	3316	1483	1658	3316	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1437	1695	1398	3013	1695	1320	1645	3316	1355	1633	3316	1342
Satd. Flow (RTOR)			244			120			212			121
Lane Group Flow (vph)	34	141	306	209	206	112	250	1080	225	159	1353	85
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.2	36.2	36.2	11.2	36.2	36.2	11.1	36.1	36.1	11.1	36.1	36.1
Total Split (s)	20.0	36.2	36.2	20.0	36.2	36.2	24.0	59.8	59.8	24.0	59.8	59.8
Total Split (%)	14.3%	25.9%	25.9%	14.3%	25.9%	25.9%	17.1%	42.7%	42.7%	17.1%	42.7%	42.7%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.9	2.9	2.9	2.9	2.9	2.9	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	10.8	26.1	26.1	12.9	33.2	33.2	22.4	59.9	59.9	16.5	54.0	54.0
Actuated g/C Ratio	0.08	0.19	0.19	0.09	0.24	0.24	0.16	0.43	0.43	0.12	0.39	0.39
v/c Ratio	0.29	0.45	0.67	0.71	0.51	0.28	0.94	0.76	0.32	0.82	1.06	0.14
Control Delay	70.6	48.9	20.5	75.0	52.3	8.2	100.9	40.3	5.7	92.1	74.4	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.6	48.9	20.5	75.0	52.3	8.2	100.9	40.3	5.7	92.1	74.4	3.5
LOS	E	D	C	E	D	A	F	D	A	F	E	A
Approach Delay		32.4			52.0			45.0			72.4	
Approach LOS		C			D			D			E	
Queue Length 50th (m)	9.5	33.8	22.6	29.2	51.5	0.0	~82.7	142.8	2.2	46.0	~125.4	0.0
Queue Length 95th (m)	21.4	45.9	34.1	42.8	77.8	13.8	#136.7	172.1	19.3	m#73.9	#250.0	m2.8
Internal Link Dist (m)		122.9			191.2			195.1			202.5	
Turn Bay Length (m)	50.0		100.0	120.0		115.0	90.0		90.0	90.0		90.0
Base Capacity (vph)	152	363	491	317	409	409	265	1417	700	211	1278	591
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.39	0.62	0.66	0.50	0.27	0.94	0.76	0.32	0.75	1.06	0.14

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 100 (71%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.06

Intersection Signal Delay: 54.9	Intersection LOS: D
Intersection Capacity Utilization 102.5%	ICU Level of Service G
Analysis Period (min) 15	

~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Vanier & McArthur



Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↱	
Traffic Vol, veh/h	0	403	477	0	27	15
Future Vol, veh/h	0	403	477	0	27	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	403	477	0	27	15

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	880	477
Stage 1	-	-	-	-	477	-
Stage 2	-	-	-	-	403	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	0	-	-	0	318	588
Stage 1	0	-	-	0	624	-
Stage 2	0	-	-	0	675	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	318	588
Mov Cap-2 Maneuver	-	-	-	-	318	-
Stage 1	-	-	-	-	624	-
Stage 2	-	-	-	-	675	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	15.6
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	380
HCM Lane V/C Ratio	-	-	0.111
HCM Control Delay (s)	-	-	15.6
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.4

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	40	30	41	0	0	37
Future Vol, veh/h	40	30	41	0	0	37
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	30	41	0	0	37

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	41	0	-	0	151	41
Stage 1	-	-	-	-	41	-
Stage 2	-	-	-	-	110	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1568	-	-	-	841	1030
Stage 1	-	-	-	-	981	-
Stage 2	-	-	-	-	915	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1568	-	-	-	819	1030
Mov Cap-2 Maneuver	-	-	-	-	819	-
Stage 1	-	-	-	-	955	-
Stage 2	-	-	-	-	915	-

Approach	EB	WB	SB
HCM Control Delay, s	4.2	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1568	-	-	-	1030
HCM Lane V/C Ratio	0.026	-	-	-	0.036
HCM Control Delay (s)	7.4	0	-	-	8.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	659	457	0	704	18	398	17	32	21	15	21
Future Volume (vph)	3	659	457	0	704	18	398	17	32	21	15	21
Satd. Flow (prot)	0	2824	0	0	3237	0	1658	1449	0	0	1508	0
Flt Permitted		0.953					0.950				0.261	
Satd. Flow (perm)	0	2691	0	0	3237	0	1633	1449	0	0	391	0
Satd. Flow (RTOR)					2			32			19	
Lane Group Flow (vph)	0	1119	0	0	722	0	398	49	0	0	57	0
Turn Type	Perm	NA			NA		Prot	NA		Perm	NA	
Protected Phases		2			6		13	10			8	
Permitted Phases	2									8		
Detector Phase	2	2			6		13	10		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	36.7	36.7			30.7		11.5	43.2		16.5	16.5	
Total Split (s)	39.0	39.0			39.0		31.0	64.0		17.0	17.0	
Total Split (%)	32.5%	32.5%			32.5%		25.8%	53.3%		14.2%	14.2%	
Yellow Time (s)	3.0	3.0			3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.7	3.7			3.7		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		6.7			6.7		6.5	6.5			6.5	
Lead/Lag							Lag					
Lead-Lag Optimize?							Yes					
Recall Mode	C-Max	C-Max			C-Max		None	None		None	None	
Act Effct Green (s)		47.9			47.9		41.9	41.9			10.5	
Actuated g/C Ratio		0.40			0.40		0.35	0.35			0.09	
v/c Ratio		1.04			0.56		0.69	0.09			1.12	
Control Delay		74.6			29.3		41.8	14.2			198.9	
Queue Delay		0.0			53.7		0.0	0.0			0.0	
Total Delay		74.6			83.0		41.8	14.2			198.9	
LOS		E			F		D	B			F	
Approach Delay		74.6			83.0			38.8			198.9	
Approach LOS		E			F			D			F	
Queue Length 50th (m)		135.7			65.5		82.4	2.7			~11.0	
Queue Length 95th (m)		#183.0			83.2		119.8	11.5			#38.9	
Internal Link Dist (m)		179.1			52.8			112.9			59.0	
Turn Bay Length (m)							90.0					
Base Capacity (vph)		1073			1292		579	710			51	
Starvation Cap Reductn		0			759		0	0			0	
Spillback Cap Reductn		0			0		0	0			0	
Storage Cap Reductn		0			0		0	0			0	
Reduced v/c Ratio		1.04			1.35		0.69	0.07			1.12	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated

Lane Group	Ø14
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	14
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	20.0
Total Split (s)	33.0
Total Split (%)	28%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary	

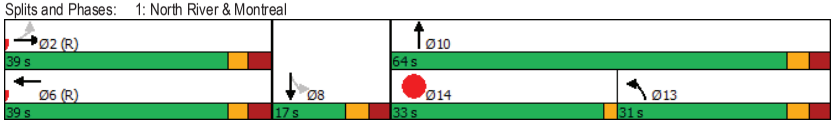
Maximum v/c Ratio: 1.12

Intersection Signal Delay: 73.4	Intersection LOS: E
Intersection Capacity Utilization 79.4%	ICU Level of Service D
Analysis Period (min) 15	

~ 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: 1: North River & Montreal



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	572	140	260	566	162	188
Future Volume (vph)	572	140	260	566	162	188
Satd. Flow (prot)	3153	0	0	3224	1658	1401
Flt Permitted				0.610	0.950	
Satd. Flow (perm)	3153	0	0	1987	1640	1346
Satd. Flow (RTOR)	73					188
Lane Group Flow (vph)	712	0	0	826	162	188
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	4	
Permitted Phases			6			4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	39.5		23.5	23.5	19.5	19.5
Total Split (s)	76.0		76.0	76.0	24.0	24.0
Total Split (%)	76.0%		76.0%	76.0%	24.0%	24.0%
Yellow Time (s)	3.3		3.3	3.3	3.3	3.3
All-Red Time (s)	2.2		2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	5.5			5.5	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	None	None
Act Effct Green (s)	74.3			74.3	14.7	14.7
Actuated g/C Ratio	0.74			0.74	0.15	0.15
v/c Ratio	0.30			0.56	0.67	0.53
Control Delay	4.4			7.9	53.5	11.2
Queue Delay	1.5			0.0	0.0	0.0
Total Delay	5.9			7.9	53.5	11.2
LOS	A			A	D	B
Approach Delay	5.9			7.9	30.8	
Approach LOS	A			A	C	
Queue Length 50th (m)	17.8			31.4	30.0	0.0
Queue Length 95th (m)	28.4			52.5	48.9	17.9
Internal Link Dist (m)	52.8			138.9	214.6	
Turn Bay Length (m)					35.0	
Base Capacity (vph)	2362			1476	306	402
Starvation Cap Reductn	1404			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.74			0.56	0.53	0.47

