1987 Robertson Road & 295 Moodie Drive

Transportation Impact Assessment

Step 1 Screening Report

Step 2 Scoping Report

Step 3 Forecasting Report

Step 4 Strategy Report

Prepared for:

The Properties Group
236 Metcalfe Street
Ottawa, ON K2P 1R3

Prepared by:

CGH TRANSPORTATION
13 Markham Avenue
Ottawa, ON K2G 3Z1

September 2021

PN: 2020-90

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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 report is part of an Official Plan amendment/zoning by-law amendment.

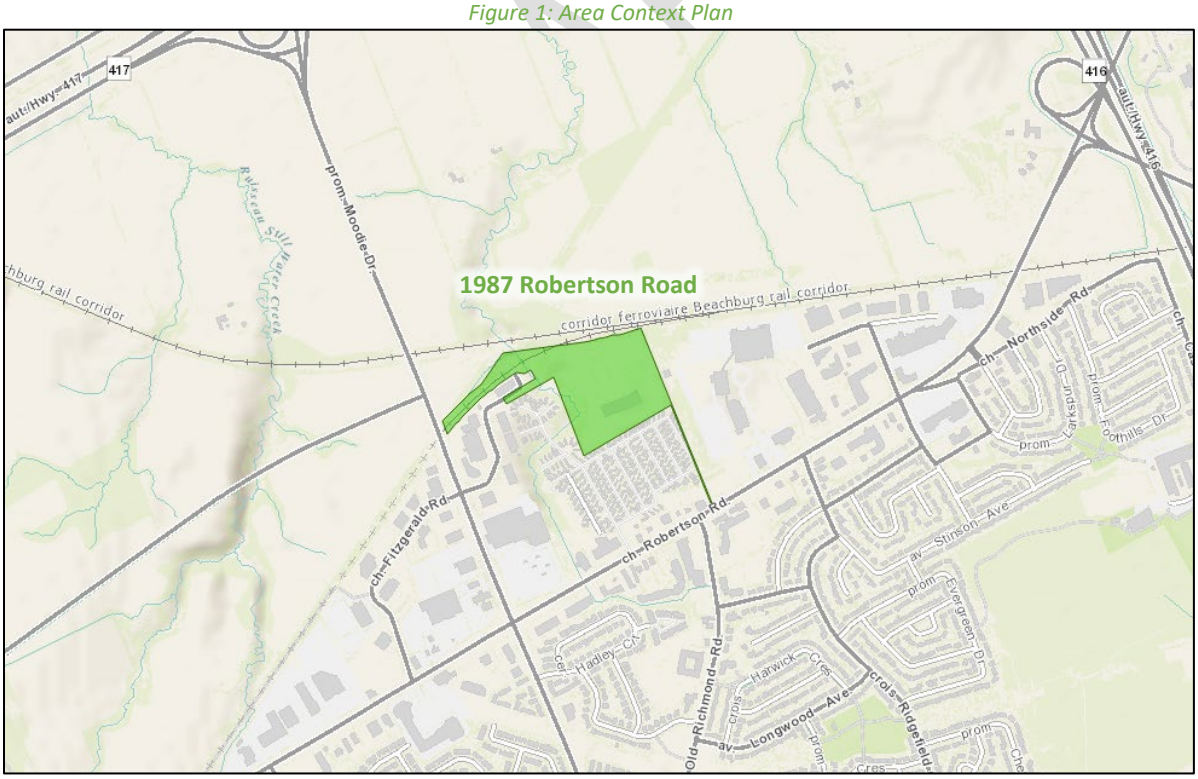
2 Existing and Planned Conditions

2.1 Proposed Development

The existing site, zoned primarily as Business Park Industrial Zone (IP2 with minor portions as IP[1530], IPS)) and with minor portions of the site area zoned as Agricultural (AG), General Mixed Use (GM18 F(1.0) H(34)), and Arterial Mainstreet (AM) currently consists of a warehouse and industrial yard, and includes an electrical utility transmission corridor and decommissioned rail corridor. The proposed development includes eight high-rise buildings on six-storey podiums and one six-storey building comprising a total of 1,925 units and 41,657 ft^2 of commercial space, all to be built-out in five phases by 2029. The site is proposed as accessing Moodie Drive via a new east leg of the intersection with Timm Drive, and proposes 1,778 vehicle parking spaces. A MUP is also proposed along the eastern channel of the site connecting to the pedestrian facilities on Robertson Road.

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: March 12, 2021

DEVELOPMENT STATISTICS:

Total Site Area = 95,882.125 sq m (23.69 acres)
(as per survey drawing)

Total Developable Land = 51327.52 sq m (12.68 acres)
(including private roads and parkland)

Public Roads, M.U.P. & Open Space = 44,554.61 sq m (11.01 acres)
(to be ceded to N.C.C.)

PLOT ID	PROPOSED DEVELOPMENT	GROSS CONSTRUCTION AREA	COMMERCIAL AREA ON GF	DWELLING UNITS
Plot 'A' Phase - 1	A1 20-STOREY TOWER WITH 6-STOREY PODIUM	256,885 sq. ft.	3,852 sq. ft.	274
	A2 16-STOREY TOWER WITH 6-STOREY PODIUM	222,517 sq. ft.	7,104 sq. ft.	233
Plot 'B' Phase - 2	B1 20-STOREY TOWER WITH 6-STOREY PODIUM	254,204 sq. ft.	3,444 sq. ft.	271
	B2 16-STOREY TOWER WITH 6-STOREY PODIUM	222,204 sq. ft.	9,472 sq. ft.	230
Plot 'C' Phase - 3	C1 16-STOREY TOWER WITH 6-STOREY PODIUM	215,337 sq. ft.	---	233
	C2 12-STOREY TOWER WITH 6-STOREY PODIUM	185,705 sq. ft.	7,535 sq. ft.	193
Plot 'D' Phase - 4	D1 12-STOREY TOWER WITH 6-STOREY PODIUM	201,581 sq. ft.	10,549 sq. ft.	207
Plot 'E' Phase - 5	E1 16-STOREY TOWER WITH 6-STOREY PODIUM	160,536 sq. ft.	---	174
	E2 6-STOREY BUILDING	103,636 sq. ft.	---	112
TOTAL		1,822,605 sq. ft. 169,324 sq. m.	41,657 sq. ft. 3,870 sq. m.	1,925

Tower Footprint = 743 sq m (8,000 sq ft)

Total Parking Spaces = 1,778 (0.92 per DU)
(2 levels underground + on-street surface parking)

rla/architecture

THE PROPERTIES GROUP

Site Plan

Sep 2021

STILLWATER STATION
1987 Robertson Road, Ottawa ON

0 5 10 20m

SHEET # SP-M1

PROJECT # 1811

2.2 Existing Conditions

2.2.1 Area Road Network

Robertson Road: Robertson Road is a City of Ottawa arterial road with a five-lane (including a two-way left-turn lane) rural cross-section west of Fitzgerald Road, urban cross-section between Fitzgerald Road and Stafford Road, and with a four-lane urban cross-section east of Stafford Road within the study area. Bike lanes are on the approach and departure at the intersection with Moodie Drive, and sidewalks are on both sides of the road east of Fitzgerald Road and on the south side of the road to the west within the study area. The posted speed limit is 60 km/h and the Ottawa Official Plan reserves a 37.5-metre right of way within the study area. Robertson Road is a truck route.

Timm Drive: Timm Drive is a City of Ottawa arterial road with a two-lane rural cross-section with paved shoulders on both sides of the road. The posted speed limit is 80 km/h and the Ottawa Official Plan indicates the right of way is subject to the Greenbelt.

Moodie Drive: Moodie Drive is a City of Ottawa arterial road with a four-lane urban cross-section with sidewalks on both sides of the road south of Fitzgerald Road and a four-lane rural cross-section with paved shoulders on both sides of the road to the north. The posted speed limit is 60 km/h south of the rail tracks and 80 km/h to the north, and the Ottawa Official Plan reserves a 37.5-metre right of way within the study area. Moodie Drive is a truck route.

Fitzgerald Road: Fitzgerald Road is a City of Ottawa collector road with a two-lane urban cross-section with a sidewalk and south/east side of the road. The posted speed limit is 50 km/h and the Ottawa Official Plan reserves a 24.0-metre right of way within the study area.

Old Richmond Road: Old Richmond Road is a City of Ottawa collector road with a two-lane urban cross-section with sidewalks on both sides 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 Ottawa Official Plan reserves a 24.0-metre right of way within the study area.

Stinson Avenue: Stinson Avenue is a City of Ottawa collector road with a two-lane semi-urban cross-section, curbed with a sidewalk on the west side of the road north of Ridgefield Crescent, and a local road with a two-lane rural cross-section to the south. The posted speed limit is 40 km/h and the measured right of way is 20.0 metres.

Stafford Road: Stafford Road is a City of Ottawa collector road with a two-lane urban cross-section with on street parking permitted on both sides of the road. A sidewalk is on both sides of the road for 135 metres north of Robertson Road and a sidewalk is on the east side of the road north of this point to the intersection with Bexley Place. The unposted speed limit is assumed to be 50 km/h and the Ottawa Official Plan reserves a 24.0-metre right of way within the study area.

Lynhar Road: Lynhar Road is a City of Ottawa collector road with a two-lane semi-urban cross-section, curbed with a sidewalk on the east side of the road north of Eaton Street, and a local road with a two-lane rural cross-section to the south. The posted speed limit is 40 km/h and the Ottawa Official Plan reserves a 24.0-metre right of way within the study area.

Menten Place: Menten Place is a City of Ottawa local road with a two-lane urban cross-section. The posted speed limit is 40 km/h and the measured right of way is 20.5 metres.

Vanier Road: Vanier Road is a private local road with a two-lane rural cross-section. The posted speed limit is 20 km/h.

2.2.2 Existing Intersections

The existing signalized area intersections within one kilometre of the site have been summarized below:

Timm Drive at Moodie Drive	The intersection of Timm Drive and Moodie Drive is a signalized intersection. The northbound approach consists of an auxiliary left-turn lane, two through lanes, and a bike lane and the southbound approach consists of two through lanes, a biked lane, and a channelized auxiliary right-turn lane. The eastbound approach consists of a left-turn lane, a bike lane, and a channelized auxiliary right-turn lane. No turn restrictions were noted.
Fitzgerald Road at Moodie Drive / Menten Place	The intersection of Fitzgerald Road at Moodie Drive / Menten Place is a signalized intersection. The northbound and southbound approaches each consist of an auxiliary left-turn lane, a through lane, and a shared through/right-turn lane and the eastbound and westbound approaches each consist of an auxiliary left-turn lane and a shared through/right-turn lane. No turn restrictions were noted.
Loblaws Access at Moodie Drive	The intersection of the Loblaws Access at Moodie Drive is a signalized intersection. The northbound approach consists of two through lanes, a bike lane, and an auxiliary right-turn lane and the southbound approach consists of an auxiliary left-turn lane and two through lanes. The private westbound approach consists of a left-turn lane and an auxiliary right-turn lane. No turn restrictions were noted.
Robertson Road at Fitzgerald Road	The intersection of Robertson Road at Fitzgerald Road is a signalized intersection. The private northbound approach and the southbound approach each consist of an auxiliary left-turn lane and a shared through/right-turn. The eastbound and westbound approaches each consist of an auxiliary left-turn lane, a through lane, a shared through/right-turn lane, and a bike lane. No turn restrictions were noted.
Robertson Road at Moodie Drive	The intersection of Robertson Road at Moodie Drive is a signalized intersection. The northbound and southbound approaches each consist of two auxiliary left-turn lanes, two through lanes, a bike lane, and a channelized auxiliary right-turn lane and the eastbound and westbound approaches each consist of an auxiliary left-turn lane, two through lanes, an auxiliary transit queue-jump lane, a bike lane, and a channelized auxiliary right-turn lane. No turn restrictions were noted.
Robertson Road at Vanier Road	The intersection of Robertson Road at Vanier Road is a signalized intersection. The private northbound approach and the southbound approach each consist of a shared all-movements lane. The eastbound and westbound approaches each consist of an auxiliary left-turn lane, a through lane, and a shared through/right-turn lane. No turn restrictions were noted.
Robertson Road at Old Richmond	The intersection of Robertson Road at Old Richmond is a signalized intersection. The northbound approach consists of an auxiliary left-

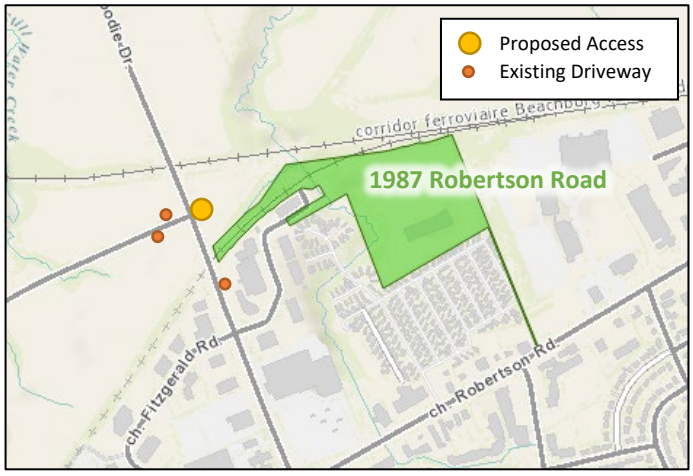
turn lane and a right-turn lane. The eastbound approach consists of a through lane and a shared through/right-turn lane and the westbound approach consists of an auxiliary left-turn lane and two through lanes. Eastbound and westbound U-turns are prohibited at this intersection.

Robertson Road at Stinson Avenue	The intersection of Robertson Road at Stinson Avenue is a signalized intersection. The northbound approach and the private southbound approaches each consist of a shared all-movements lane. The eastbound and westbound approaches each consist of an auxiliary left-turn lane, a through lane, and a shared through/right-turn lane. All movements to the north leg of the intersection are prohibited between 4:30 PM and 5:00PM.
Robertson Road at Stafford Road / Lynhar Road	The intersection of Robertson Road at Stafford Road / Lynhar Road is a signalized intersection. The northbound approach consists of an auxiliary left-turn lane, a through lane, and an auxiliary right-turn lane and the southbound approach consists of an auxiliary left-turn lane, a through lane, and a channelized auxiliary right-turn lane. The eastbound approach consists of an auxiliary left-turn lane, two through lanes, and an auxiliary right-turn lane and the westbound approach consists of an auxiliary left-turn lane, a through lane, and a shared through/right-turn lane. No turn restrictions were noted.
Bells Corners Public School Access at Old Richmond Road	The intersection of Bells Corners Public School Access at Old Richmond Road is a signalized intersection. The northbound, southbound, and private eastbound and westbound approaches each consist of a shared all-movements lane. No turn restrictions were noted.

2.2.3 Existing Driveways

Within 200 metres of the proposed site access, a driveway to an office building complex with a parking structure is present to the south on the east side of Moodie Drive, and a farm field access is present on the north side and a farm stand access is present on the south side of Timm Drive. Figure 3 illustrates these driveway locations.

Figure 3: Existing Driveways within 200 Metres of Proposed Access



Source: http://maps.ottawa.ca/geoOttawa/ Accessed: March 12, 2021

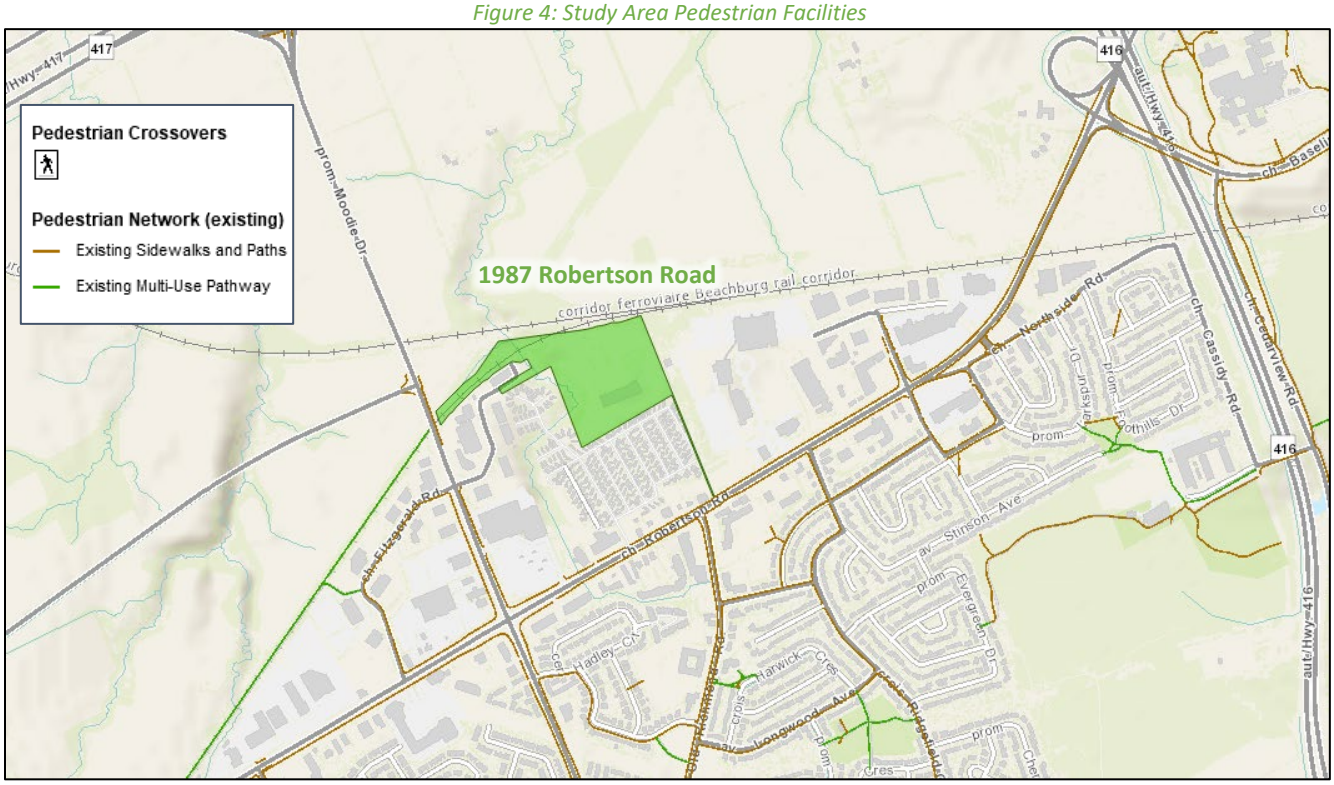
2.2.4 Cycling and Pedestrian Facilities

Figure 4 illustrates the pedestrian facilities in the study area and Figure 5 illustrates the cycling facilities. From the traffic counts presented in Section 2.2.7, Figure 6 illustrates existing pedestrian volumes and Figure 7 illustrates existing cyclist volumes at study area intersections.

Within the study area, sidewalks are provided along both sides of Old Richmond Road, Robertson Road east of Fitzgerald Road, Moodie Drive south of Fitzgerald Road, and Stafford Road for 140 metres north of Robertson Road, and along one side on Stafford Road to the north of this point, on Fitzgerald Road, Stinson Avenue, and Lynhar Road.

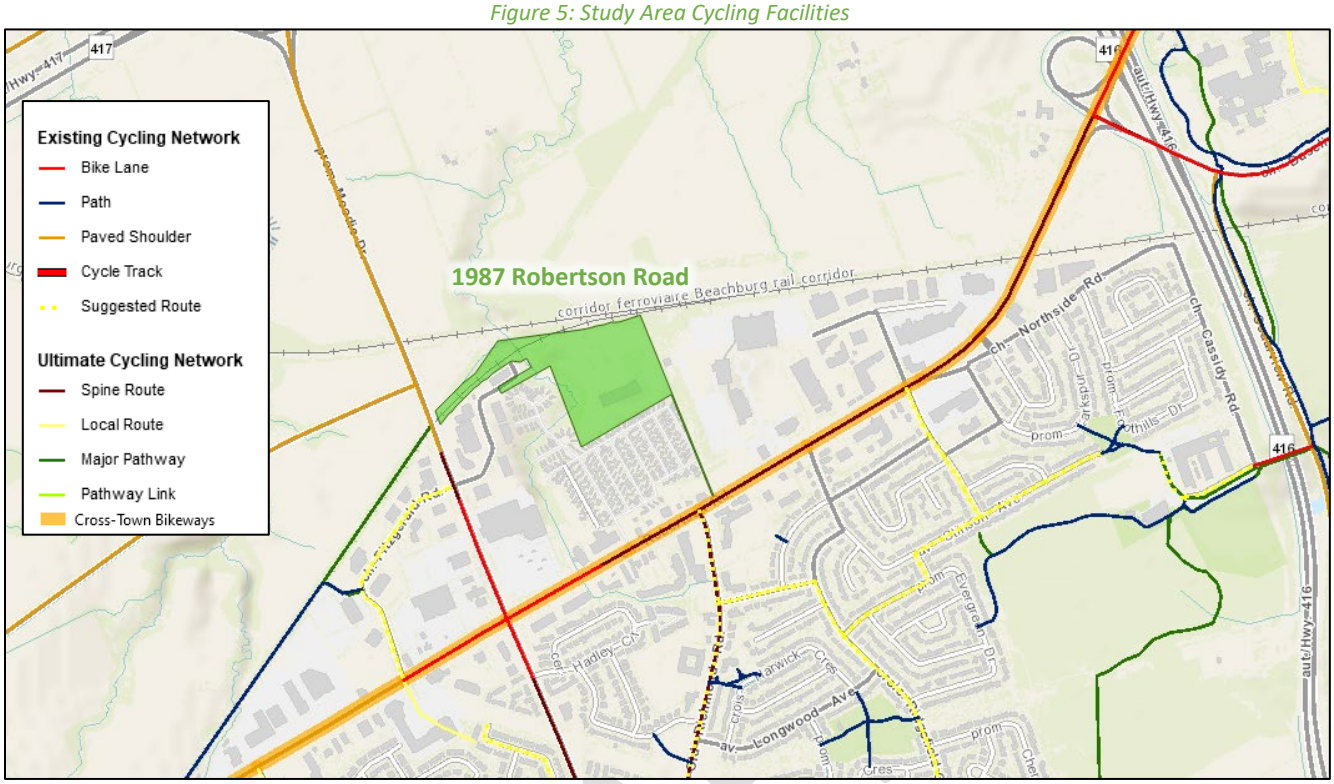
Cycling facilities include curbside bike lanes on the approach and departures of all legs at the intersection of Robertson Road and Moodie Drive, and paved shoulders on Moodie Drive 100 metres north of Fitzgerald Road, on Timm Drive, and Robertson Road west of Fitzgerald Road. Robertson Road, Moodie Drive, and Old Richmond Road are spine routes, Fitzgerald Road, Timm Drive, and Lynhar Road are local routes. Robertson Road is also a cross-town bikeway, and a pathway connection is along the decommissioned Carleton Place rail corridor.

Figure 4: Study Area Pedestrian Facilities



Source: http://maps.ottawa.ca/geoOttawa/ Accessed: March 12, 2021

Figure 5: Study Area Cycling Facilities



Source: http://maps.ottawa.ca/geoOttawa/ Accessed: March 12, 2021

Figure 6: Existing Pedestrian Crossing Volumes

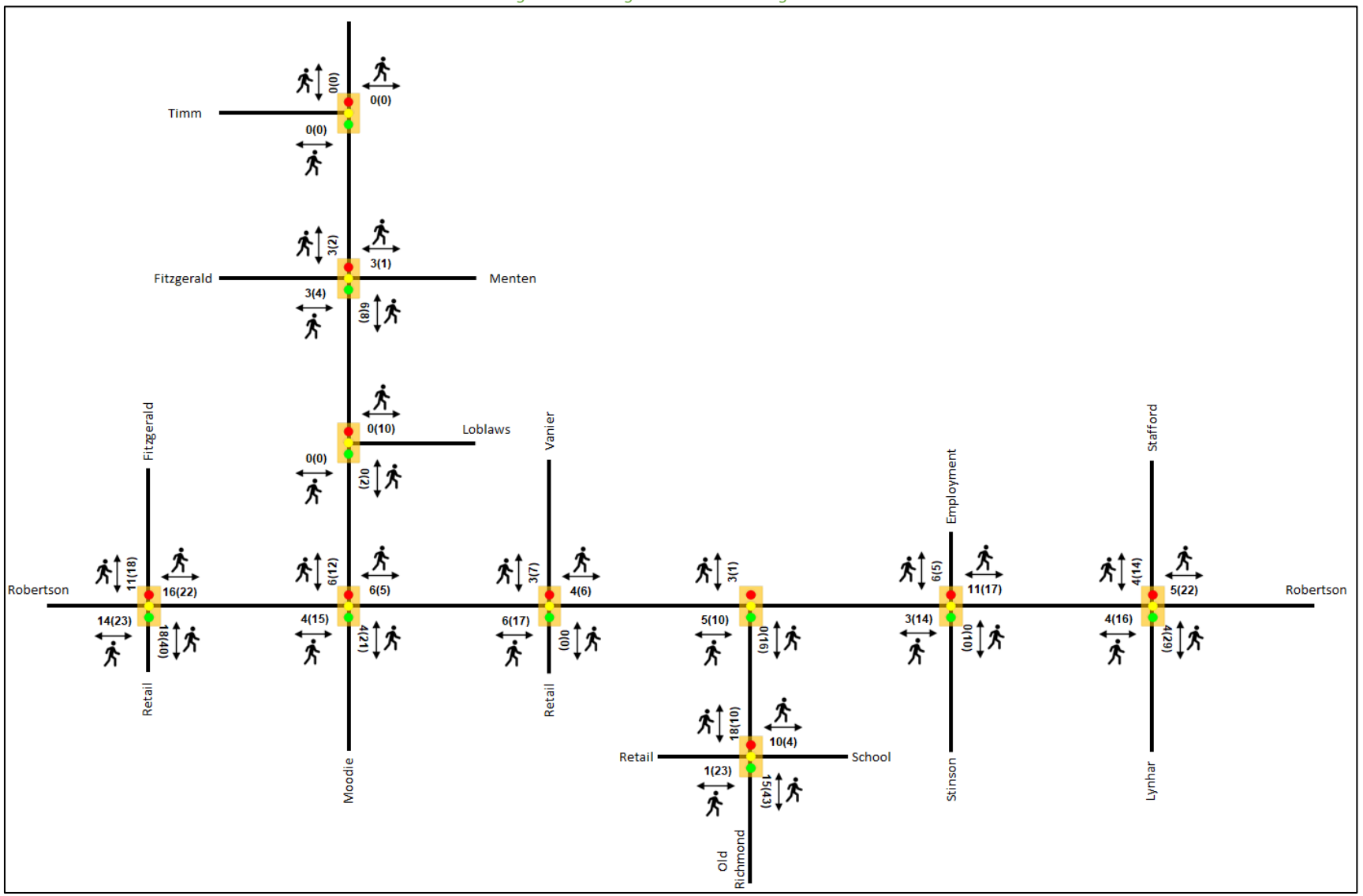
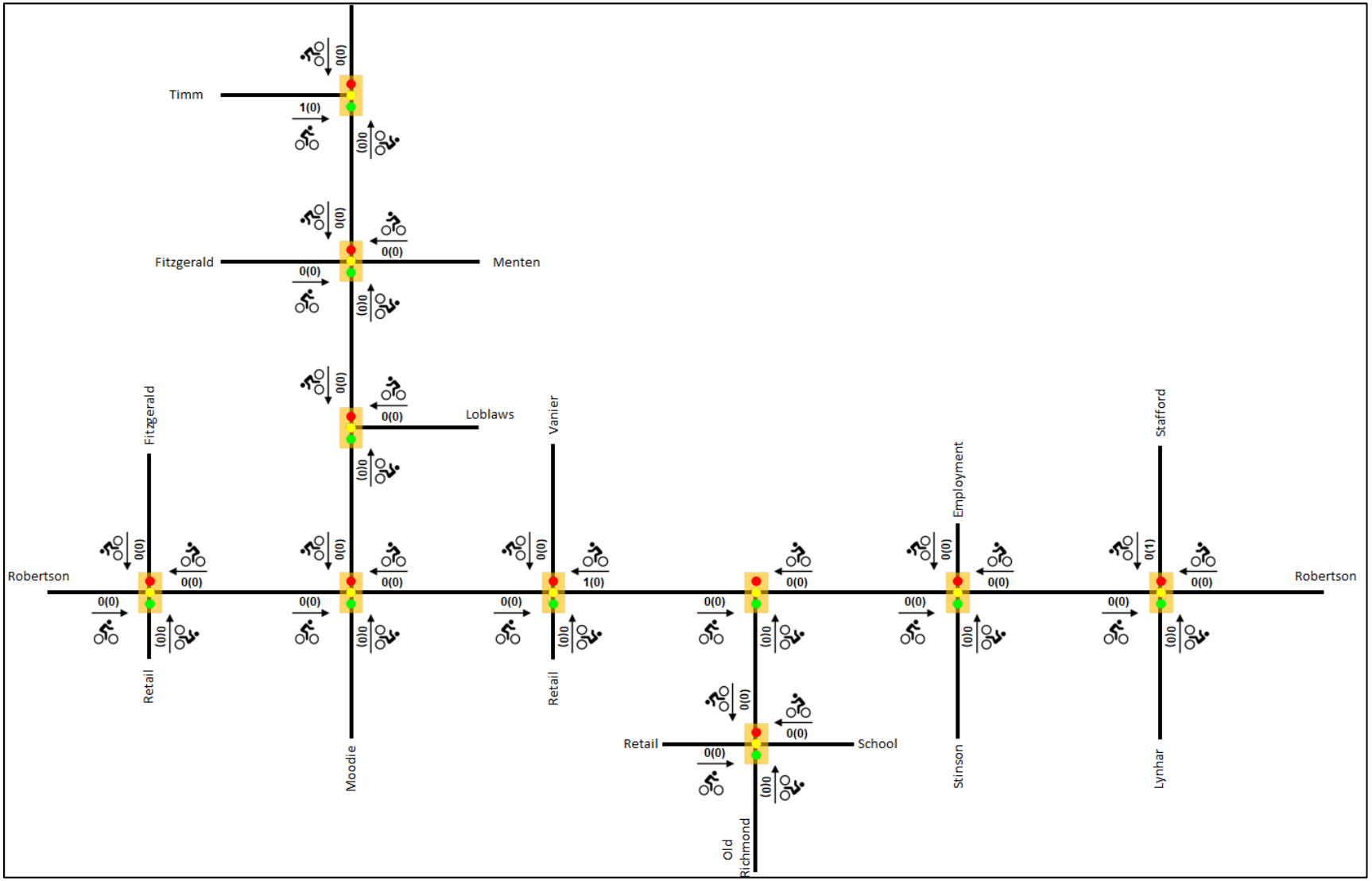