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 11.4	Intersection LOS: B
Intersection Capacity Utilization 76.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Montgomery & Montreal



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	433	201	164	425	198	264	1042	210	142	1058	119
Future Volume (vph)	65	433	201	164	425	198	264	1042	210	142	1058	119
Satd. Flow (prot)	1626	1695	1483	1658	2977	0	1658	4564	0	1658	4764	1483
Flt Permitted	0.385			0.102			0.950			0.950		
Satd. Flow (perm)	635	1695	1375	175	2977	0	1627	4564	0	1633	4764	1346
Satd. Flow (RTOR)			172		58			33				120
Lane Group Flow (vph)	65	433	201	164	623	0	264	1252	0	142	1058	119
Turn Type	Perm	NA	Perm	pm+pt	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8								6
Detector Phase	4	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	39.6	39.6	39.6	10.7	39.6		11.1	28.9		11.1	28.9	28.9
Total Split (s)	40.0	40.0	40.0	12.0	52.0		34.0	54.0		34.0	54.0	54.0
Total Split (%)	28.6%	28.6%	28.6%	8.6%	37.1%		24.3%	38.6%		24.3%	38.6%	38.6%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	3.3	3.3	3.3	2.4	3.3		2.4	2.2		2.4	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	5.7	6.6		6.1	5.9		6.1	5.9	5.9
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	33.4	33.4	33.4	46.3	45.4		25.5	58.7		17.3	50.5	50.5
Actuated g/C Ratio	0.24	0.24	0.24	0.33	0.32		0.18	0.42		0.12	0.36	0.36
v/c Ratio	0.43	1.07	0.44	1.32	0.62		0.87	0.65		0.70	0.62	0.21
Control Delay	55.6	115.0	12.5	222.9	39.2		89.3	27.2		75.9	39.2	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	55.6	115.0	12.5	222.9	39.2		89.3	27.2		75.9	39.2	6.1
LOS	E	F	B	F	D		F	C		E	D	A
Approach Delay		80.0			77.5			38.0			40.1	
Approach LOS		F			E			D			D	
Queue Length 50th (m)	15.4	~132.6	6.3	~43.6	69.8		77.3	54.3		38.2	90.3	0.0
Queue Length 95th (m)	31.1	#197.5	28.1	#90.6	90.2		m89.9	70.5		58.2	106.1	13.2
Internal Link Dist (m)		99.5			86.1			154.5			217.9	
Turn Bay Length (m)	35.0			50.0			135.0			135.0		135.0
Base Capacity (vph)	151	404	459	124	1004		330	1933		330	1717	562
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.43	1.07	0.44	1.32	0.62		0.80	0.65		0.43	0.62	0.21

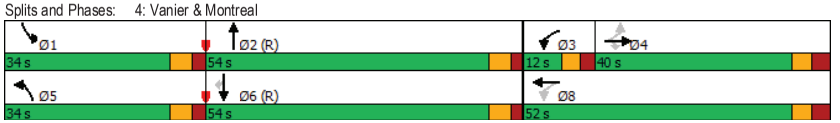
Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 56 (40%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.32

Intersection Signal Delay: 52.6	Intersection LOS: D
Intersection Capacity Utilization 93.7%	ICU Level of Service F
Analysis Period (min) 15	

~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Vanier & Montreal



Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	115	57	382	0	0	442
Future Vol, veh/h	115	57	382	0	0	442
Conflicting Peds, #/hr	2	2	0	66	66	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	500	-	-	1000	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	3	2	2	4
Mvmt Flow	115	57	382	0	0	442

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	605	384	0	-	-	-
Stage 1	382	-	-	-	-	-
Stage 2	223	-	-	-	-	-
Critical Hdwy	6.63	6.23	-	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	-	-
Pot Cap-1 Maneuver	445	663	-	0	0	-
Stage 1	689	-	-	0	0	-
Stage 2	793	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	444	662	-	-	-	-
Mov Cap-2 Maneuver	444	-	-	-	-	-
Stage 1	689	-	-	-	-	-
Stage 2	791	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	444	662	-
HCM Lane V/C Ratio	-	0.259	0.086	-
HCM Control Delay (s)	-	15.9	11	-
HCM Lane LOS	-	C	B	-
HCM 95th %tile Q(veh)	-	1	0.3	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	36	55	10	230
Future Vol, veh/h	0	0	36	55	10	230
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	36	55	10	230

Major/Minor	Major2		Minor1	
Conflicting Flow All	0	0	127	0
Stage 1	-	-	0	-
Stage 2	-	-	127	-
Critical Hdwy	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	5.42	-
Follow-up Hdwy	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	868	-
Stage 1	-	-	-	-
Stage 2	-	-	899	-
Platoon blocked, %		-		
Mov Cap-1 Maneuver	-	-	868	-
Mov Cap-2 Maneuver	-	-	868	-
Stage 1	-	-	-	-
Stage 2	-	-	899	-

Approach	WB	NB
HCM Control Delay, s		
HCM LOS		-

Minor Lane/Major Mvmt	NBLn1	WBL	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-

Intersection	
Int Delay, s/veh	8.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	82	138	10	10	26	56	5	10	0	25	28	60
Future Vol, veh/h	82	138	10	10	26	56	5	10	0	25	28	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	82	138	10	10	26	56	5	10	0	25	28	60

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	169	128	58	202	158	10	88	0	0	10	0	0
Stage 1	108	108	-	20	20	-	-	-	-	-	-	-
Stage 2	61	20	-	182	138	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	795	763	1008	756	734	1071	1508	-	-	1610	-	-
Stage 1	897	806	-	999	879	-	-	-	-	-	-	-
Stage 2	950	879	-	820	782	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	722	749	1008	634	720	1071	1508	-	-	1610	-	-
Mov Cap-2 Maneuver	722	749	-	634	720	-	-	-	-	-	-	-
Stage 1	894	793	-	996	876	-	-	-	-	-	-	-
Stage 2	871	876	-	660	769	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.9	9.6	2.5	1.6
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1508	-	-	747	883	1610	-	-
HCM Lane V/C Ratio	0.003	-	-	0.308	0.104	0.016	-	-
HCM Control Delay (s)	7.4	0	-	11.9	9.6	7.3	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1.3	0.3	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↰	↱		↕		↰	↕	
Traffic Volume (vph)	4	25	6	25	11	229	2	148	46	417	139	1
Future Volume (vph)	4	25	6	25	11	229	2	148	46	417	139	1
Satd. Flow (prot)	0	1636	0	0	1568	1483	0	1611	0	1642	1709	0
Flt Permitted		0.976			0.820			0.999		0.634		
Satd. Flow (perm)	0	1593	0	0	1295	1334	0	1611	0	982	1709	0
Satd. Flow (RTOR)		6				229		34				
Lane Group Flow (vph)	0	35	0	0	36	229	0	196	0	417	140	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	25.6	25.6		25.6	25.6	25.6	31.1	31.1		31.1	31.1	
Total Split (s)	26.0	26.0		26.0	26.0	26.0	49.0	49.0		49.0	49.0	
Total Split (%)	34.7%	34.7%		34.7%	34.7%	34.7%	65.3%	65.3%		65.3%	65.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3	2.3	2.8	2.8		2.8	2.8	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)		5.6			5.6	5.6		6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	C-Min	C-Min		C-Min	C-Min	
Act Effct Green (s)		16.0			16.0	16.0		47.3		47.3	47.3	
Actuated g/C Ratio		0.21			0.21	0.21		0.63		0.63	0.63	
v/c Ratio		0.10			0.13	0.49		0.19		0.67	0.13	
Control Delay		19.2			20.0	12.7		6.2		17.7	7.0	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		19.2			20.0	12.7		6.2		17.7	7.0	
LOS		B			B	B		A		B	A	
Approach Delay		19.2			13.7			6.2			15.1	
Approach LOS		B			B			A			B	
Queue Length 50th (m)		3.1			4.0	4.9		9.8		39.3	8.3	
Queue Length 95th (m)		9.4			m10.5	32.6		18.9		#90.5	15.7	
Internal Link Dist (m)		22.5			128.8			119.0			94.3	
Turn Bay Length (m)						60.0				55.0		
Base Capacity (vph)		437			352	529		1028		618	1077	
Starvation Cap Reductn		0			0	0		0		0	0	
Spillback Cap Reductn		0			0	0		0		0	0	
Storage Cap Reductn		0			0	0		0		0	0	
Reduced v/c Ratio		0.08			0.10	0.43		0.19		0.67	0.13	

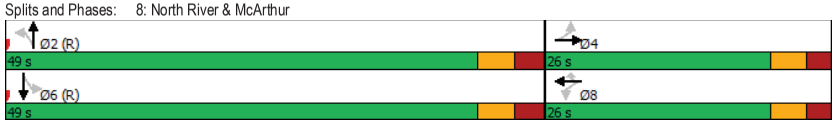
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 13.2	Intersection LOS: B
Intersection Capacity Utilization 74.6%	ICU Level of Service D
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: North River & McArthur



Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	17	477	279	211	31	5
Future Vol, veh/h	17	477	279	211	31	5
Conflicting Peds, #/hr	76	0	0	76	0	9
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	3	3	2	8	2
Mvmt Flow	17	477	279	211	31	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	566	0	-	0	972	470
Stage 1	-	-	-	-	461	-
Stage 2	-	-	-	-	511	-
Critical Hdwy	4.12	-	-	-	6.48	6.22
Critical Hdwy Stg 1	-	-	-	-	5.48	-
Critical Hdwy Stg 2	-	-	-	-	5.48	-
Follow-up Hdwy	2.218	-	-	-	3.572	3.318
Pot Cap-1 Maneuver	1006	-	-	-	273	594
Stage 1	-	-	-	-	623	-
Stage 2	-	-	-	-	590	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	947	-	-	-	236	555
Mov Cap-2 Maneuver	-	-	-	-	236	-
Stage 1	-	-	-	-	572	-
Stage 2	-	-	-	-	555	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	21.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	947	-	-	-	256
HCM Lane V/C Ratio	0.018	-	-	-	0.141
HCM Control Delay (s)	8.9	0	-	-	21.4
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	486	21	51	445	28	52
Future Volume (vph)	486	21	51	445	28	52
Satd. Flow (prot)	1730	0	0	1731	1610	1483
Flt Permitted				0.917	0.950	
Satd. Flow (perm)	1730	0	0	1592	1541	1425
Satd. Flow (RTOR)	5					52
Lane Group Flow (vph)	507	0	0	496	28	52
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases			6		4	4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	27.5		23.5	23.5	24.5	24.5
Total Split (s)	50.0		50.0	50.0	25.0	25.0
Total Split (%)	66.7%		66.7%	66.7%	33.3%	33.3%
Yellow Time (s)	3.3		3.3	3.3	3.3	3.3
All-Red Time (s)	2.2		2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	5.5			5.5	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	None	None
Act Effct Green (s)	54.6			54.6	13.6	13.6
Actuated g/C Ratio	0.73			0.73	0.18	0.18
v/c Ratio	0.40			0.43	0.10	0.17
Control Delay	5.4			7.8	24.1	8.4
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	5.4			7.8	24.1	8.4
LOS	A			A	C	A
Approach Delay	5.4			7.8	13.9	
Approach LOS	A			A	B	
Queue Length 50th (m)	6.8			22.9	3.6	0.0
Queue Length 95th (m)	37.3			59.4	8.8	7.7
Internal Link Dist (m)	36.3			7.3	144.2	
Turn Bay Length (m)					30.0	
Base Capacity (vph)	1261			1159	400	408
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	0.40			0.43	0.07	0.13

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.43

Intersection Signal Delay: 7.1	Intersection LOS: A
Intersection Capacity Utilization 80.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 10: Marguerite & McArthur



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	243	446	333	258	193	289	1246	251	132	1274	82
Future Volume (vph)	55	243	446	333	258	193	289	1246	251	132	1274	82
Satd. Flow (prot)	1658	1712	1483	3154	1712	1483	1658	3316	1469	1658	3316	1469
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1578	1712	1323	2792	1712	1360	1616	3316	1354	1641	3316	1223
Satd. Flow (RTOR)			262			193			212			168
Lane Group Flow (vph)	55	243	446	333	258	193	289	1246	251	132	1274	82
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.2	36.2	36.2	11.2	36.2	36.2	11.1	36.1	36.1	11.1	36.1	36.1
Total Split (s)	18.0	36.2	36.2	18.0	36.2	36.2	31.0	62.8	62.8	23.0	54.8	54.8
Total Split (%)	12.9%	25.9%	25.9%	12.9%	25.9%	25.9%	22.1%	44.9%	44.9%	16.4%	39.1%	39.1%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.9	2.9	2.9	2.9	2.9	2.9	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	10.6	27.4	27.4	14.4	33.6	33.6	24.9	58.7	58.7	14.9	48.7	48.7
Actuated g/C Ratio	0.08	0.20	0.20	0.10	0.24	0.24	0.18	0.42	0.42	0.11	0.35	0.35
v/c Ratio	0.44	0.73	0.95	1.03	0.63	0.41	0.98	0.90	0.36	0.75	1.10	0.15
Control Delay	72.3	65.5	53.3	117.1	57.1	8.7	105.2	47.9	7.2	82.3	96.4	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.3	65.5	53.3	117.1	57.1	8.7	105.2	47.9	7.2	82.3	96.4	2.5
LOS	E	E	D	F	E	A	F	D	A	F	F	A
Approach Delay		58.7			70.6			51.5			90.0	
Approach LOS		E			E			D			F	
Queue Length 50th (m)	14.7	62.2	56.0	~59.2	66.7	0.0	80.6	170.6	6.5	38.0	~198.6	0.0
Queue Length 95th (m)	28.9	91.8	#120.9	#90.0	97.7	20.4	#138.2	#216.0	25.5	m56.2	m#229.3	m3.4
Internal Link Dist (m)		122.9			174.6			182.4			202.0	
Turn Bay Length (m)	50.0		100.0	120.0		115.0	90.0		90.0	90.0		90.0
Base Capacity (vph)	139	366	489	324	410	473	294	1389	690	200	1153	534
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.66	0.91	1.03	0.63	0.41	0.98	0.90	0.36	0.66	1.10	0.15

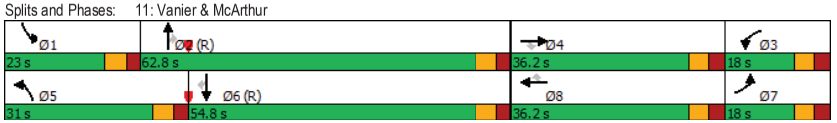
Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 54 (39%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 67.7	Intersection LOS: E
Intersection Capacity Utilization 108.4%	ICU Level of Service G
Analysis Period (min) 15	

~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Vanier & McArthur



Intersection						
Int Delay, s/veh	0.5					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		⋔	
Traffic Vol, veh/h	0	546	508	0	21	8
Future Vol, veh/h	0	546	508	0	21	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	546	508	0	21	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	1054	508
Stage 1	-	-	-	-	508	-
Stage 2	-	-	-	-	546	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	0	-	-	0	250	565
Stage 1	0	-	-	0	604	-
Stage 2	0	-	-	0	580	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	250	565
Mov Cap-2 Maneuver	-	-	-	-	250	-
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	580	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	18.5
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	295
HCM Lane V/C Ratio	-	-	0.098
HCM Control Delay (s)	-	-	18.5
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.3

Intersection						
Int Delay, s/veh	4.6					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		⋔	
Traffic Vol, veh/h	109	54	29	0	0	19
Future Vol, veh/h	109	54	29	0	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	109	54	29	0	0	19

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	29	0	-	0	301	29
Stage 1	-	-	-	-	29	-
Stage 2	-	-	-	-	272	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1584	-	-	-	691	1046
Stage 1	-	-	-	-	994	-
Stage 2	-	-	-	-	774	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1584	-	-	-	642	1046
Mov Cap-2 Maneuver	-	-	-	-	642	-
Stage 1	-	-	-	-	923	-
Stage 2	-	-	-	-	774	-

Approach	EB	WB	SB
HCM Control Delay, s	5	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1584	-	-	-	1046
HCM Lane V/C Ratio	0.069	-	-	-	0.018
HCM Control Delay (s)	7.4	0	-	-	8.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1

Appendix I

Synchro Intersection Worksheets – 2031 Future Total Conditions

DRAFT

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	491	377	0	758	13	313	10	35	17	25	15
Future Volume (vph)	3	491	377	0	758	13	313	10	35	17	25	15
Satd. Flow (prot)	0	2865	0	0	3168	0	1595	1336	0	0	1518	0
Flt Permitted		0.953					0.950				0.247	
Satd. Flow (perm)	0	2730	0	0	3168	0	1581	1336	0	0	377	0
Satd. Flow (RTOR)					2			35			15	
Lane Group Flow (vph)	0	871	0	0	771	0	313	45	0	0	57	0
Turn Type	Perm	NA			NA		Prot	NA		Perm	NA	
Protected Phases		2			6		13	10			8	
Permitted Phases	2									8		
Detector Phase	2	2			6		13	10		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	28.0	28.0			27.7		11.5	36.5		16.5	16.5	
Total Split (s)	29.0	29.0			29.0		24.0	49.0		17.0	17.0	
Total Split (%)	30.5%	30.5%			30.5%		25.3%	51.6%		17.9%	17.9%	
Yellow Time (s)	3.0	3.0			3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.7	3.7			3.7		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		6.7			6.7		6.5	6.5			6.5	
Lead/Lag							Lag					
Lead-Lag Optimize?							Yes					
Recall Mode	C-Max	C-Max			C-Max		None	None		None	None	
Act Effct Green (s)		36.6			36.6		28.2	28.2			10.5	
Actuated g/C Ratio		0.39			0.39		0.30	0.30			0.11	
v/c Ratio		0.83			0.63		0.66	0.11			1.04	
Control Delay		34.8			26.6		37.0	11.3			169.4	
Queue Delay		0.0			52.0		0.0	0.0			0.0	
Total Delay		34.8			78.6		37.0	11.3			169.4	
LOS		C			E		D	B			F	
Approach Delay		34.8			78.6			33.8			169.4	
Approach LOS		C			E			C			F	
Queue Length 50th (m)		73.5			58.5		50.5	1.3			~8.7	
Queue Length 95th (m)		#110.1			80.3		77.2	8.9			#33.4	
Internal Link Dist (m)		194.5			52.8			112.9			59.0	
Turn Bay Length (m)							90.0					
Base Capacity (vph)		1051			1221		473	617			55	
Starvation Cap Reductn		0			564		0	0			0	
Spillback Cap Reductn		0			0		0	0			0	
Storage Cap Reductn		0			0		0	0			0	
Reduced v/c Ratio		0.83			1.17		0.66	0.07			1.04	