Figure 7: Existing Cyclist Volumes



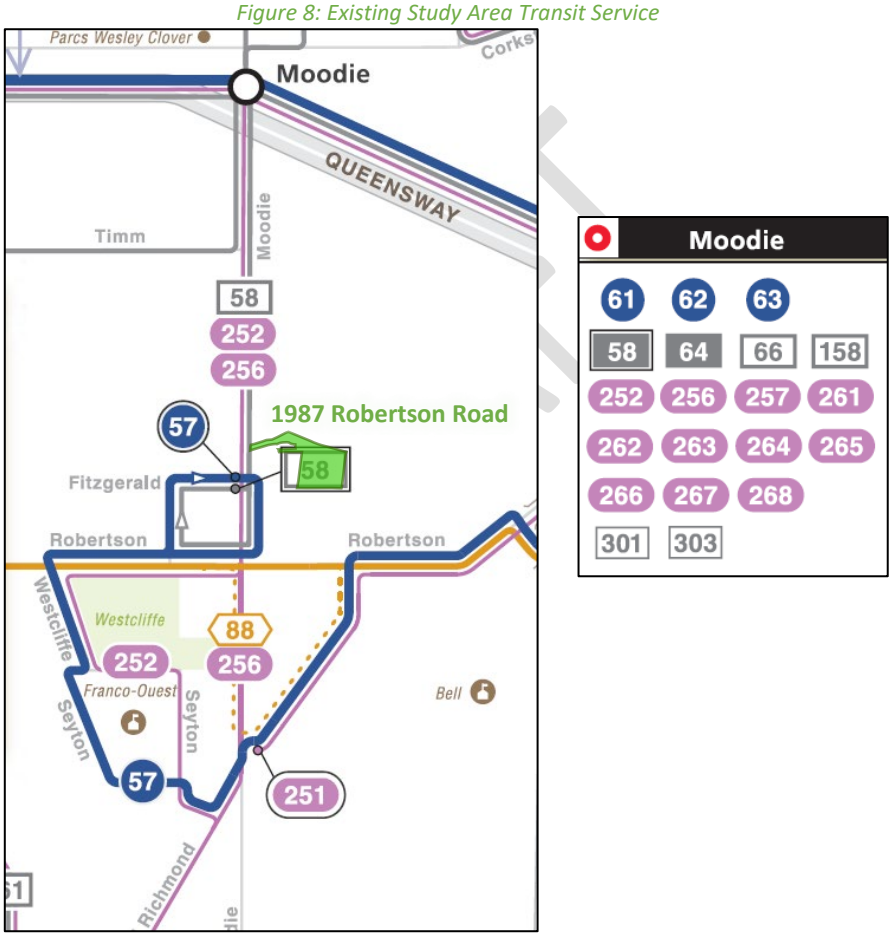
2.2.5 Existing Transit

Within the study area, the route #58, #252, #256 travel along Moodie Drive, the routes #57, #251 travel along Old Richmond Road continuing along Robertson Road to the east, and the route #88 travels along Robertson Road. The frequency of these routes within proximity of the proposed site currently are:

- Route # 57 – 30-minute service all day
- Route # 58 – 3 buses around noon in each direction
- Route # 88 – 10-minute service in peak period/direction, 15-20-minute service all day
- Route # 251 – 15-minute service in peak period/direction only
- Route # 252 – 15-minute service in peak period/direction only
- Route # 256 – 15-minute service in peak period/direction only

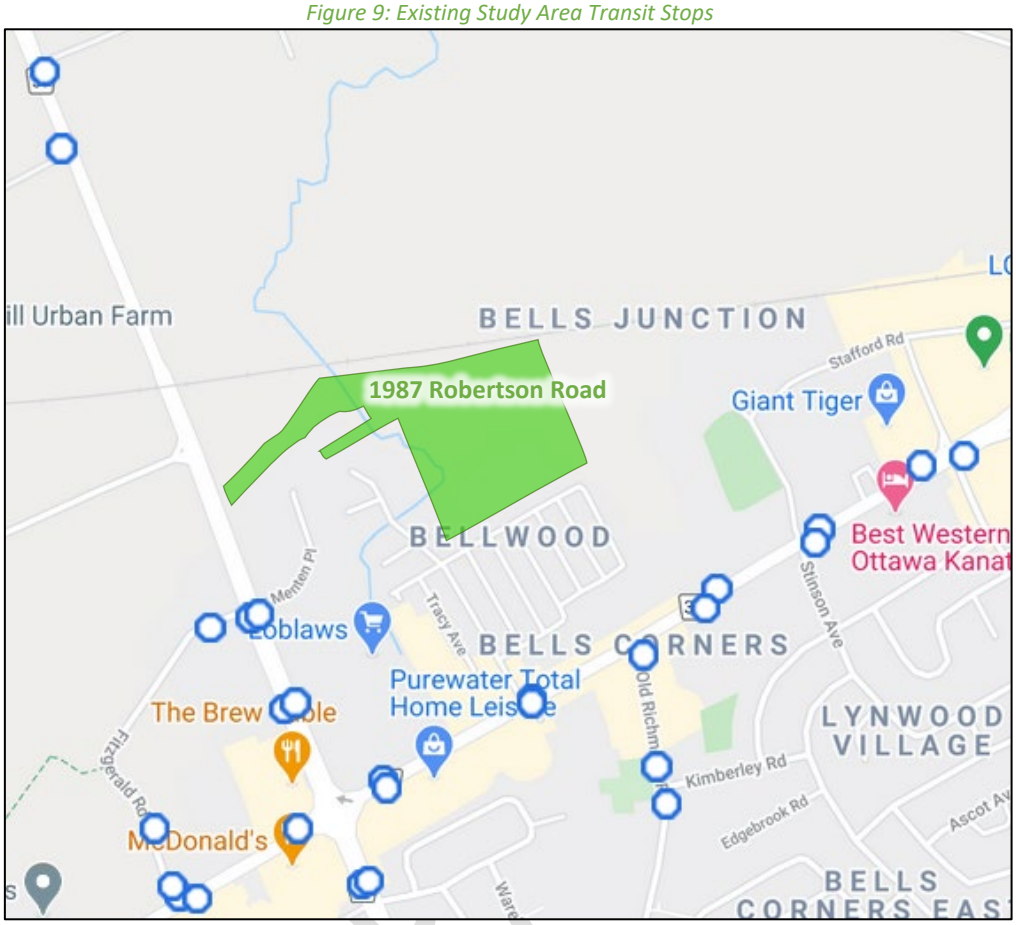
Figure 8 illustrates the transit system map in the study area and Figure 9 illustrates nearby transit stops.

Figure 8: Existing Study Area Transit Service



Source: http://www.octranspo.com/ Accessed: March 11, 2021

Figure 9: Existing Study Area Transit Stops



Source: http://www.octranspo.com/ Accessed: March 12, 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 for the existing study area intersections. Table 1 summarizes the intersection count dates.

Table 1: Intersection Count Date

Intersection	Count Date
Timm Drive at Moodie Drive	Wednesday, March 8, 2017
Fitzgerald Road/Menten Place at Moodie Drive	Wednesday, March 8, 2017
Loblaws Access at Moodie Drive	Wednesday, March 8, 2017
Robertson Road at Fitzgerald Road	Thursday, November 30, 2017
Robertson Road at Moodie Drive	Wednesday, March 8, 2017
Robertson Road at Vanier Road	Wednesday, March 8, 2017
Robertson Road at Old Richmond Road	Wednesday, March 8, 2017
Robertson Road at Stinson Avenue	Wednesday, March 8, 2017
Robertson Road at Stafford Road/Lynhar Road	Wednesday, March 8, 2017
Bells Corners Public School Access/Mall Access at Old Richmond Road	Wednesday, March 8, 2017

Figure 10 illustrates the existing traffic counts and Table 2 summarizes the existing 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. Detailed turning movement count data is included in Appendix B and the Synchro worksheets are provided in Appendix C.