Intersection Summary
Cycle Length: 95
Actuated Cycle Length: 95
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Lane Group	Ø14
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	14
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	3.0
Total Split (s)	25.0
Total Split (%)	26%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

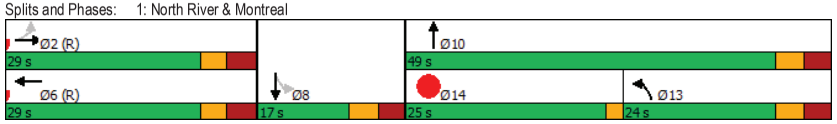
Maximum v/c Ratio: 1.04

Intersection Signal Delay: 54.8	Intersection LOS: D
Intersection Capacity Utilization 66.6%	ICU Level of Service C
Analysis Period (min) 15	

~ 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: 1: North River & Montreal



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	438	105	121	684	88	211
Future Volume (vph)	438	105	121	684	88	211
Satd. Flow (prot)	3117	0	0	3177	1658	1401
Flt Permitted				0.771	0.950	
Satd. Flow (perm)	3117	0	0	2462	1649	1379
Satd. Flow (RTOR)	70					211
Lane Group Flow (vph)	543	0	0	805	88	211
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases			6		4	4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	39.9		15.9	15.9	19.5	19.5
Total Split (s)	56.0		56.0	56.0	24.0	24.0
Total Split (%)	70.0%		70.0%	70.0%	30.0%	30.0%
Yellow Time (s)	3.3		3.3	3.3	3.3	3.3
All-Red Time (s)	2.6		2.6	2.6	2.2	2.2
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	5.9			5.9	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	None	None
Act Effct Green (s)	57.6			57.6	11.0	11.0
Actuated g/C Ratio	0.72			0.72	0.14	0.14
v/c Ratio	0.24			0.45	0.39	0.57
Control Delay	3.7			5.9	36.2	11.3
Queue Delay	0.8			0.0	0.0	0.0
Total Delay	4.5			5.9	36.2	11.3
LOS	A			A	D	B
Approach Delay	4.5			5.9	18.6	
Approach LOS	A			A	B	
Queue Length 50th (m)	9.5			20.5	12.6	0.0
Queue Length 95th (m)	17.7			36.7	24.5	17.1
Internal Link Dist (m)	52.8			138.9	214.6	
Turn Bay Length (m)					35.0	
Base Capacity (vph)	2262			1771	381	481
Starvation Cap Reductn	1361			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.60			0.45	0.23	0.44

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Lanes, Volumes, Timings
2: Montgomery & Montreal

09/21/2021

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 7.7	Intersection LOS: A
Intersection Capacity Utilization 75.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Montgomery & Montreal



Lanes, Volumes, Timings
4: Vanier & Montreal

09/21/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	388	171	168	506	194	191	905	166	213	1161	146
Future Volume (vph)	59	388	171	168	506	194	191	905	166	213	1161	146
Satd. Flow (prot)	1642	1695	1483	1658	3027	0	1642	4581	0	1642	4764	1483
Flt Permitted	0.376			0.142			0.950			0.950		
Satd. Flow (perm)	631	1695	1385	243	3027	0	1624	4581	0	1611	4764	1386
Satd. Flow (RTOR)			164		44			29				146
Lane Group Flow (vph)	59	388	171	168	700	0	191	1071	0	213	1161	146
Turn Type	Perm	NA	Perm	pm+pt	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8								6
Detector Phase	4	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	39.6	39.6	39.6	10.7	39.6		11.1	28.9		11.1	28.9	28.9
Total Split (s)	40.0	40.0	40.0	16.0	56.0		29.0	55.0		29.0	55.0	55.0
Total Split (%)	28.6%	28.6%	28.6%	11.4%	40.0%		20.7%	39.3%		20.7%	39.3%	39.3%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	3.3	3.3	3.3	2.4	3.3		2.4	2.2		2.4	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	5.7	6.6		6.1	5.9		6.1	5.9	5.9
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	33.1	33.1	33.1	50.0	49.1		20.1	51.1		21.2	52.2	52.2
Actuated g/C Ratio	0.24	0.24	0.24	0.36	0.35		0.14	0.36		0.15	0.37	0.37
v/c Ratio	0.40	0.97	0.38	0.88	0.64		0.81	0.63		0.86	0.65	0.24
Control Delay	54.2	90.4	9.5	75.4	38.7		90.4	34.5		87.8	39.1	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	54.2	90.4	9.5	75.4	38.7		90.4	34.5		87.8	39.1	5.7
LOS	D	F	A	E	D		F	C		F	D	A
Approach Delay		64.5			45.8			43.0			42.7	
Approach LOS		E			D			D			D	
Queue Length 50th (m)	13.8	106.9	1.5	33.0	79.8		55.8	52.4		57.4	99.4	0.0
Queue Length 95th (m)	28.6	#169.4	20.3	#67.5	101.2		m73.2	69.5		#96.3	117.5	14.4
Internal Link Dist (m)		99.5			86.1			154.6			239.2	
Turn Bay Length (m)	35.0			50.0			135.0			135.0		135.0
Base Capacity (vph)	150	404	455	190	1096		268	1691		268	1776	608
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.39	0.96	0.38	0.88	0.64		0.71	0.63		0.79	0.65	0.24

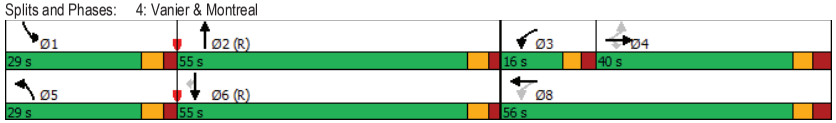
Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 102 (73%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 46.6	Intersection LOS: D
Intersection Capacity Utilization 91.4%	ICU Level of Service F
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Vanier & Montreal



Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	27	53	278	0	0	409
Future Vol, veh/h	27	53	278	0	0	409
Conflicting Peds, #/hr	3	0	0	90	90	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	500	-	-	1000	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	7	2	8	2	2	2
Mvmt Flow	27	53	278	0	0	409

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	486	278	0	-	-	-
Stage 1	278	-	-	-	-	-
Stage 2	208	-	-	-	-	-
Critical Hdwy	6.705	6.23	-	-	-	-
Critical Hdwy Stg 1	5.505	-	-	-	-	-
Critical Hdwy Stg 2	5.905	-	-	-	-	-
Follow-up Hdwy	3.5665	3.319	-	-	-	-
Pot Cap-1 Maneuver	514	760	-	0	0	-
Stage 1	755	-	-	0	0	-
Stage 2	794	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	513	760	-	-	-	-
Mov Cap-2 Maneuver	513	-	-	-	-	-
Stage 1	755	-	-	-	-	-
Stage 2	792	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	513	760	-
HCM Lane V/C Ratio	-	0.053	0.07	-
HCM Control Delay (s)	-	12.4	10.1	-
HCM Lane LOS	-	B	B	-
HCM 95th %tile Q(veh)	-	0.2	0.2	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	39	104	5	119
Future Vol, veh/h	0	0	39	104	5	119
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	39	104	5	119

Major/Minor	Major2		Minor1	
Conflicting Flow All	0	0	182	0
Stage 1	-	-	0	-
Stage 2	-	-	182	-
Critical Hdwy	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	5.42	-
Follow-up Hdwy	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	807	-
Stage 1	-	-	-	-
Stage 2	-	-	849	-
Platoon blocked, %		-		
Mov Cap-1 Maneuver	-	-	807	-
Mov Cap-2 Maneuver	-	-	807	-
Stage 1	-	-	-	-
Stage 2	-	-	849	-

Approach	WB	NB
HCM Control Delay, s		
HCM LOS		-

Minor Lane/Major Mvmt	NBLn1	WBL	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-

Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	55	5	25	48	82	5	5	0	16	27	90
Future Vol, veh/h	59	55	5	25	48	82	5	5	0	16	27	90
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	59	55	5	25	48	82	5	5	0	16	27	90

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	184	119	72	149	164	5	117	0	0	5	0	0
Stage 1	104	104	-	15	15	-	-	-	-	-	-	-
Stage 2	80	15	-	134	149	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	777	771	990	819	729	1078	1471	-	-	1616	-	-
Stage 1	902	809	-	1005	883	-	-	-	-	-	-	-
Stage 2	929	883	-	869	774	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	674	760	990	762	719	1078	1471	-	-	1616	-	-
Mov Cap-2 Maneuver	674	760	-	762	719	-	-	-	-	-	-	-
Stage 1	899	800	-	1002	880	-	-	-	-	-	-	-
Stage 2	809	880	-	796	765	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11	9.9	3.7	0.9
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1471	-	-	721	883	1616	-	-
HCM Lane V/C Ratio	0.003	-	-	0.165	0.176	0.01	-	-
HCM Control Delay (s)	7.5	0	-	11	9.9	7.2	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0.6	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	6	3	10	9	169	3	115	33	334	98	4
Future Volume (vph)	1	6	3	10	9	169	3	115	33	334	98	4
Satd. Flow (prot)	0	1652	0	0	1700	1441	0	1615	0	1658	1685	0
Flt Permitted		0.982			0.887			0.997		0.661		
Satd. Flow (perm)	0	1624	0	0	1544	1341	0	1612	0	1051	1685	0
Satd. Flow (RTOR)		3				169		30				
Lane Group Flow (vph)	0	10	0	0	19	169	0	151	0	334	102	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	25.6	25.6		25.6	25.6	25.6	31.1	31.1		31.1	31.1	
Total Split (s)	28.0	28.0		28.0	28.0	28.0	42.0	42.0		42.0	42.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%	40.0%	60.0%	60.0%		60.0%	60.0%	
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3	2.3	2.8	2.8		2.8	2.8	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)		5.6			5.6	5.6		6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	C-Min	C-Min		C-Min	C-Min	
Act Effct Green (s)		14.0			14.0	14.0		44.3		44.3	44.3	
Actuated g/C Ratio		0.20			0.20	0.20		0.63		0.63	0.63	
v/c Ratio		0.03			0.06	0.42		0.15		0.50	0.10	
Control Delay		16.8			17.2	9.8		5.6		11.7	6.6	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		16.8			17.2	9.8		5.6		11.7	6.6	
LOS		B			B	A		A		B	A	
Approach Delay		16.8			10.6			5.6			10.5	
Approach LOS		B			B			A			B	
Queue Length 50th (m)		0.8			2.4	6.6		4.3		16.3	3.6	
Queue Length 95th (m)		3.7			m5.4	15.0		15.0		50.9	12.3	
Internal Link Dist (m)		22.5			128.8			367.7			94.3	
Turn Bay Length (m)						60.0				55.0		
Base Capacity (vph)		521			494	544		1031		665	1066	
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		0.02			0.04	0.31		0.15		0.50	0.10	

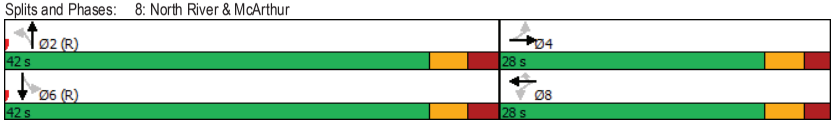
Intersection Summary
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.50

Intersection Signal Delay: 9.7	Intersection LOS: A
Intersection Capacity Utilization 69.5%	ICU Level of Service C
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: North River & McArthur



Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	14	373	322	124	17	18
Future Vol, veh/h	14	373	322	124	17	18
Conflicting Peds, #/hr	100	0	0	100	1	9
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	10	2	5	3	2	2
Mvmt Flow	14	373	322	124	17	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	546	0	-	0	886	493
Stage 1	-	-	-	-	484	-
Stage 2	-	-	-	-	402	-
Critical Hdwy	4.2	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.29	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	984	-	-	-	315	576
Stage 1	-	-	-	-	620	-
Stage 2	-	-	-	-	676	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	908	-	-	-	263	528
Mov Cap-2 Maneuver	-	-	-	-	263	-
Stage 1	-	-	-	-	560	-
Stage 2	-	-	-	-	623	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	16.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	908	-	-	-	355
HCM Lane V/C Ratio	0.015	-	-	-	0.099
HCM Control Delay (s)	9	0	-	-	16.2
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	360	19	50	433	12	31
Future Volume (vph)	360	19	50	433	12	31
Satd. Flow (prot)	1728	0	0	1721	1523	1483
Flt Permitted				0.934	0.950	
Satd. Flow (perm)	1728	0	0	1613	1425	1426
Satd. Flow (RTOR)	6					31
Lane Group Flow (vph)	379	0	0	483	12	31
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases			6		4	4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	27.5		23.5	23.5	24.5	24.5
Total Split (s)	45.0		45.0	45.0	25.0	25.0
Total Split (%)	64.3%		64.3%	64.3%	35.7%	35.7%
Yellow Time (s)	3.3		3.3	3.3	3.3	3.3
All-Red Time (s)	2.2		2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	5.5			5.5	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	None	None
Act Effct Green (s)	53.8			53.8	13.6	13.6
Actuated g/C Ratio	0.77			0.77	0.19	0.19
v/c Ratio	0.29			0.39	0.04	0.10
Control Delay	2.6			7.6	20.4	8.5
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	2.6			7.6	20.4	8.5
LOS	A			A	C	A
Approach Delay	2.6			7.6	11.9	
Approach LOS	A			A	B	
Queue Length 50th (m)	2.2			35.9	1.4	0.0
Queue Length 95th (m)	18.2			m51.6	4.7	5.5
Internal Link Dist (m)	36.3			7.3	144.2	
Turn Bay Length (m)					30.0	
Base Capacity (vph)	1329			1239	396	419
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	0.29			0.39	0.03	0.07

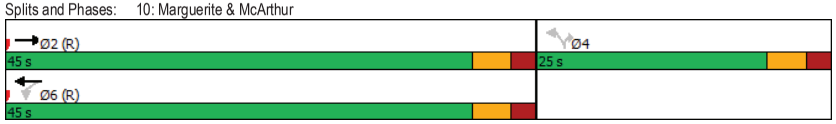
Intersection Summary
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.39

Intersection Signal Delay: 5.7	Intersection LOS: A
Intersection Capacity Utilization 72.3%	ICU Level of Service C
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: Marguerite & McArthur



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	141	306	209	206	112	250	1107	225	159	1384	85
Future Volume (vph)	34	141	306	209	206	112	250	1107	225	159	1384	85
Satd. Flow (prot)	1551	1695	1483	3216	1695	1483	1658	3316	1483	1658	3316	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1437	1695	1398	3013	1695	1320	1646	3316	1355	1634	3316	1342
Satd. Flow (RTOR)			243			120			207			121
Lane Group Flow (vph)	34	141	306	209	206	112	250	1107	225	159	1384	85
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.2	36.2	36.2	11.2	36.2	36.2	11.1	36.1	36.1	11.1	36.1	36.1
Total Split (s)	20.0	36.2	36.2	20.0	36.2	36.2	24.0	59.8	59.8	24.0	59.8	59.8
Total Split (%)	14.3%	25.9%	25.9%	14.3%	25.9%	25.9%	17.1%	42.7%	42.7%	17.1%	42.7%	42.7%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.9	2.9	2.9	2.9	2.9	2.9	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	10.8	26.1	26.1	12.9	33.2	33.2	22.4	59.9	59.9	16.5	54.0	54.0
Actuated g/C Ratio	0.08	0.19	0.19	0.09	0.24	0.24	0.16	0.43	0.43	0.12	0.39	0.39
v/c Ratio	0.29	0.45	0.67	0.71	0.51	0.28	0.94	0.78	0.32	0.82	1.08	0.14
Control Delay	70.6	48.9	20.7	75.0	52.3	8.2	100.9	41.1	6.2	91.9	82.7	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.6	48.9	20.7	75.0	52.3	8.2	100.9	41.1	6.2	91.9	82.7	3.9
LOS	E	D	C	E	D	A	F	D	A	F	F	A
Approach Delay		32.5			52.0			45.5			79.5	
Approach LOS		C			D			D			E	
Queue Length 50th (m)	9.5	33.8	22.8	29.2	51.5	0.0	~82.7	148.2	3.1	45.9	~214.5	0.0
Queue Length 95th (m)	21.4	45.9	34.2	42.8	77.8	13.8	#136.7	178.4	20.4	m#74.6	#259.4	m3.2
Internal Link Dist (m)		122.9			191.2			195.1			202.5	
Turn Bay Length (m)	50.0		100.0	120.0		115.0	90.0		90.0	90.0		90.0
Base Capacity (vph)	152	363	490	317	409	409	265	1417	697	211	1278	591
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.39	0.62	0.66	0.50	0.27	0.94	0.78	0.32	0.75	1.08	0.14