Figure 10: Existing Traffic Counts

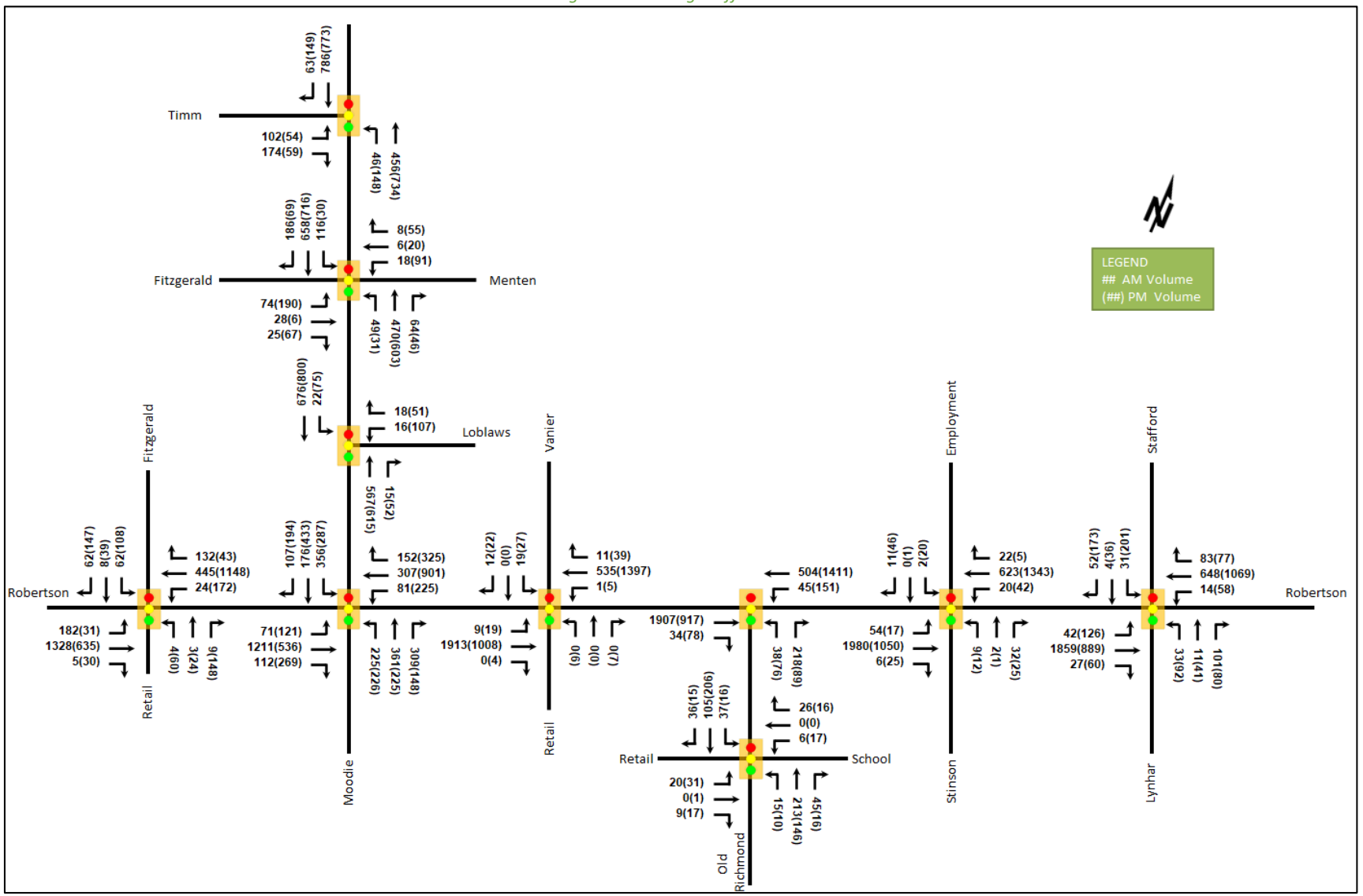


Table 2: Existing Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Timm Drive at Moodie Drive *Signalized*	EBL	A	0.47	37.5	29.4	A	0.25	29.4	16.7
	EBR	A	0.51	10.0	16.0	A	0.24	10.4	9.5
	NBL	A	0.12	3.4	3.5	A	0.37	8.6	22.8
	NBT	A	0.22	3.4	10.8	A	0.33	7.4	51.8
	SBT	A	0.44	10.6	61.1	A	0.49	13.0	58.4
	SBR	A	0.08	3.0	5.8	A	0.19	2.7	8.9
	Overall	**A**	**0.46**	**9.7**	-	**A**	**0.47**	**10.1**	-
Fitzgerald Road / Menten Place at Moodie Drive *Signalized*	EBL	A	0.36	31.3	18.2	B	0.67	32.5	36.4
	EBT/R	A	0.21	16.7	10.7	A	0.19	6.1	7.6
	WBL	A	0.09	24.7	6.4	A	0.32	21.4	18.0
	WBT/R	A	0.06	16.1	4.5	A	0.19	7.9	9.0
	NBL	A	0.15	8.4	11.5	A	0.14	11.7	8.4
	NBT/R	A	0.25	5.9	36.6	A	0.38	10.0	48.1
	SBL	A	0.24	11.6	26.1	A	0.09	1.9	m0.5
	SBT/R	A	0.41	9.2	66.7	A	0.47	2.8	4.0
	Overall	**A**	**0.42**	**9.7**	-	**A**	**0.53**	**9.5**	-
Loblaws Access at Moodie Drive *Signalized*	WBL	A	0.13	43.4	10.0	A	0.45	37.8	28.8
	WBR	A	0.12	18.8	6.9	A	0.21	9.4	8.2
	NBT	A	0.22	2.2	17.9	A	0.27	5.6	42.1
	NBR	A	0.01	1.1	1.2	A	0.05	2.2	4.7
	SBL	A	0.04	2.5	2.4	A	0.16	6.9	14.4
	SBT	A	0.27	2.4	22.1	A	0.36	6.1	58.1
	Overall	**A**	**0.28**	**3.0**	-	**A**	**0.39**	**7.9**	-
Robertson Road at Fitzgerald Road *Signalized*	EBL	A	0.41	13.6	48.8	A	0.18	19.0	11.8
	EBT/R	B	0.63	13.6	164.1	A	0.40	17.0	74.2
	WBL	A	0.12	5.2	m6.1	A	0.42	9.2	m12.8
	WBT/R	A	0.27	5.1	44.4	A	0.58	6.9	43.3
	NBL	A	0.03	43.8	4.0	A	0.43	49.5	27.2
	NBT/R	A	0.07	25.0	6.4	A	0.46	12.5	24.4
	SBL	A	0.42	57.3	29.2	C	0.74	69.9	46.4
	SBT/R	A	0.32	16.0	15.2	A	0.59	33.6	50.3
	Overall	**A**	**0.60**	**12.7**	-	**B**	**0.65**	**15.7**	-
Robertson Road at Moodie Drive *Signalized*	EBL	B	0.67	**95.8**	**m#40.8**	C	0.74	72.5	**#58.4**
	EBT	**F**	**1.01**	**57.2**	**#246.1**	A	0.60	42.8	84.5
	EBR	A	0.19	2.3	5.9	A	0.47	12.5	36.8
	WBL	B	0.69	**89.5**	**#54.8**	D	0.82	67.2	**#107.6**
	WBT	A	0.27	27.3	21.7	D	0.81	42.5	**#160.6**
	WBR	A	0.25	9.1	15.7	A	0.48	8.6	22.4
	NBL	B	0.69	65.8	45.6	D	0.82	74.9	**#50.7**
	NBT	B	0.64	52.2	63.3	A	0.38	41.7	36.5
	NBR	D	0.87	52.2	87.2	A	0.39	8.1	16.2
	SBL	E	0.97	**94.1**	**#84.1**	**F**	**1.04**	**113.6**	**#70.2**
	SBT	A	0.30	43.8	32.2	C	0.71	49.9	69.2
	SBR	A	0.30	6.3	11.2	A	0.46	8.0	18.3
	Overall	**E**	**0.93**	**53.4**	-	**D**	**0.85**	**44.9**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Robertson Road at Vanier Road ***Signalized***	EBL	A	0.02	5.3	m0.9	A	0.14	28.7	m8.2
	EBT/R	C	0.74	20.7	m143.0	A	0.45	23.6	m157.9
	WBL	A	0.02	9.0	m0.7	A	0.02	7.4	m0.7
	WBT/R	A	0.22	5.5	62.1	B	0.63	9.3	**#40.2**
	NB	-	-	-	-	A	0.08	0.9	0.0
	SB	A	0.15	1.4	0.0	A	0.24	4.3	3.0
	Overall	**C**	**0.76**	**17.1**	**-**	**A**	**0.58**	**15.0**	**-**
Robertson Road at Old Richmond Road ***Signalized***	EBT/R	E	0.96	76.4	**#372.4**	A	0.53	5.6	17.3
	WBL	A	0.39	32.4	17.9	A	0.48	15.4	m32.6
	WBT	A	0.23	5.1	28.2	B	0.62	9.5	98.5
	NBL	A	0.18	47.4	19.3	A	0.38	49.8	31.0
	NBR	D	0.85	59.4	67.7	A	0.36	11.5	14.1
	Overall	**E**	**0.92**	**60.9**	**-**	**B**	**0.62**	**9.6**	**-**
Robertson Road at Stinson Avenue ***Signalized***	EBL	A	0.14	2.5	m1.5	A	0.18	5.2	m0.7
	EBT/R	E	0.94	15.7	m28.2	A	0.59	6.4	13.0
	WBL	A	0.45	36.0	**#17.2**	A	0.25	24.8	m12.8
	WBT/R	A	0.31	2.8	10.0	C	0.73	39.1	207.2
	NB	A	0.16	33.1	17.9	A	0.10	19.2	12.1
	SB	A	0.05	9.3	3.8	A	0.17	16.6	17.1
	Overall	**C**	**0.76**	**12.8**	**-**	**A**	**0.53**	**24.2**	**-**
Robertson Road at Stafford Road / Lynhar Road ***Signalized***	EBL	A	0.43	46.4	m12.8	A	0.51	49.3	52.0
	EBT	D	0.81	12.9	**m#312.3**	A	0.54	17.1	84.6
	EBR	A	0.03	0.4	m0.0	A	0.08	1.1	m0.0
	WBL	A	0.18	63.1	11.5	A	0.47	62.6	27.8
	WBT/R	A	0.36	8.9	66.0	D	0.86	37.4	**#194.5**
	NBL	A	0.32	61.5	19.3	A	0.44	45.1	34.4
	NBT	A	0.08	53.3	8.7	A	0.21	48.2	20.6
	NBR	A	0.48	16.3	17.0	A	0.30	4.0	3.1
	SBL	A	0.32	62.4	18.2	E	0.96	**94.8**	**#87.1**
	SBT	A	0.03	51.8	4.3	A	0.19	47.6	18.6
	SBR	A	0.29	8.8	7.6	A	0.56	13.1	20.5
	Overall	**C**	**0.79**	**13.8**	**-**	**D**	**0.82**	**33.5**	**-**
Bells Corners Public School Access / Mall Access at Old Richmond Road ***Signalized***	EB	A	0.08	7.1	4.8	A	0.13	8.2	7.4
	WB	A	0.08	6.0	4.6	A	0.09	7.5	5.4
	NB	A	0.52	11.9	28.5	A	0.33	9.3	17.7
	SB	A	0.39	10.0	18.7	A	0.47	11.5	25.2
	Overall	**A**	**0.29**	**10.6**	**-**	**A**	**0.29**	**10.1**	**-**

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

Capacity issues are noted at the intersection of Robertson Road and Moodie Drive, and generally on peak directional movements on Robertson Road.

At the intersection of Robertson Road and Moodie Drive during the AM peak hour, the eastbound through movement is over capacity with extended queues, and the eastbound left, westbound left, and southbound left movements all exhibit high delays and extended queues with the southbound left movement approaching capacity. During the PM peak hour, the southbound left movement is over capacity with high delays and extended queues, and the eastbound left, westbound left, westbound through, and northbound left movements all exhibit extended queues.

At the intersection of Robertson Road and Old Richmond Road during the AM peak hour, the eastbound through/right movement exhibits mounting delays and extended queues and is approaching capacity.

At the intersection of Robertson Road and Stinson Avenue during the AM peak hour, queues on the westbound left movement exceed their midblock length, and the eastbound through/right movement is approaching capacity.

At the intersection of Robertson Road at Stafford Road/Lynhar Road, the eastbound through movement exhibits extended queues during the AM peak hour and the westbound through/right movement exhibits extended queues and the southbound left movement is approaching capacity with high delays and extended queues during the PM peak hour.

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		**255**	**100%**
Classification	**Fatality**	0	0%
	Non-Fatal Injury	58	23%
	Property Damage Only	197	77%
Initial Impact Type	**Approaching**	1	0%
	Angle	54	21%
	Rear end	113	44%
	Sideswipe	38	15%
	Turning Movement	22	9%
	SMV Other	25	10%
	Other	2	1%
Road Surface Condition	**Dry**	187	73%
	Wet	34	13%
	Loose Snow	14	5%
	Slush	8	3%
	Packed Snow	6	2%
	Ice	6	2%
Pedestrian Involved		4	2%
Cyclists Involved		3	1%

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

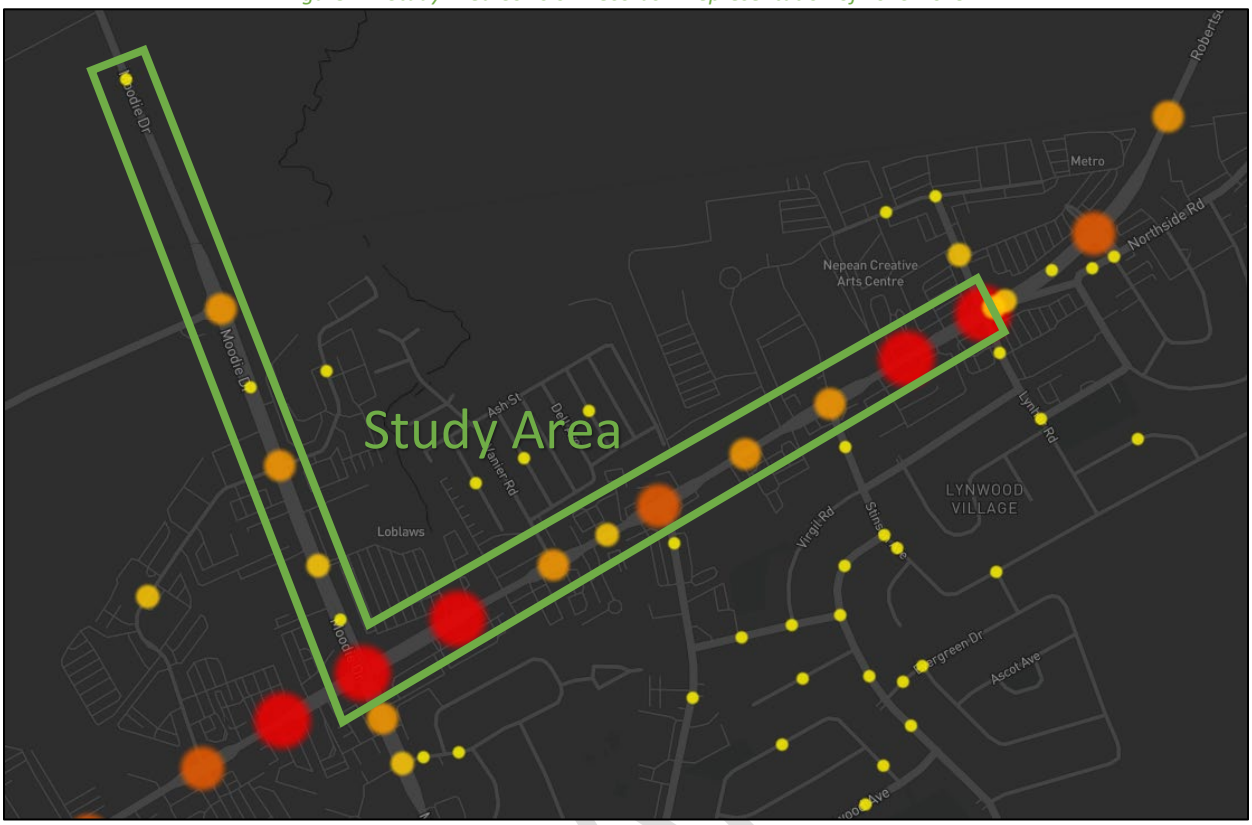


Table 4: Summary of Collision Locations, 2015-2019

	Number	%
Intersections / Segments	**255**	**100%**
Moodie Dr at Timm Dr	10	4%
Moodie Dr at Fitzgerald Rd/Stafford Rd	10	4%
Moodie Dr at 200 N of Robertson Rd	5	2%
Moodie Dr at Robertson Rd	63	25%
Robertson Rd at Vanier Rd	10	4%
Robertson Rd at Richmond Rd	17	7%
Robertson Rd at Stinson Ave	9	4%
Robertson Rd at Lynhar Rd/Stafford Rd	51	20%
Moodie Dr between Hwy417 Ic134 Ramp53 & Timm Dr	3	1%
Moodie Dr between Timm Dr & Fitzgerald Rd	1	0%
Moodie Dr between 200 N of Robertson Rd & Robertson Rd	1	0%
Robertson Rd between Moodie Dr & Vanier Rd	27	11%
Robertson Rd between Vanier Rd & Richmond Rd	7	3%
Robertson Rd between Richmond Rd & Stinson Ave	13	5%
Robertson Rd between Stinson Ave & Stafford Rd	28	11%

Within the study area, the intersections of Moodie Drive at Robertson Road, Robertson Road at Stafford Road/Lynhar Road, and the segments of Robertson Road between Moodie Drive and Vanier Road, and Robertson Road between Stinson Avenue and Stafford Road are noted to have experienced higher collisions than other locations. Table 5, Table 6, Table 7, and Table 8 summarize the collision types and conditions for each of the of Moodie Drive at Robertson Road, Robertson Road at Stafford Road/Lynhar Road intersections and the segments

of Robertson Road between Moodie Drive and Vanier Road, and Robertson Road between Stinson Avenue and Stafford Road.

Table 5: Moodie Drive at Robertson Road Collision Summary

		Number	%
Total Collisions		**63**	**100%**
Classification	**Fatality**	0	0%
	Non-Fatal Injury	15	24%
	Property Damage Only	48	76%
Initial Impact Type	**Angle**	12	19%
	Rear end	36	57%
	Sideswipe	9	14%
	Turning Movement	2	3%
	SMV Other	4	6%
Road Surface Condition	**Dry**	46	73%
	Wet	7	11%
	Loose Snow	3	5%
	Slush	3	5%
	Packed Snow	3	5%
	Ice	1	2%
Pedestrian Involved		1	2%
Cyclists Involved		0	0%

The Moodie Drive at Robertson Road intersection had a total of 63 collisions during the 2015-2019 time period, with 48 involving property damage only and the remaining 15 having non-fatal injuries. The collision types are most represented by rear end with 36 collisions, followed by angle with 12, sideswipe with nine, SMV (other) with four, and turning movement with two. Rear end collisions are typical of congested intersection, angle collisions may be influenced by the smart channels on the approaches or proximity of the driveways within the right-turn auxiliary lanes. Weather conditions do not affect collisions at this location. The new transit lanes may reduce these conflicts and the City should monitor for continued issues.

Table 6: Robertson Road at Stafford Road/Lynhar Road Collision Summary

		Number	%
Total Collisions		**51**	**100%**
Classification	**Fatality**	0	0%
	Non-Fatal Injury	11	22%
	Property Damage Only	40	78%
Initial Impact Type	**Angle**	5	10%
	Rear end	27	53%
	Sideswipe	10	20%
	Turning Movement	3	6%
	SMV Other	5	10%
	Other	1	2%
Road Surface Condition	**Dry**	40	78%
	Wet	4	8%
	Loose Snow	3	6%
	Packed Snow	1	2%
	Ice	3	6%
Pedestrian Involved		1	2%
Cyclists Involved		0	0%

The Robertson Road at Stafford Road/Lynhar Road intersection had a total of 51 collisions during the 2015-2019 time period, with 40 involving property damage only and the remaining 11 having non-fatal injuries. The collision types are most represented by rear end with 27 collisions followed by sideswipe with ten, angle and SMV (other) with five each, turning movement with three, and other with one. Rear end collisions are generally associated with congestion and the sideswipe collisions may be a result of the driveways in proximity to the intersection. Weather conditions do not affect collisions at this location. No improvements are recommended at this location.