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 100 (71%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 58.0	Intersection LOS: E
Intersection Capacity Utilization 103.4%	ICU Level of Service G
Analysis Period (min) 15	

~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Vanier & McArthur



Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↱	
Traffic Vol, veh/h	0	403	477	0	27	15
Future Vol, veh/h	0	403	477	0	27	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	403	477	0	27	15

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	880	477
Stage 1	-	-	-	-	477	-
Stage 2	-	-	-	-	403	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	0	-	-	0	318	588
Stage 1	0	-	-	0	624	-
Stage 2	0	-	-	0	675	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	318	588
Mov Cap-2 Maneuver	-	-	-	-	318	-
Stage 1	-	-	-	-	624	-
Stage 2	-	-	-	-	675	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	15.6
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	380
HCM Lane V/C Ratio	-	-	0.111
HCM Control Delay (s)	-	-	15.6
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.4

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	40	30	41	0	0	37
Future Vol, veh/h	40	30	41	0	0	37
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	30	41	0	0	37

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	41	0	-	0	151	41
Stage 1	-	-	-	-	41	-
Stage 2	-	-	-	-	110	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1568	-	-	-	841	1030
Stage 1	-	-	-	-	981	-
Stage 2	-	-	-	-	915	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1568	-	-	-	819	1030
Mov Cap-2 Maneuver	-	-	-	-	819	-
Stage 1	-	-	-	-	955	-
Stage 2	-	-	-	-	915	-

Approach	EB	WB	SB
HCM Control Delay, s	4.2	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1568	-	-	-	1030
HCM Lane V/C Ratio	0.026	-	-	-	0.036
HCM Control Delay (s)	7.4	0	-	-	8.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	659	457	0	704	18	398	17	32	21	15	21
Future Volume (vph)	3	659	457	0	704	18	398	17	32	21	15	21
Satd. Flow (prot)	0	2824	0	0	3237	0	1658	1449	0	0	1508	0
Flt Permitted		0.953					0.950				0.261	
Satd. Flow (perm)	0	2691	0	0	3237	0	1633	1449	0	0	391	0
Satd. Flow (RTOR)					2			32			19	
Lane Group Flow (vph)	0	1119	0	0	722	0	398	49	0	0	57	0
Turn Type	Perm	NA			NA		Prot	NA		Perm	NA	
Protected Phases		2			6		13	10			8	
Permitted Phases	2									8		
Detector Phase	2	2			6		13	10		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	36.7	36.7			30.7		11.5	43.2		16.5	16.5	
Total Split (s)	39.0	39.0			39.0		31.0	64.0		17.0	17.0	
Total Split (%)	32.5%	32.5%			32.5%		25.8%	53.3%		14.2%	14.2%	
Yellow Time (s)	3.0	3.0			3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.7	3.7			3.7		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		6.7			6.7		6.5	6.5			6.5	
Lead/Lag							Lag					
Lead-Lag Optimize?							Yes					
Recall Mode	C-Max	C-Max			C-Max		None	None		None	None	
Act Effct Green (s)		47.9			47.9		41.9	41.9			10.5	
Actuated g/C Ratio		0.40			0.40		0.35	0.35			0.09	
v/c Ratio		1.04			0.56		0.69	0.09			1.12	
Control Delay		74.6			29.3		41.8	14.2			198.9	
Queue Delay		0.0			53.7		0.0	0.0			0.0	
Total Delay		74.6			83.0		41.8	14.2			198.9	
LOS		E			F		D	B			F	
Approach Delay		74.6			83.0			38.8			198.9	
Approach LOS		E			F			D			F	
Queue Length 50th (m)		135.7			65.5		82.4	2.7			~11.0	
Queue Length 95th (m)		#183.0			83.2		119.8	11.5			#38.9	
Internal Link Dist (m)		179.1			52.8			112.9			59.0	
Turn Bay Length (m)							90.0					
Base Capacity (vph)		1073			1292		579	710			51	
Starvation Cap Reductn		0			759		0	0			0	
Spillback Cap Reductn		0			0		0	0			0	
Storage Cap Reductn		0			0		0	0			0	
Reduced v/c Ratio		1.04			1.35		0.69	0.07			1.12	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated

Lane Group	Ø14
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	14
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	20.0
Total Split (s)	33.0
Total Split (%)	28%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Maximum v/c Ratio: 1.12

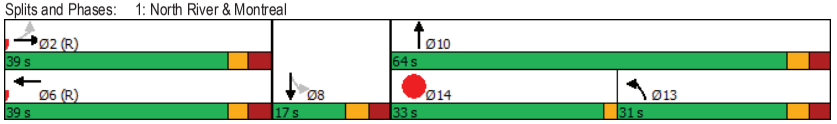
Intersection Signal Delay: 73.4	Intersection LOS: E
Intersection Capacity Utilization 79.4%	ICU Level of Service D

Analysis Period (min) 15

~ 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: 1: North River & Montreal



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	572	140	260	566	162	188
Future Volume (vph)	572	140	260	566	162	188
Satd. Flow (prot)	3153	0	0	3224	1658	1401
Flt Permitted				0.610	0.950	
Satd. Flow (perm)	3153	0	0	1987	1640	1346
Satd. Flow (RTOR)	73					188
Lane Group Flow (vph)	712	0	0	826	162	188
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	4	
Permitted Phases			6			4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	39.5		23.5	23.5	19.5	19.5
Total Split (s)	76.0		76.0	76.0	24.0	24.0
Total Split (%)	76.0%		76.0%	76.0%	24.0%	24.0%
Yellow Time (s)	3.3		3.3	3.3	3.3	3.3
All-Red Time (s)	2.2		2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	5.5			5.5	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	None	None
Act Effct Green (s)	74.3			74.3	14.7	14.7
Actuated g/C Ratio	0.74			0.74	0.15	0.15
v/c Ratio	0.30			0.56	0.67	0.53
Control Delay	4.4			7.9	53.5	11.2
Queue Delay	1.5			0.0	0.0	0.0
Total Delay	5.9			7.9	53.5	11.2
LOS	A			A	D	B
Approach Delay	5.9			7.9	30.8	
Approach LOS	A			A	C	
Queue Length 50th (m)	17.8			31.4	30.0	0.0
Queue Length 95th (m)	28.4			52.5	48.9	17.9
Internal Link Dist (m)	52.8			138.9	214.6	
Turn Bay Length (m)					35.0	
Base Capacity (vph)	2362			1476	306	402
Starvation Cap Reductn	1404			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.74			0.56	0.53	0.47

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 11.4	Intersection LOS: B
Intersection Capacity Utilization 76.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Montgomery & Montreal



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	433	201	164	425	198	264	1068	210	142	1084	119
Future Volume (vph)	65	433	201	164	425	198	264	1068	210	142	1084	119
Satd. Flow (prot)	1626	1695	1483	1658	2977	0	1658	4565	0	1658	4764	1483
Flt Permitted	0.385			0.102			0.950			0.950		
Satd. Flow (perm)	635	1695	1375	175	2977	0	1628	4565	0	1634	4764	1346
Satd. Flow (RTOR)			172		58			32				120
Lane Group Flow (vph)	65	433	201	164	623	0	264	1278	0	142	1084	119
Turn Type	Perm	NA	Perm	pm+pt	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8								6
Detector Phase	4	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	39.6	39.6	39.6	10.7	39.6		11.1	28.9		11.1	28.9	28.9
Total Split (s)	40.0	40.0	40.0	12.0	52.0		34.0	54.0		34.0	54.0	54.0
Total Split (%)	28.6%	28.6%	28.6%	8.6%	37.1%		24.3%	38.6%		24.3%	38.6%	38.6%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	3.3	3.3	3.3	2.4	3.3		2.4	2.2		2.4	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	5.7	6.6		6.1	5.9		6.1	5.9	5.9
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	33.4	33.4	33.4	46.3	45.4		25.5	58.7		17.3	50.5	50.5
Actuated g/C Ratio	0.24	0.24	0.24	0.33	0.32		0.18	0.42		0.12	0.36	0.36
v/c Ratio	0.43	1.07	0.44	1.32	0.62		0.87	0.66		0.70	0.63	0.21
Control Delay	55.6	115.0	12.5	222.9	39.2		88.3	27.7		75.9	39.5	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	55.6	115.0	12.5	222.9	39.2		88.3	27.7		75.9	39.5	6.1
LOS	E	F	B	F	D		F	C		E	D	A
Approach Delay		80.0			77.5			38.1			40.4	
Approach LOS		F			E			D			D	
Queue Length 50th (m)	15.4	~132.6	6.3	~43.6	69.8		77.3	57.2		38.2	93.1	0.0
Queue Length 95th (m)	31.1	#197.5	28.1	#90.6	90.2		m88.2	m70.5		58.2	109.2	13.2
Internal Link Dist (m)		99.5			86.1			154.5			217.9	
Turn Bay Length (m)	35.0			50.0			135.0			135.0		135.0
Base Capacity (vph)	151	404	459	124	1004		330	1933		330	1717	562
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.43	1.07	0.44	1.32	0.62		0.80	0.66		0.43	0.63	0.21

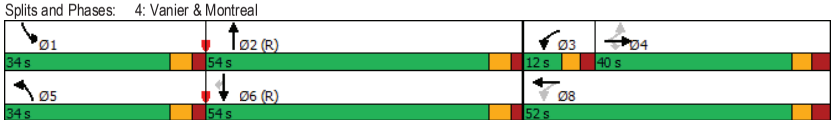
Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 56 (40%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.32

Intersection Signal Delay: 52.6	Intersection LOS: D
Intersection Capacity Utilization 94.2%	ICU Level of Service F
Analysis Period (min) 15	

~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Vanier & Montreal



Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	115	57	382	0	0	442
Future Vol, veh/h	115	57	382	0	0	442
Conflicting Peds, #/hr	2	2	0	66	66	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	500	-	-	1000	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	3	2	2	4
Mvmt Flow	115	57	382	0	0	442

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	605	384	0	-	-	-
Stage 1	382	-	-	-	-	-
Stage 2	223	-	-	-	-	-
Critical Hdwy	6.63	6.23	-	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	-	-
Pot Cap-1 Maneuver	445	663	-	0	0	-
Stage 1	689	-	-	0	0	-
Stage 2	793	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	444	662	-	-	-	-
Mov Cap-2 Maneuver	444	-	-	-	-	-
Stage 1	689	-	-	-	-	-
Stage 2	791	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	444	662	-
HCM Lane V/C Ratio	-	0.259	0.086	-
HCM Control Delay (s)	-	15.9	11	-
HCM Lane LOS	-	C	B	-
HCM 95th %tile Q(veh)	-	1	0.3	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	36	55	10	230
Future Vol, veh/h	0	0	36	55	10	230
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	36	55	10	230

Major/Minor	Major2		Minor1	
Conflicting Flow All	0	0	127	0
Stage 1	-	-	0	-
Stage 2	-	-	127	-
Critical Hdwy	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	5.42	-
Follow-up Hdwy	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	868	-
Stage 1	-	-	-	-
Stage 2	-	-	899	-
Platoon blocked, %		-		
Mov Cap-1 Maneuver	-	-	868	-
Mov Cap-2 Maneuver	-	-	868	-
Stage 1	-	-	-	-
Stage 2	-	-	899	-

Approach	WB	NB
HCM Control Delay, s		
HCM LOS		-

Minor Lane/Major Mvmt	NBLn1	WBL	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-

Intersection	
Int Delay, s/veh	8.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	82	138	10	10	26	56	5	10	0	25	28	60
Future Vol, veh/h	82	138	10	10	26	56	5	10	0	25	28	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	82	138	10	10	26	56	5	10	0	25	28	60

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	169	128	58	202	158	10	88	0	0	10	0	0
Stage 1	108	108	-	20	20	-	-	-	-	-	-	-
Stage 2	61	20	-	182	138	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	795	763	1008	756	734	1071	1508	-	-	1610	-	-
Stage 1	897	806	-	999	879	-	-	-	-	-	-	-
Stage 2	950	879	-	820	782	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	722	749	1008	634	720	1071	1508	-	-	1610	-	-
Mov Cap-2 Maneuver	722	749	-	634	720	-	-	-	-	-	-	-
Stage 1	894	793	-	996	876	-	-	-	-	-	-	-
Stage 2	871	876	-	660	769	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.9	9.6	2.5	1.6
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1508	-	-	747	883	1610	-	-
HCM Lane V/C Ratio	0.003	-	-	0.308	0.104	0.016	-	-
HCM Control Delay (s)	7.4	0	-	11.9	9.6	7.3	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1.3	0.3	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↰	↱		↕		↰	↕	
Traffic Volume (vph)	4	25	6	25	11	229	2	148	46	417	139	1
Future Volume (vph)	4	25	6	25	11	229	2	148	46	417	139	1
Satd. Flow (prot)	0	1636	0	0	1568	1483	0	1611	0	1642	1709	0
Flt Permitted		0.976			0.820			0.999		0.634		
Satd. Flow (perm)	0	1593	0	0	1295	1334	0	1611	0	982	1709	0
Satd. Flow (RTOR)		6				229		34				
Lane Group Flow (vph)	0	35	0	0	36	229	0	196	0	417	140	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	25.6	25.6		25.6	25.6	25.6	31.1	31.1		31.1	31.1	
Total Split (s)	26.0	26.0		26.0	26.0	26.0	49.0	49.0		49.0	49.0	
Total Split (%)	34.7%	34.7%		34.7%	34.7%	34.7%	65.3%	65.3%		65.3%	65.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3	2.3	2.8	2.8		2.8	2.8	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)		5.6			5.6	5.6		6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	C-Min	C-Min		C-Min	C-Min	
Act Effct Green (s)		16.0			16.0	16.0		47.3		47.3	47.3	
Actuated g/C Ratio		0.21			0.21	0.21		0.63		0.63	0.63	
v/c Ratio		0.10			0.13	0.49		0.19		0.67	0.13	
Control Delay		19.2			20.0	12.7		6.2		17.7	7.0	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		19.2			20.0	12.7		6.2		17.7	7.0	
LOS		B			B	B		A		B	A	
Approach Delay		19.2			13.7			6.2			15.1	
Approach LOS		B			B			A			B	
Queue Length 50th (m)		3.1			4.0	4.9		9.8		39.3	8.3	
Queue Length 95th (m)		9.4			m10.5	32.6		18.9		#90.5	15.7	
Internal Link Dist (m)		22.5			128.8			119.0			94.3	
Turn Bay Length (m)						60.0				55.0		
Base Capacity (vph)		437			352	529		1028		618	1077	
Starvation Cap Reductn		0			0	0		0		0	0	
Spillback Cap Reductn		0			0	0		0		0	0	
Storage Cap Reductn		0			0	0		0		0	0	
Reduced v/c Ratio		0.08			0.10	0.43		0.19		0.67	0.13	

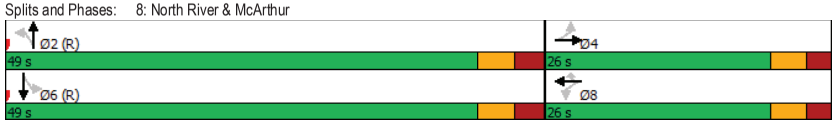
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 13.2	Intersection LOS: B
Intersection Capacity Utilization 74.6%	ICU Level of Service D
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: North River & McArthur



Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	17	477	279	211	31	5
Future Vol, veh/h	17	477	279	211	31	5
Conflicting Peds, #/hr	76	0	0	76	0	9
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	3	3	2	8	2
Mvmt Flow	17	477	279	211	31	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	566	0	-	0	972	470
Stage 1	-	-	-	-	461	-
Stage 2	-	-	-	-	511	-
Critical Hdwy	4.12	-	-	-	6.48	6.22
Critical Hdwy Stg 1	-	-	-	-	5.48	-
Critical Hdwy Stg 2	-	-	-	-	5.48	-
Follow-up Hdwy	2.218	-	-	-	3.572	3.318
Pot Cap-1 Maneuver	1006	-	-	-	273	594
Stage 1	-	-	-	-	623	-
Stage 2	-	-	-	-	590	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	947	-	-	-	236	555
Mov Cap-2 Maneuver	-	-	-	-	236	-
Stage 1	-	-	-	-	572	-
Stage 2	-	-	-	-	555	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	21.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	947	-	-	-	256
HCM Lane V/C Ratio	0.018	-	-	-	0.141
HCM Control Delay (s)	8.9	0	-	-	21.4
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	486	21	51	445	28	52
Future Volume (vph)	486	21	51	445	28	52
Satd. Flow (prot)	1730	0	0	1731	1610	1483
Flt Permitted				0.917	0.950	
Satd. Flow (perm)	1730	0	0	1592	1541	1425
Satd. Flow (RTOR)	5					52
Lane Group Flow (vph)	507	0	0	496	28	52
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases			6		4	4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	10.0	10.0
Minimum Split (s)	27.5		23.5	23.5	24.5	24.5
Total Split (s)	50.0		50.0	50.0	25.0	25.0
Total Split (%)	66.7%		66.7%	66.7%	33.3%	33.3%
Yellow Time (s)	3.3		3.3	3.3	3.3	3.3
All-Red Time (s)	2.2		2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	5.5			5.5	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	None	None
Act Effct Green (s)	54.6			54.6	13.6	13.6
Actuated g/C Ratio	0.73			0.73	0.18	0.18
v/c Ratio	0.40			0.43	0.10	0.17
Control Delay	5.4			7.8	24.1	8.4
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	5.4			7.8	24.1	8.4
LOS	A			A	C	A
Approach Delay	5.4			7.8	13.9	
Approach LOS	A			A	B	
Queue Length 50th (m)	6.8			22.9	3.6	0.0
Queue Length 95th (m)	37.3			59.4	8.8	7.7
Internal Link Dist (m)	36.3			7.3	144.2	
Turn Bay Length (m)					30.0	
Base Capacity (vph)	1261			1159	400	408
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	0.40			0.43	0.07	0.13