Table 7: Robertson Road between Vanier Road and Old Richmond Road Collision Summary

		Number	%
Total Collisions		**27**	**100%**
Classification	**Fatality**	0	0%
	Non-Fatal Injury	5	19%
	Property Damage Only	22	81%
Initial Impact Type	**Angle**	7	26%
	Rear end	9	33%
	Sideswipe	6	22%
	Approaching	1	4%
	Turning Movement	4	15%
Road Surface Condition	**Dry**	20	74%
	Wet	5	19%
	Loose Snow	1	4%
	Ice	1	4%
Pedestrian Involved		0	0%
Cyclists Involved		0	0%

The Robertson Road between Vanier Road and Old Richmond Road intersection had a total of 27 collisions during the 2015-2019 time period, with 22 involving property damage only and the remaining five having non-fatal injuries. The collision types are most represented by rear end with nine collisions, angle with seven, sideswipe with six, turning movement with four and approaching with one. The rear-end, sideswipe and angled collisions are likely a result of the number of private accesses and the two-way left-turn lane. Weather conditions do not affect collisions at this location. No improvements are recommended for this segment.

Table 8: Robertson Road between Stinson Avenue and Stafford Road Collision Summary

		Number	%
Total Collisions		**28**	**100%**
Classification	**Fatality**	0	0%
	Non-Fatal Injury	6	21%
	Property Damage Only	22	79%
Initial Impact Type	**Angle**	13	46%
	Rear end	8	29%
	Sideswipe	2	7%
	Turning Movement	4	14%
	SMV Other	1	4%
Road Surface Condition	**Dry**	21	75%
	Wet	6	21%
	Loose Snow	1	4%
Pedestrian Involved		0	0%
Cyclists Involved		1	4%

The Robertson Road between Stinson Avenue and Stafford Road intersection had a total of 28 collisions during the 2015-2019 time period, with 22 involving property damage only and the remaining six having non-fatal injuries. The collision types are most represented by angle with 13 collisions, rear end with eight, turning movement with four, sideswipe with two, and SMV (other) with one. Angle collisions may be influenced by the number of private accesses and the two-way left-turn lane. Weather conditions do not affect collisions at this location. No improvements are recommended for this segment.

2.3 Planned Conditions

2.3.1 Changes to the Area Transportation Network

The subject development is not within a CDP area.

Within the Transportation Master Plan (TMP), the Rapid Transit and Transit Priority (RTTP) Network's Affordable Network diagram shows isolated transit priority measures along Robertson Road throughout the study area and a BRT line with a station at Moodie Drive connecting to the LRT line at Bayshore Station.

From the LRT Stage 2 project, Moodie Station is the last stop on the west extension of the Confederation LRT line, replacing the BRT line from the RTTP Network, and should be constructed by 2025.

From the Planned Construction Projects portal, new sidewalks are planned for implementation on Robertson Road between Fitzgerald Road and Westcliffe Road to commence within four-to-seven years.

The Ottawa Cycling Plan includes segregated bike facilities along Robertson Road between Moodie Drive and Baseline Road as a phase 2 project (2020-2025).

2.3.2 Other Study Area Developments

2165 Robertson Road

The proposed development application includes a site plan for the construction of a retail/warehouse complex and a drive-through restaurant. The development was anticipated to be completed in a single phase by 2019 and to generate 78 new AM and 64 new PM peak hour two-way auto trips. (Parsons, 2018)

300 Moodie Drive

The proposed application included a site plan for the redevelopment of the site replacing the thrift store and auto parts shop and store with a 140-unit hotel and a 5,570 ft^2 commercial pad. The hotel is currently occupied, and the commercial building is constructed. The development was anticipated to generate a net increase of 90 AM and 68 PM peak hour two-way auto trips. (Novatech, 2018)

2015 Robertson Road

The proposed application included a site plan for the redevelopment of the existing site, retaining one building and renovating another to include three commercial units, one of 237 m^2, and two of 195 m^2. The development, built-out in 2018, was anticipated to generate 101 new PM peak hour two-way auto trips. (Halpenny, 2017)

3 Study Area and Time Periods

3.1 Study Area

The study area will include the site access intersection and the intersections of:

- Moodie Drive at:
  - Timm Drive
  - Fitzgerald Road

  - Loblaws Access
  - Robertson Road
- Robertson Road at:
  - Fitzgerald Road
  - Vanier Road
  - Old Richmond Road
  - Stinson Avenue
  - Stafford Road/Lynhar Road
- Old Richmond Road at Bells Corners Public School Access/Mall Access

The boundary road will be Moodie Drive and Robertson Road and no screenlines are within the study area however the TRANS screenline SL-11 is to the east and will be reviewed as part of the analysis.

3.2 Time Periods

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

3.3 Horizon Years

The anticipated build-out year is 2029. As a result, the full build-out plus five years horizon year is 2034.

4 Exemption Review

Table 9 summarizes the exemptions for this TIA.

Table 9: 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	Exempt – Required at site plan applications
	4.1.3 New Street Networks	Only required for plans of subdivision	Exempt – Required at plan of subdivision application
4.2 Parking	4.2.1 Parking Supply	Only required for site plans	Exempt – Required at site plan applications
	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 applications
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	Required

5 Development-Generated Travel Demand

5.1 Trip Generation and Mode Shares

This TIA has been prepared using the vehicle and person trip rates for the residential dwellings using the TRANS Trip Generation Manual (2020) and the vehicle trip rates and derived person trip rates for commercial component from the ITE Trip Generation Manual 10th Edition (2017) using the City-prescribed conversion factor of 1.28. Table 10 summarizes the person trip rates for the proposed residential land use for each peak period and Table 11 summarizes the person trip rates for the non-residential land use by peak hour.

Table 10: 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

Table 11: Non-Residential Trip Generation Person Trip Rates by Peak Hour

Land Use	Land Use Code	Peak Hour	Vehicle Trip Rate	Person Trip Rates
Shopping Centre	820 (ITE)	AM	0.94	1.20
		PM	3.81	4.88

Using the above person trip rates, the total person trip generation has been estimated. Table 12 below summarizes the total person trip generation for the residential land use and Table 13 summarizes the non-residential land use.

Table 12: 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	1925	477	1063	1540	1005	728	1733

Table 13: Total Non-Residential Person Trip Generation by Peak Hour

Land Use	GFA	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Shopping Centre	41,657	31	19	50	97	106	203

Examining the mode shares presented in the TRANS Trip Generation Manual (2020) for the 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 each land use have been summarized in Table 14. While Bell's Corners may or may not be typical of the Bayshore/Cedarview district, based upon the site's context, with its access located 1.5 km south along Moodie Drive from Moodie Station and with only the protected Greenbelt between these two points (a one-to-two-minute drive), bus service in between these points will be unconstrained and entail a high level of service. As such, no modifications from the average district mode shares are proposed for this development and supporting TDM measures should be provided to achieve these mode shares.

Table 14: Mode Shares – Bayshore/Cedarview

Travel Mode	Multi-Unit (High-Rise)		Commercial Generator	
	AM	PM	AM	PM
Auto Driver	40%	40%	64%	62%
Auto Passenger	12%	15%	15%	20%
Transit	38%	33%	4%	6%
Cycling	2%	1%	0%	1%
Walking	8%	11%	17%	11%
Total	**100%**	**100%**	**100%**	**100%**

Internal capture rates from the ITE Trip Generation Handbook 3rd Edition have been assigned to the development's retail component for mixed-use developments. The rates summarized in Table 15 represent the percentage of trips to/from the retail use based on the residential component.

Table 15: Internal Capture Rates

Land Use	AM		PM	
	In	Out	In	Out
Residential to/from Shopping Centre	17%	14%	10%	26%
Pass-by Rates for Shopping Centre	35%			

Pass-by reductions applied to the retail trip generation at a rate of 35% have been included, a value taken as a moderately conservative interpretation from the rates presented in the ITE Trip Generation Handbook 3rd Edition.

Using the above mode share targets, the internal capture and pass-by rates, and the person trip rates, the person trips by mode have been projected. Table 16 summarizes the residential trip generation by mode and peak period and Table 17 summarizes the non-residential trip generation by mode and peak hour.

Table 16: Residential Trip Generation by Mode

Travel Mode		AM Peak Period				PM Peak Period			
		Mode Share	In	Out	Total	Mode Share	In	Out	Total
Multi-Unit (High-Rise)	Auto Driver	**40%**	191	425	616	**40%**	402	291	693
	Auto Passenger	**12%**	57	128	185	**15%**	151	109	260
	Transit	**38%**	181	404	585	**33%**	332	240	572
	Cycling	**2%**	10	21	31	**1%**	10	7	17
	Walking	**8%**	38	85	123	**11%**	111	80	191
	Total	**100%**	**477**	**1063**	**1540**	**100%**	**1005**	**728**	**1733**

Table 17: Non-Residential Trip Generation by Mode

Travel Mode		AM Peak Hour				PM Peak Hour			
		Mode Share	In	Out	Total	Mode Share	In	Out	Total
Shopping Centre	Auto Driver	**64%**	11	6	17	**62%**	35	32	67
	Auto Passenger	**15%**	3	2	4	**20%**	11	10	22
	Transit	**4%**	1	0	1	**6%**	3	3	6
	Cycling	**0%**	0	0	0	**1%**	1	1	1
	Walking	**17%**	3	2	5	**11%**	6	6	12
	Pass-by	*35%*	*-11*	*-7*	*-18*	*35%*	*-34*	*-37*	*-71*
	Internal Capture	*varies*	*-3*	*-2*	*-5*	*varies*	*-6*	*-18*	*-24*
	Total	**100%**	**17**	**10**	**27**	**100%**	**57**	**51**	**108**

From the above trip generation by mode for each component, the total trip generation by mode and peak hour can be forecasted using the prescribed conversion factors presented in the TRANS Trip Generation Manual (2020) for the residential component. Table 18 summarizes the total site trip generation.

Table 18: Total Trip Generation by Mode

Travel Mode		AM Peak Hour				PM Peak Hour			
		Adjustment Factor	In	Out	Total	Adjustment Factor	In	Out	Total
Multi-Unit (High-Rise)	Auto Driver	**0.48**	92	204	296	**0.44**	177	128	305
	Auto Passenger	**0.48**	27	61	89	**0.44**	66	48	114
	Transit	**0.55**	100	222	322	**0.47**	156	113	269
	Cycling	**0.58**	6	12	18	**0.48**	5	3	8
	Walking	**0.58**	22	49	71	**0.52**	58	42	99
	Total	**0.50**	**239**	**532**	**770**	**0.44**	**442**	**320**	**763**
Shopping Centre	Auto Driver	-	11	6	17	-	35	32	67
	Auto Passenger	-	3	2	4	-	11	10	22
	Transit	-	1	0	1	-	3	3	6
	Cycling	-	0	0	0	-	1	1	1
	Walking	-	3	2	5	-	6	6	12
	Pass-by	*35%*	*-11*	*-7*	*-18*	*35%*	*-34*	*-37*	*-71*
	Internal Capture	*varies*	*-3*	*-2*	*-5*	*varies*	*-6*	*-18*	*-24*
	Total	-	**17**	**10**	**27**	-	**57**	**51**	**108**
Total	Auto Driver	-	103	210	313	-	212	160	372
	Auto Passenger	-	30	63	93	-	77	58	136
	Transit	-	101	222	323	-	159	116	275
	Cycling	-	6	12	18	-	6	4	9
	Walking	-	25	51	76	-	64	48	111
	Total	-	**256**	**542**	**797**	-	**499**	**371**	**871**

As shown above, a total of 313 new AM and 372 new PM peak hour two-way vehicle trips are projected as a result of the proposed development.

5.2 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 Bayshore/Cedarview. Table 19 below summarizes the distributions.

Table 19: OD Survey Distribution – Bayshore/Cedarview

To/From	Residential % of Trips
North	25%
South	5%
East	55%
West	15%
Total	**100%**

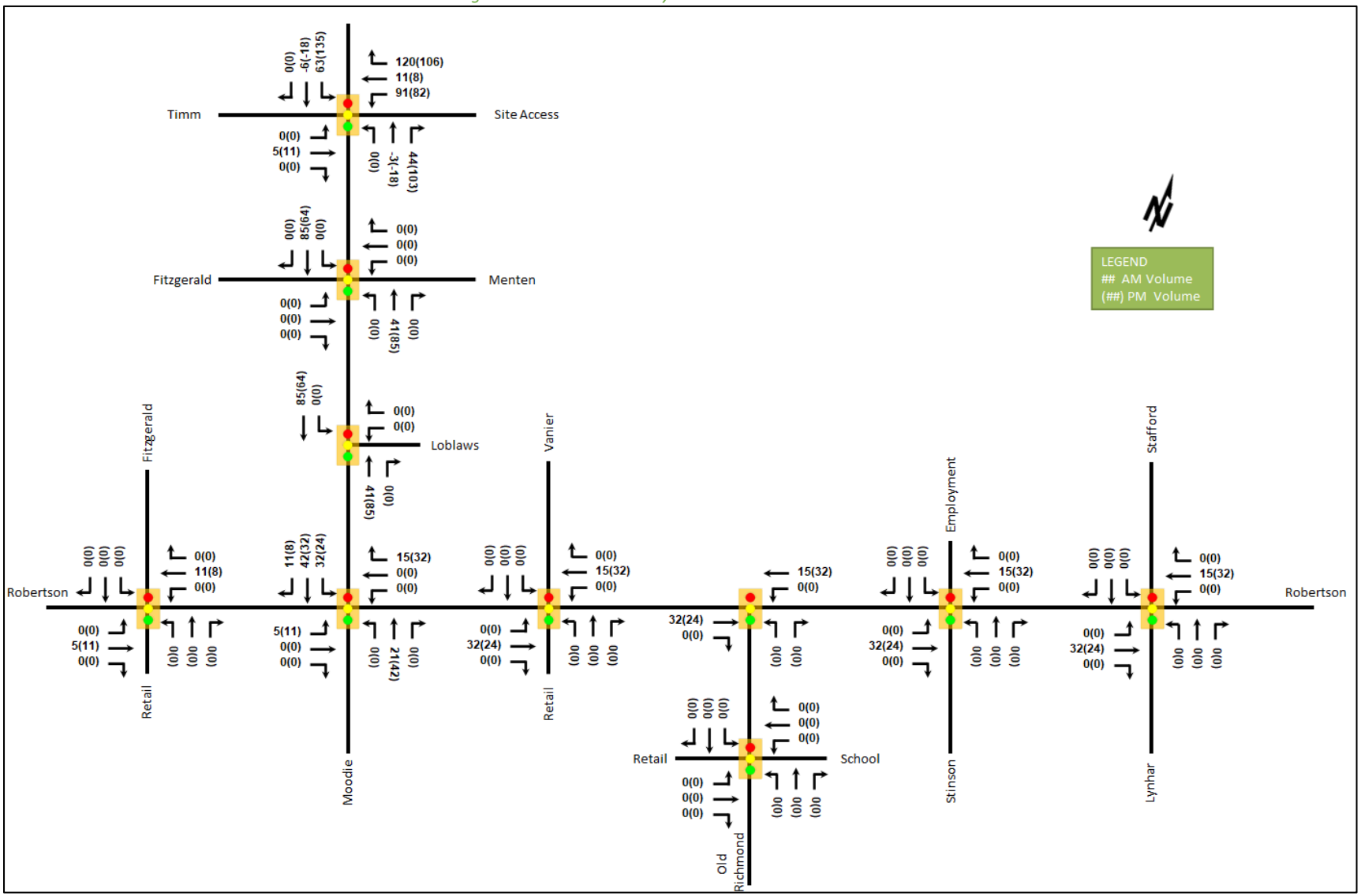
5.3 Trip Assignment

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 20 summarizes the proportional assignment to the study area roadways, and Figure 12 illustrates the new and pass-by site generated volumes.

Table 20: Trip Assignment

To/From	Via
North	25% Moodie Dr (N)
South	5% Moodie Dr (S)
East	25% Moodie Dr (N) 15% Moodie Dr (S) 15% Robertson Rd (E)
West	5% Moodie Dr (N) 5% Timm Dr (W) 5% Robertson Rd (W)
Total	**100%**

Figure 12: New and Pass-By Site Generation Auto Volumes



6 Background Network Travel Demands

6.1 Transportation Network Plans

The transportation network plans were discussed in Section 2.3. None of the listed projects are considered to have any notable impact on the intersection approach configurations or area operations.

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. Examining the existing volumes to determine the amount of growth remaining to reach the 2031 segment volumes, these derived annual rates will be directionally applied to the appropriate study area mainline arterial volumes. The identified rates will be applied in the AM peak hour and reversed in the PM peak hour, each rounded to the nearest 0.25%. Table 21 summarizes the growth rates applied within the study area. The TRANS model plots are provided in Appendix E.

Table 21: TRANS Regional Model Projections – Study Area Growth Rates

Street	AM Peak Hour		PM Peak Hour	
	Eastbound	**Westbound**	**Eastbound**	**Westbound**
Timm Dr	-	-	-	-
Robertson Rd	-	-	-	-
	Northbound	**Southbound**	**Northbound**	**Southbound**
Moodie Dr	-	3.00%	3.00%	-

6.3 Other Developments

The background developments explicitly considered in the background conditions (Section 6.2) include:

- 2165 Robertson
- 300 Moodie Drive
- 2015 Robertson

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

7 Demand Rationalization

7.1 2029 Future Background Operations

Figure 13 illustrates the 2029 background volumes and Table 22 summarizes the 2029 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. The synchro worksheets for the 2029 future background horizon are provided in Appendix G

Figure 13: 2029Future Background Volumes

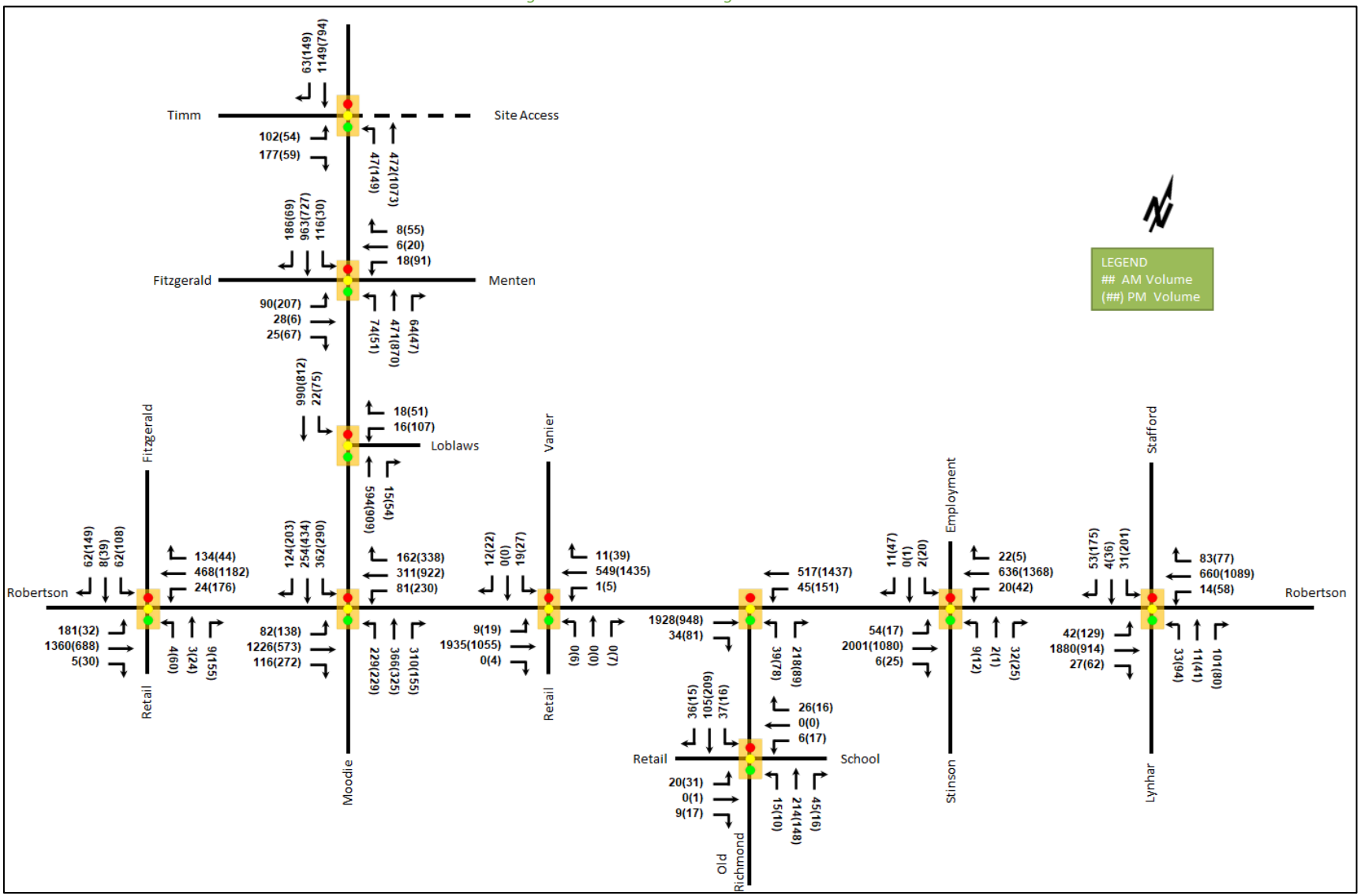


Table 22: 2029 Future Background Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Timm Drive at Moodie Drive *Signalized*	EBL	A	0.44	37.1	27.3	A	0.23	29.2	15.6
	EBR	A	0.50	10.7	16.3	A	0.22	10.6	9.1
	NBL	A	0.15	4.3	3.6	A	0.31	7.7	15.6
	NBT	A	0.20	3.5	11.2	A	0.43	8.9	77.2
	SBT	A	0.57	12.0	87.2	A	0.45	12.5	52.8
	SBR	A	0.07	3.4	5.8	A	0.17	2.8	8.5
	Overall	**A**	**0.55**	**10.7**	-	**A**	**0.47**	**10.2**	-
Fitzgerald Road / Menten Place at Moodie Drive *Signalized*	EBL	A	0.39	31.8	19.8	B	0.66	32.2	35.5
	EBT/R	A	0.18	16.4	9.9	A	0.17	6.1	7.3
	WBL	A	0.08	24.2	6.0	A	0.29	20.9	16.5
	WBT/R	A	0.05	16.1	4.2	A	0.17	8.1	8.5
	NBL	A	0.27	11.5	18.1	A	0.18	12.1	11.6
	NBT/R	A	0.23	5.9	32.6	A	0.48	11.1	65.3
	SBL	A	0.20	12.7	m24.5	A	0.11	2.4	m0.5
	SBT/R	A	0.50	11.6	86.5	A	0.42	2.6	3.5
	Overall	**A**	**0.50**	**11.3**	-	**A**	**0.54**	**10.0**	-
Loblaws Access at Moodie Drive *Signalized*	WBL	A	0.11	43.1	9.2	A	0.41	37.1	26.5
	WBR	A	0.11	19.4	6.5	A	0.19	9.7	7.8
	NBT	A	0.21	2.2	16.8	A	0.36	6.1	59.8
	NBR	A	0.01	1.1	1.1	A	0.05	2.2	4.5
	SBL	A	0.04	2.5	2.2	A	0.19	7.6	14.3
	SBT	A	0.35	2.7	31.5	A	0.32	5.8	51.6
	Overall	**A**	**0.36**	**3.1**	-	**A**	**0.39**	**7.7**	-
Robertson Road at Fitzgerald Road *Signalized*	EBL	A	0.35	12.3	40.8	A	0.15	17.6	10.7
	EBT/R	A	0.58	12.5	142.1	A	0.39	16.4	70.2
	WBL	A	0.09	5.2	m5.6	A	0.38	7.5	m12.8
	WBT/R	A	0.26	5.3	40.6	A	0.53	6.3	40.3
	NBL	A	0.03	44.0	4.0	A	0.36	46.3	24.6
	NBT/R	A	0.06	26.1	6.1	A	0.45	12.4	23.3
	SBL	A	0.38	55.9	26.7	B	0.64	60.9	41.7
	SBT/R	A	0.30	16.1	14.3	A	0.52	26.0	41.1
	Overall	**A**	**0.56**	**11.9**	-	**A**	**0.59**	**14.1**	-
Robertson Road at Moodie Drive *Signalized*	EBL	B	0.63	**92.2**	**m#49.0**	C	0.75	72.7	**#61.6**
	EBT	D	0.88	34.4	**#210.8**	A	0.53	38.9	78.8
	EBR	A	0.17	1.1	2.3	A	0.42	11.4	30.7
	WBL	B	0.62	**87.5**	**#48.4**	D	0.84	70.8	**#96.1**
	WBT	A	0.24	24.2	20.3	C	0.73	40.1	**#139.7**
	WBR	A	0.23	8.3	15.1	A	0.44	8.0	20.3
	NBL	B	0.66	64.7	42.1	C	0.76	69.8	**#44.1**
	NBT	B	0.65	54.5	57.8	A	0.52	45.2	46.7
	NBR	D	0.84	46.9	72.8	A	0.38	8.3	15.8
	SBL	D	0.89	**80.7**	**#74.0**	E	0.94	**92.5**	**#61.8**
	SBT	A	0.42	47.6	41.0	B	0.67	49.3	62.3
	SBR	A	0.33	7.4	12.5	A	0.45	8.2	17.8
	Overall	**D**	**0.83**	**43.4**	-	**C**	**0.79**	**42.2**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Robertson Road at Vanier Road *Signalized*	EBL	A	0.01	5.3	m0.9	A	0.11	26.4	m7.9
	EBT/R	B	0.67	10.8	150.2	A	0.42	21.2	m153.2
	WBL	A	0.01	8.0	m0.6	A	0.02	8.2	m0.6
	WBT/R	A	0.20	5.0	56.6	A	0.59	8.6	36.6
	NB	-	-	-	-	A	0.07	0.7	0.0
	SB	A	0.13	1.2	0.0	A	0.21	3.0	1.7
	Overall	**B**	**0.69**	**9.4**	**-**	**A**	**0.54**	**13.7**	**-**
Robertson Road at Old Richmond Road *Signalized*	EBT/R	D	0.86	70.1	**#316.9**	A	0.49	6.8	8.4
	WBL	A	0.34	27.2	15.7	A	0.41	11.4	24.8
	WBT	A	0.21	4.6	26.2	A	0.57	7.8	79.4
	NBL	A	0.18	48.8	18.4	A	0.35	49.2	29.2
	NBR	C	0.80	52.0	57.2	A	0.33	11.6	13.4
	Overall	**D**	**0.82**	**55.5**	**-**	**A**	**0.57**	**8.9**	**-**
Robertson Road at Stinson Avenue *Signalized*	EBL	A	0.12	2.5	m1.4	A	0.15	4.8	m0.7
	EBT/R	D	0.85	9.1	25.3	A	0.59	7.8	12.1
	WBL	A	0.35	21.9	7.6	A	0.23	25.4	m12.6
	WBT/R	A	0.29	2.7	8.7	C	0.72	40.3	190.8
	NB	A	0.14	26.0	14.6	A	0.08	18.2	11.6
	SB	A	0.05	8.2	3.6	A	0.14	15.7	15.9
	Overall	**B**	**0.69**	**7.8**	**-**	**A**	**0.49**	**25.3**	**-**
Robertson Road at Stafford Road / Lynhar Road *Signalized*	EBL	A	0.40	48.9	m12.4	A	0.52	52.3	49.4
	EBT	C	0.74	10.4	116.6	A	0.50	16.1	48.1
	EBR	A	0.02	0.2	m0.0	A	0.07	1.0	0.0
	WBL	A	0.16	62.7	10.3	A	0.44	62.3	26.0
	WBT/R	A	0.33	8.4	58.1	C	0.76	31.3	156.1
	NBL	A	0.28	60.5	17.8	A	0.45	46.1	32.0
	NBT	A	0.07	53.3	8.2	A	0.19	47.7	19.0
	NBR	A	0.45	16.5	16.0	A	0.27	2.4	0.6
	SBL	A	0.30	61.5	16.9	D	0.87	79.0	**#83.2**
	SBT	A	0.03	52.0	4.3	A	0.17	47.2	17.2
	SBR	A	0.27	7.6	5.7	A	0.53	13.0	19.7
	Overall	**C**	**0.72**	**12.0**	**-**	**C**	**0.77**	**29.7**	**-**
Bells Corners Public School Access / Mall Access at Old Richmond Road *Signalized*	EB	A	0.07	6.8	4.4	A	0.12	8.1	6.9
	WB	A	0.07	5.9	4.3	A	0.08	7.4	5.0
	NB	A	0.48	11.3	25.3	A	0.30	9.1	16.2
	SB	A	0.35	9.6	16.7	A	0.43	10.9	22.6
	Overall	**A**	**0.26**	**10.1**	**-**	**A**	**0.26**	**9.8**	**-**

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

During both the AM and PM peak hours at the 2029 future background horizon, the study area intersections operate similarly to the existing conditions. Operations are anticipated to improve with the peak hour factor of 1.00 for forecasted conditions, and no new capacity issues are noted.

7.2 2034 Future Background Operations

Figure 14 illustrates the 2034 background volumes and Table 23 summarizes the 2034 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. The synchro worksheets for the 2034 future background horizon are provided in Appendix H.