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.43

Intersection Signal Delay: 7.1	Intersection LOS: A
Intersection Capacity Utilization 80.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 10: Marguerite & McArthur



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	243	446	333	258	193	289	1278	251	132	1304	82
Future Volume (vph)	55	243	446	333	258	193	289	1278	251	132	1304	82
Satd. Flow (prot)	1658	1712	1483	3154	1712	1483	1658	3316	1469	1658	3316	1469
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1578	1712	1323	2792	1712	1360	1617	3316	1354	1641	3316	1223
Satd. Flow (RTOR)			261			193			207			168
Lane Group Flow (vph)	55	243	446	333	258	193	289	1278	251	132	1304	82
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.2	36.2	36.2	11.2	36.2	36.2	11.1	36.1	36.1	11.1	36.1	36.1
Total Split (s)	18.0	36.2	36.2	18.0	36.2	36.2	31.0	62.8	62.8	23.0	54.8	54.8
Total Split (%)	12.9%	25.9%	25.9%	12.9%	25.9%	25.9%	22.1%	44.9%	44.9%	16.4%	39.1%	39.1%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.9	2.9	2.9	2.9	2.9	2.9	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	10.6	27.4	27.4	14.4	33.6	33.6	24.9	58.7	58.7	14.9	48.7	48.7
Actuated g/C Ratio	0.08	0.20	0.20	0.10	0.24	0.24	0.18	0.42	0.42	0.11	0.35	0.35
v/c Ratio	0.44	0.73	0.95	1.03	0.63	0.41	0.98	0.92	0.37	0.75	1.13	0.15
Control Delay	72.3	65.5	53.8	117.1	57.1	8.7	105.2	50.3	7.6	82.1	106.2	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.3	65.5	53.8	117.1	57.1	8.7	105.2	50.3	7.6	82.1	106.2	2.7
LOS	E	E	D	F	E	A	F	D	A	F	F	A
Approach Delay		59.0			70.6			53.1			98.5	
Approach LOS		E			E			D			F	
Queue Length 50th (m)	14.7	62.2	56.4	~59.2	66.7	0.0	80.6	177.7	7.4	38.0	~207.6	0.2
Queue Length 95th (m)	28.9	91.8	#121.3	#90.0	97.7	20.4	#138.2	#225.6	26.7	m56.2	m#238.7	m3.6
Internal Link Dist (m)		122.9			174.6			182.4			202.0	
Turn Bay Length (m)	50.0		100.0	120.0		115.0	90.0		90.0	90.0		90.0
Base Capacity (vph)	139	366	488	324	410	473	294	1389	687	200	1153	534
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.66	0.91	1.03	0.63	0.41	0.98	0.92	0.37	0.66	1.13	0.15

Intersection Summary

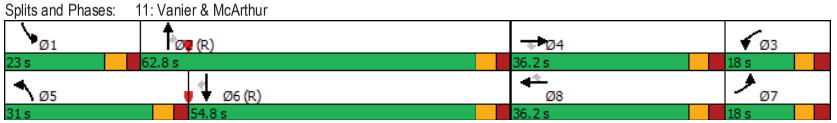
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 54 (39%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.13

Intersection Signal Delay: 71.0	Intersection LOS: E
Intersection Capacity Utilization 109.3%	ICU Level of Service H
Analysis Period (min) 15	

~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Vanier & McArthur



Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↾	
Traffic Vol, veh/h	0	546	508	0	21	8
Future Vol, veh/h	0	546	508	0	21	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	546	508	0	21	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	1054	508
Stage 1	-	-	-	-	508	-
Stage 2	-	-	-	-	546	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	0	-	-	0	250	565
Stage 1	0	-	-	0	604	-
Stage 2	0	-	-	0	580	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	250	565
Mov Cap-2 Maneuver	-	-	-	-	250	-
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	580	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	18.5
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	295
HCM Lane V/C Ratio	-	-	0.098
HCM Control Delay (s)	-	-	18.5
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.3

Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↱		↾	
Traffic Vol, veh/h	109	54	29	0	0	19
Future Vol, veh/h	109	54	29	0	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	109	54	29	0	0	19

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	29	0	-	0	301	29
Stage 1	-	-	-	-	29	-
Stage 2	-	-	-	-	272	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1584	-	-	-	691	1046
Stage 1	-	-	-	-	994	-
Stage 2	-	-	-	-	774	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1584	-	-	-	642	1046
Mov Cap-2 Maneuver	-	-	-	-	642	-
Stage 1	-	-	-	-	923	-
Stage 2	-	-	-	-	774	-

Approach	EB	WB	SB
HCM Control Delay, s	5	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1584	-	-	-	1046
HCM Lane V/C Ratio	0.069	-	-	-	0.018
HCM Control Delay (s)	7.4	0	-	-	8.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1

Appendix J

TDM Checklist

DRAFT

TDM Measures Checklist:
Residential Developments (multi-family, condominium or subdivision)

Legend

BASIC — The measure is generally feasible and effective, and in most cases would benefit the development and its users

BETTER — The measure could maximize support for users of sustainable modes, and optimize development performance

★ — The measure is one of the most dependably effective tools to encourage the use of sustainable modes

		TDM measures: *Residential developments*	Check if proposed & add descriptions
		1. TDM PROGRAM MANAGEMENT	
		1.1 Program coordinator	
BASIC	★	1.1.1 Designate an internal coordinator, or contract with an external coordinator	☐
		1.2 Travel surveys	
BETTER		1.2.1 Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress	☐
		2. WALKING AND CYCLING	
		2.1 Information on walking/cycling routes & destinations	
BASIC		2.1.1 Display local area maps with walking/cycling access routes and key destinations at major entrances *(multi-family, condominium)*	☑
		2.2 Bicycle skills training	
BETTER		2.2.1 Offer on-site cycling courses for residents, or subsidize off-site courses	☐

		TDM measures: *Residential developments*	Check if proposed & add descriptions
		3. TRANSIT	
		3.1 Transit information	
BASIC		3.1.1 Display relevant transit schedules and route maps at entrances *(multi-family, condominium)*	☑
BETTER		3.1.2 Provide real-time arrival information display at entrances *(multi-family, condominium)*	☐
		3.2 Transit fare incentives	
BASIC	★	3.2.1 Offer PRESTO cards preloaded with one monthly transit pass on residence purchase/move-in, to encourage residents to use transit	☑
BETTER		3.2.2 Offer at least one year of free monthly transit passes on residence purchase/move-in	☑
		3.3 Enhanced public transit service	
BETTER	★	3.3.1 Contract with OC Transpo to provide early transit services until regular services are warranted by occupancy levels *(subdivision)*	☐
		3.4 Private transit service	
BETTER		3.4.1 Provide shuttle service for seniors homes or lifestyle communities (e.g. scheduled mall or supermarket runs)	☐
		4. CARSHARING & BIKESHARING	
		4.1 Bikeshare stations & memberships	
BETTER		4.1.1 Contract with provider to install on-site bikeshare station (*multi-family)*	☑
BETTER		4.1.2 Provide residents with bikeshare memberships, either free or subsidized *(multi-family)*	☐
		4.2 Carshare vehicles & memberships	
BETTER		4.2.1 Contract with provider to install on-site carshare vehicles and promote their use by residents	☑
BETTER		4.2.2 Provide residents with carshare memberships, either free or subsidized	☐
		5. PARKING	
		5.1 Priced parking	
BASIC	★	5.1.1 Unbundle parking cost from purchase price *(condominium)*	☑
BASIC	★	5.1.2 Unbundle parking cost from monthly rent *(multi-family)*	☑

			TDM measures: *Residential developments*	Check if proposed & add descriptions
		6.	**TDM MARKETING & COMMUNICATIONS**	
		6.1	**Multimodal travel information**	
BASIC	★	6.1.1	Provide a multimodal travel option information package to new residents	☑
		6.2	**Personalized trip planning**	
BETTER	★	6.2.1	Offer personalized trip planning to new residents	☐