Figure 14: 2034 Future Background Volumes

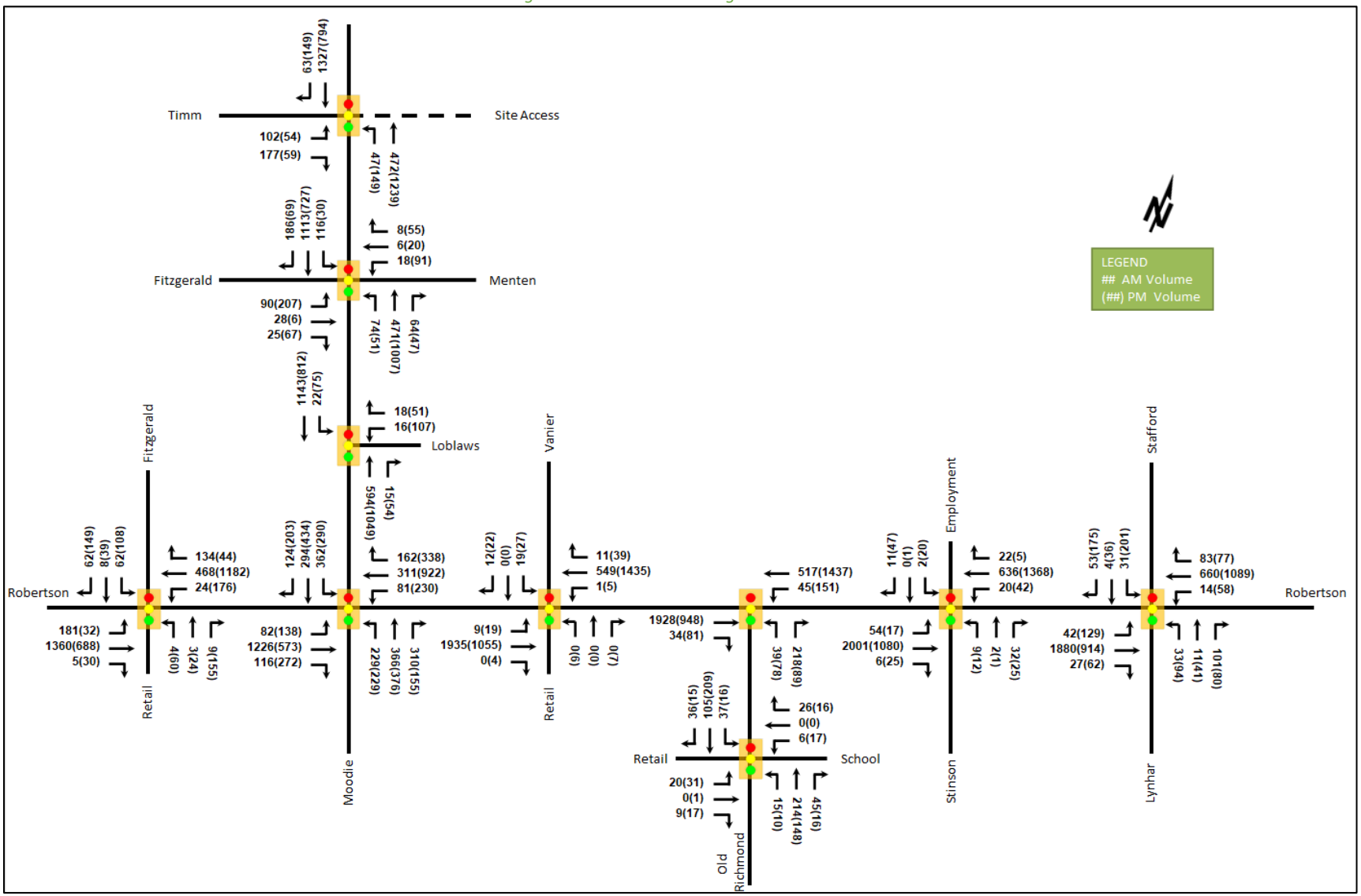


Table 23: 2034 Future Background Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Timm Drive at Moodie Drive *Signalized*	EBL	A	0.44	37.1	27.3	A	0.23	29.2	15.6
	EBR	A	0.51	12.5	18.1	A	0.22	10.6	9.1
	NBL	A	0.18	5.6	3.6	A	0.31	7.6	13.7
	NBT	A	0.20	3.5	11.2	A	0.50	10.0	91.0
	SBT	B	0.66	13.6	109.6	A	0.45	12.5	52.8
	SBR	A	0.07	4.1	6.4	A	0.17	2.8	8.5
	Overall	**B**	**0.62**	**12.0**	-	**A**	**0.54**	**10.7**	-
Fitzgerald Road / Menten Place at Moodie Drive *Signalized*	EBL	A	0.39	31.8	19.8	B	0.66	32.2	35.5
	EBT/R	A	0.18	16.4	9.9	A	0.17	6.1	7.3
	WBL	A	0.08	24.2	6.0	A	0.29	20.9	16.5
	WBT/R	A	0.05	16.1	4.2	A	0.18	9.4	9.3
	NBL	A	0.33	14.2	21.2	A	0.18	12.1	11.6
	NBT/R	A	0.23	5.9	32.6	A	0.55	12.0	79.3
	SBL	A	0.20	13.2	m22.6	A	0.14	3.0	m0.5
	SBT/R	A	0.56	13.2	101.4	A	0.42	2.6	3.5
	Overall	**A**	**0.56**	**12.4**	-	**A**	**0.59**	**10.6**	-
Loblaws Access at Moodie Drive *Signalized*	WBL	A	0.11	43.1	9.2	A	0.41	37.1	26.5
	WBR	A	0.11	19.4	6.5	A	0.19	9.7	7.8
	NBT	A	0.21	2.2	16.8	A	0.42	6.6	72.6
	NBR	A	0.01	1.1	1.1	A	0.05	2.2	4.5
	SBL	A	0.04	2.5	2.2	A	0.22	8.5	15.4
	SBT	A	0.40	3.0	38.7	A	0.32	5.8	51.6
	Overall	**A**	**0.41**	**3.2**	-	**A**	**0.44**	**7.8**	-
Robertson Road at Fitzgerald Road *Signalized*	EBL	A	0.35	12.3	40.8	A	0.15	17.6	10.7
	EBT/R	A	0.58	12.5	142.1	A	0.39	16.4	70.2
	WBL	A	0.09	5.2	m5.6	A	0.38	7.5	m12.8
	WBT/R	A	0.26	5.3	40.6	A	0.53	6.3	40.3
	NBL	A	0.03	44.0	4.0	A	0.36	46.3	24.6
	NBT/R	A	0.06	26.1	6.1	A	0.45	12.4	23.3
	SBL	A	0.38	55.9	26.7	B	0.64	60.9	41.7
	SBT/R	A	0.30	16.1	14.3	A	0.52	26.0	41.1
	Overall	**A**	**0.56**	**11.9**	-	**A**	**0.59**	**14.1**	-
Robertson Road at Moodie Drive *Signalized*	EBL	B	0.63	**92.2**	**m#49.0**	C	0.75	72.7	**#61.6**
	EBT	D	0.88	34.4	**#210.8**	A	0.53	38.9	78.8
	EBR	A	0.17	1.1	2.3	A	0.42	11.4	30.7
	WBL	B	0.62	**87.5**	**#48.4**	D	0.84	70.8	**#96.1**
	WBT	A	0.24	24.2	20.3	C	0.73	40.1	**#139.7**
	WBR	A	0.23	8.3	15.1	A	0.44	8.0	20.3
	NBL	B	0.66	64.7	42.1	C	0.76	69.8	**#44.1**
	NBT	B	0.65	54.5	57.8	A	0.60	47.3	54.0
	NBR	D	0.84	46.9	72.8	A	0.38	8.3	15.8
	SBL	D	0.89	**80.7**	**#74.0**	E	0.94	**92.5**	**#61.8**
	SBT	A	0.49	49.0	46.8	B	0.67	49.3	62.3
	SBR	A	0.33	7.4	12.5	A	0.45	8.2	17.8
	Overall	**D**	**0.83**	**43.6**	-	**C**	**0.79**	**42.4**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Robertson Road at Vanier Road *Signalized*	EBL	A	0.01	5.3	m0.9	A	0.11	26.4	m7.9
	EBT/R	B	0.67	10.8	150.2	A	0.42	21.2	m153.2
	WBL	A	0.01	8.0	m0.6	A	0.02	8.2	m0.6
	WBT/R	A	0.20	5.0	56.6	A	0.59	8.6	36.6
	NB	-	-	-	-	A	0.07	0.7	0.0
	SB	A	0.13	1.2	0.0	A	0.21	3.0	1.7
	Overall	**B**	**0.69**	**9.4**	**-**	**A**	**0.54**	**13.7**	**-**
Robertson Road at Old Richmond Road *Signalized*	EBT/R	D	0.86	70.1	**#316.9**	A	0.49	6.8	8.4
	WBL	A	0.34	27.2	15.7	A	0.41	11.4	24.8
	WBT	A	0.21	4.6	26.2	A	0.57	7.8	79.4
	NBL	A	0.18	48.8	18.4	A	0.35	49.2	29.2
	NBR	C	0.80	52.0	57.2	A	0.33	11.6	13.4
	Overall	**D**	**0.82**	**55.5**	**-**	**A**	**0.57**	**8.9**	**-**
Robertson Road at Stinson Avenue *Signalized*	EBL	A	0.12	2.5	m1.4	A	0.15	4.8	m0.7
	EBT/R	D	0.85	9.1	25.3	A	0.59	7.8	12.1
	WBL	A	0.35	21.9	7.6	A	0.23	25.4	m12.6
	WBT/R	A	0.29	2.7	8.7	C	0.72	40.3	190.8
	NB	A	0.14	26.0	14.6	A	0.08	18.2	11.6
	SB	A	0.05	8.2	3.6	A	0.14	15.7	15.9
	Overall	**B**	**0.69**	**7.8**	**-**	**A**	**0.49**	**25.3**	**-**
Robertson Road at Stafford Road / Lynhar Road *Signalized*	EBL	A	0.40	48.9	m12.4	A	0.52	52.3	49.4
	EBT	C	0.74	10.4	116.6	A	0.50	16.1	48.1
	EBR	A	0.02	0.2	m0.0	A	0.07	1.0	0.0
	WBL	A	0.16	62.7	10.3	A	0.44	62.3	26.0
	WBT/R	A	0.33	8.4	58.1	C	0.76	31.3	156.1
	NBL	A	0.28	60.5	17.8	A	0.45	46.1	32.0
	NBT	A	0.07	53.3	8.2	A	0.19	47.7	19.0
	NBR	A	0.45	16.5	16.0	A	0.27	2.4	0.6
	SBL	A	0.30	61.5	16.9	D	0.87	79.0	**#83.2**
	SBT	A	0.03	52.0	4.3	A	0.17	47.2	17.2
	SBR	A	0.27	7.6	5.7	A	0.53	13.0	19.7
	Overall	**C**	**0.72**	**12.0**	**-**	**C**	**0.77**	**29.7**	**-**
Bells Corners Public School Access / Mall Access at Old Richmond Road *Signalized*	EB	A	0.07	6.8	4.4	A	0.12	8.1	6.9
	WB	A	0.07	5.9	4.3	A	0.08	7.4	5.0
	NB	A	0.48	11.3	25.3	A	0.30	9.1	16.2
	SB	A	0.35	9.6	16.7	A	0.43	10.9	22.6
	Overall	**A**	**0.26**	**10.1**	**-**	**A**	**0.26**	**9.8**	**-**

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

During both the AM and PM peak hours at the 2034 future background horizon, the study area intersections operate similarly to the 2029 future background conditions. No capacity issues are noted.

7.3 Modal Share Sensitivity and Demand Rationalization Conclusions

Delay and queuing are noted at the intersection of Robertson Road and Moodie Drive, however residual capacity is present at the intersection. As this development is targeted for a transit and this residual capacity exists, rationalization for adjusted demand is not required for this TIA.

8 Transportation Demand Management

8.1 Context for TDM

The mode shares used within the TIA represent the unmodified average district mode shares. Overall, the average district modal shares may be achieved in the absence of a TDM program, however strong measures which capitalize on the proximity of the development to Moodie Station on the LRT Confederation Line should be provided.

The subject site is not within a design priority area, the total bedroom count within the development is subject to the final unit breakdown, and no age restrictions are noted.

8.2 Need and Opportunity

The subject site has been assumed to rely predominantly on auto travel with a level of transit ridership on par with the neighbouring communities withing the TRANS district with the proximity to the future LRT station, and those assumptions have been carried through the analysis. The study area intersections are anticipated to have residual capacity and the level of transit ridership is achievable.

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 I. The key TDM measures recommended include:

- Designate an internal TDM program coordinator or contract with an external coordinator
- Display local area maps with walking/cycling routes and key destinations at major entrances
- Display local area transit maps and route schedules at major entrances
- Contract with provider to install on-site bikeshare station if available
- Inclusion of a 1-year Presto card for first time new condo purchase or apartment rental, with a set time frame for this offer (e.g. 6-months) from the initial opening of the site
- Contract with provider to install on-site carshare vehicles and promote their use by residents
- Provide a multi-modal travel option information package to new residents/employees
- Provide online links to OC Transpo and STO information for the commercial component employees
- Provide a dedicated ridematching portal for the commercial component employees
- Unbundle parking cost from purchase or rental costs

9 Neighbourhood Traffic Management

The proposed development will connect to the arterial road network at Moodie Drive via a proposed new east leg of Timm Drive which is proposed as being a collector road. The TIA Guidelines prescribe threshold of 2,500 vehicles per day or 300 vehicles during the peak hour for collector roadways, equivalent to 5 cars per minute, which per City guidance are to be interpreted as two-way volumes.

The forecasted volumes on this leg of the intersection at full build-out are anticipated to be in the range of 334 - 445 two-way vehicles per peak hour. These volumes exceed the TIA thresholds by 11%-48%.

In general, the TIA thresholds are too low for collector roadways of this nature, and the thresholds may be considered more appropriately as one-way volumes. The classification of the future roadway as a collector roadway is considered to be appropriate.

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 24 summarizes the transit trip generation.

Table 24: Trip Generation by Transit Mode

Travel Mode	Res. Mode Share AM(PM)	AM Peak Period			PM Peak Period		
		In	Out	Total	In	Out	Total
Transit	**38%(33%)**	101	222	323	159	116	275

The proposed development is anticipated to generate an additional 323 AM peak hour transit trips and 275 PM peak hour transit trips. Of these trips, 222 outbound AM trips and 159 inbound PM trips are anticipated. From the trip distribution found in Section 5.2, these values can be further broken down.

Site-generated outbound AM peak hour trips break down to 56 trips to the north, 11 trips to the south, 122 trips to the east, and 33 trips to the west. Site-generated inbound PM peak hour trips break down to 40 trips from the north, eight trips from the south, 87 trips from the east, and 24 trips from the west.

It is assumed that the site trips to and from the north and a majority of site trips to and from the east will be made via a connection to Moodie Station LRT line, with the remainder of trips to and from the east made via bus lines travelling along Robertson Road. Trips to and from the west, based upon the existing transit network, can be made via the Robertson Road corridor or via a connection to the Moodie Station BRT line, and trips to and from the south are assumed as being made via the Robertson Road corridor to the west of the site.

Site buildings are between 400 and 800 metres-walk to the intersection of Timm Drive and Moodie Drive, and 350 metres to 850 metres-walk to existing transit along Robertson Road via a proposed MUP on the east side of the development. Four bus routes accessing Moodie Station presently pass the proposed site access on Moodie Drive in the peak period/direction.

It is anticipated that 140-175 AM peak hour trips and 100-125 PM peak hour trips will travel via Moodie Station. Depending on a number of factors at build-out, including planned routes and average loads, between three standard buses and two double-decker buses in the AM peak hour and between two standard buses and two articulated buses in the PM peak hour connecting to Moodie Station are forecasted to be required to service the site.

Along Robertson Road, 35-60 AM peak hour trips and 25-45 PM peak hour trips east, and 15-30 AM peak hour trips and 10-20 PM peak hour trips west are anticipated as a result of the subject development. Based upon those same factors at build-out, one additional standard bus in each direction may be required to service the transit demand from the subject site.

10.2 Transit Priority

The site does not propose a driveway onto the isolated measures transit priority corridor along Robertson Road. Site traffic is not anticipated to materially increase queuing in the right-turn lanes which continue as transit queue jumps. Delays to and from the transit priority corridor are not substantially affected by the forecasted increase in traffic from the subject development and do not change the transit LOS of these movements.

11 Network Concept

A screenline analysis was conducted on TRANS Screenline 11 to determine the total capacities of the roadways without and without the study area. Table 35 summarizes the results of the screenline analysis. The relevant data were provided by the City of Ottawa for TRANS Screenline 11, and are provided in Appendix J.

Table 25: Peak Directional Screenline Analysis

Screenline 11	Roadways	Lane Capacity [vphpl]	Lanes per Direction	Capacity [vph]	Background Volumes	Site Traffic	Total Traffic
Eastbound	Robertson Rd	800	2	1,600	1,769	32	1,799
	Carling Ave	1,000	2	2,000	1,125	0	1,125
	Hwy 417	1,800	3	5,400	5,439	105	5,544
	Corkstown Rd	800	1	800	137	0	137
	Total	**-**	**8**	**9,800**	**8,470**	**137**	**8,605**
Westbound	Robertson Rd	800	2	1,600	972	15	987
	Carling Ave	1,000	2	2,000	843	0	843
	Hwy 417	1,800	3	5,400	4,604	52	4,656
	Corkstown Rd	800	1	800	82	0	82
	Total	**-**	**8**	**9,800**	**6,501**	**67**	**6,568**

The background trips are anticipated to exceed the theoretical capacities of the two of the existing roadways, Highway 417 and Robertson Road. The overall theoretical capacity of the screenline, however, is not exceeded by either the background or total volumes.

The increase in volumes from the site over the existing screenline roadway volumes are forecasted to be 1.7% on Robertson Road eastbound and 1.9% on Highway 417. Should these roadways not prove to have realized capacity to accommodate the increase in volumes of less than 2% from site generated traffic, it is anticipated that a portion of the existing traffic currently using these roadways will instead use Carling Avenue, whose volumes constitute only 56.3% of existing theoretical capacity.

It should be noted that these capacities are only theoretical, and that these links may be able to accommodate traffic beyond these values. For example, through analyzing v/c ratios in the AM peak hour on the eastbound through movements of Robertson Road, it can be seen that the examined corridor is operating with a LOS of D. While these results may not reflect the most critical points of consideration for a screenline analysis, they may point to additional capacity being available beyond the theoretical threshold of 1,800 vehicles.

With respect to the subject development, it is a priority to ensure the transit modal share is achieved and there is a minimized impact on the road network, despite residual capacity being available.

12 Network Intersection Design

12.1 Network Intersection Control

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

12.2 Network Intersection Design

12.2.1 2029 Future Total Network Intersection Operations

The 2029 future total intersection volumes are illustrated in Figure 15 and the 2029 future total network intersection operations are summarized below in Table 26. 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. The synchro worksheets have been provided in Appendix K.

Figure 15: 2029 Future Total Volumes

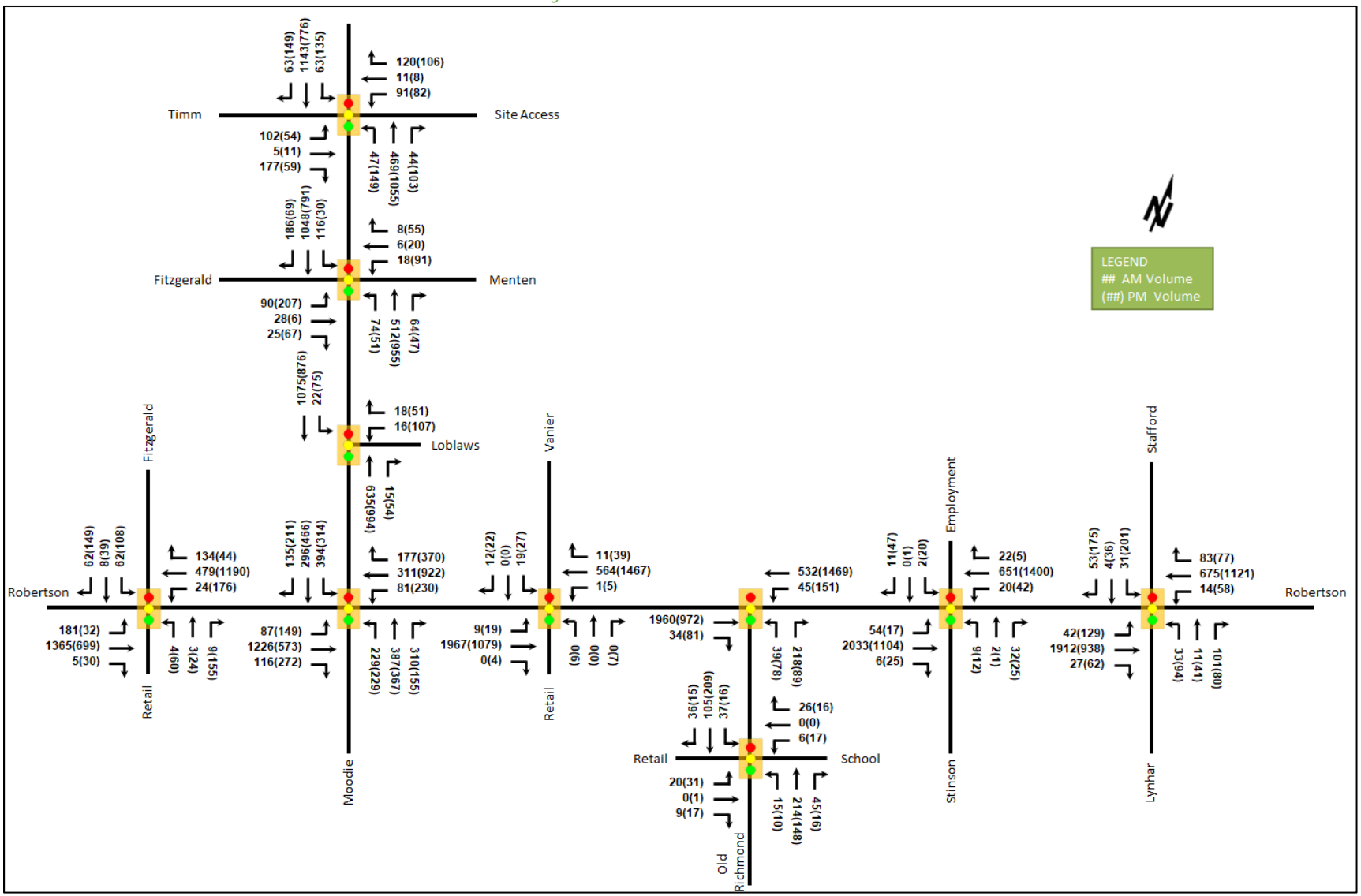


Table 26: 2029 Future Total Network Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Fitzgerald Road / Menten Place at Moodie Drive *Signalized*	EBL	A	0.39	31.8	19.8	B	0.66	32.2	35.5
	EBT/R	A	0.18	16.4	9.9	A	0.17	6.1	7.3
	WBL	A	0.08	24.2	6.0	A	0.29	20.9	16.5
	WBT/R	A	0.05	16.1	4.2	A	0.17	8.2	8.6
	NBL	A	0.30	12.8	19.6	A	0.20	12.6	12.0
	NBT/R	A	0.24	6.0	35.7	A	0.53	11.6	73.8
	SBL	A	0.21	13.9	m24.5	A	0.13	11.5	7.7
	SBT/R	A	0.53	13.7	107.9	A	0.46	10.7	59.8
	Overall	**A**	**0.53**	**12.6**	-	**A**	**0.57**	**13.2**	-
Loblaws Access at Moodie Drive *Signalized*	WBL	A	0.11	43.1	9.2	A	0.41	37.1	26.5
	WBR	A	0.11	19.4	6.5	A	0.19	9.7	7.8
	NBT	A	0.22	2.2	18.2	A	0.40	6.4	67.3
	NBR	A	0.01	1.1	1.1	A	0.05	2.2	4.5
	SBL	A	0.04	2.5	2.2	A	0.21	8.1	14.9
	SBT	A	0.38	2.8	35.4	A	0.35	6.0	57.0
	Overall	**A**	**0.39**	**3.1**	-	**A**	**0.42**	**7.8**	-
Robertson Road at Fitzgerald Road *Signalized*	EBL	A	0.35	12.3	41.1	A	0.15	17.6	10.7
	EBT/R	A	0.58	12.5	142.8	A	0.39	16.5	71.5
	WBL	A	0.09	5.1	m5.5	A	0.38	7.6	m12.6
	WBT/R	A	0.26	5.3	40.7	A	0.54	6.4	41.0
	NBL	A	0.03	44.0	4.0	A	0.36	46.3	24.6
	NBT/R	A	0.06	26.1	6.1	A	0.45	12.4	23.3
	SBL	A	0.38	55.9	26.7	B	0.64	60.9	41.7
	SBT/R	A	0.30	16.1	14.3	A	0.52	26.6	41.5
	Overall	**A**	**0.56**	**11.9**	-	**A**	**0.59**	**14.2**	-
Robertson Road at Moodie Drive *Signalized*	EBL	B	0.64	**91.3**	**m#54.0**	C	0.77	73.7	**#68.4**
	EBT	D	0.89	35.5	**#210.5**	A	0.54	39.5	79.0
	EBR	A	0.17	1.2	2.4	A	0.42	11.6	30.8
	WBL	B	0.62	**86.8**	**#48.4**	D	0.84	70.9	**#96.3**
	WBT	A	0.24	24.8	20.2	C	0.75	41.2	**#139.7**
	WBR	A	0.25	8.5	17.9	A	0.49	9.0	22.5
	NBL	B	0.66	64.7	42.1	C	0.76	69.8	**#44.1**
	NBT	B	0.67	55.0	61.0	A	0.57	46.1	52.7
	NBR	D	0.83	45.8	73.1	A	0.38	8.2	15.8
	SBL	E	0.97	**93.1**	**#83.6**	**F**	**1.02**	**109.8**	**#68.9**
	SBT	A	0.48	48.4	47.3	B	0.70	49.9	66.8
	SBR	A	0.35	8.8	15.5	A	0.46	8.1	18.2
	Overall	**D**	**0.85**	**45.4**	-	**D**	**0.82**	**44.2**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Robertson Road at Vanier Road *Signalized*	EBL	A	0.01	5.2	m1.0	A	0.11	26.7	m7.8
	EBT/R	B	0.68	11.4	m152.9	A	0.43	21.6	m153.3
	WBL	A	0.02	7.0	m0.6	A	0.02	7.6	m0.6
	WBT/R	A	0.21	5.1	58.5	A	0.60	8.8	36.6
	NB	-	-	-	-	A	0.07	0.7	0.0
	SB	A	0.13	1.2	0.0	A	0.21	3.0	1.7
	Overall	**B**	**0.70**	**9.8**	**-**	**A**	**0.55**	**13.9**	**-**
Robertson Road at Old Richmond Road *Signalized*	EBT/R	D	0.87	70.9	**#326.2**	A	0.50	6.5	11.3
	WBL	A	0.35	29.1	16.2	A	0.41	11.9	25.0
	WBT	A	0.22	4.6	27.0	A	0.58	8.2	84.0
	NBL	A	0.18	48.7	18.4	A	0.35	49.2	29.2
	NBR	C	0.80	52.4	57.5	A	0.33	11.6	13.4
	Overall	**D**	**0.84**	**56.0**	**-**	**A**	**0.58**	**9.0**	**-**
Robertson Road at Stinson Avenue *Signalized*	EBL	A	0.12	2.4	m1.4	A	0.16	4.6	m0.7
	EBT/R	D	0.87	9.5	25.3	A	0.59	7.4	11.8
	WBL	A	0.38	27.1	**#10.3**	A	0.22	25.0	m12.4
	WBT/R	A	0.29	2.7	8.7	C	0.72	40.2	192.2
	NB	A	0.14	26.8	14.8	A	0.08	18.7	11.7
	SB	A	0.05	8.2	3.6	A	0.14	16.1	16.1
	Overall	**B**	**0.70**	**8.1**	**-**	**A**	**0.50**	**25.1**	**-**
Robertson Road at Stafford Road / Lynhar Road *Signalized*	EBL	A	0.40	48.2	m12.2	A	0.52	52.7	49.3
	EBT	C	0.75	10.9	121.1	A	0.51	16.3	57.5
	EBR	A	0.02	0.2	m0.0	A	0.07	0.9	0.0
	WBL	A	0.16	62.7	10.3	A	0.44	62.3	26.0
	WBT/R	A	0.33	8.5	59.6	C	0.78	32.1	162.6
	NBL	A	0.28	60.5	17.8	A	0.45	46.1	32.0
	NBT	A	0.07	53.3	8.2	A	0.19	47.7	19.0
	NBR	A	0.45	16.5	16.0	A	0.27	2.4	0.6
	SBL	A	0.30	61.5	16.9	D	0.87	79.0	**#83.2**
	SBT	A	0.03	52.0	4.3	A	0.17	47.2	17.2
	SBR	A	0.27	7.6	5.7	A	0.53	13.0	19.7
	Overall	**C**	**0.73**	**12.3**	**-**	**C**	**0.78**	**30.1**	**-**
Bells Corners Public School Access / Mall Access at Old Richmond Road *Signalized*	EB	A	0.07	6.8	4.4	A	0.12	8.1	6.9
	WB	A	0.07	5.9	4.3	A	0.08	7.4	5.0
	NB	A	0.48	11.3	25.3	A	0.30	9.1	16.2
	SB	A	0.35	9.6	16.7	A	0.43	10.9	22.6
	Overall	**A**	**0.26**	**10.1**	**-**	**A**	**0.26**	**9.8**	**-**

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

The network intersection operations for the 2029 future total horizon generally operate similarly to the 2029 future background conditions.

During the AM peak hour, the westbound left movement at the intersection of Robertson Road and Stinson Avenue may exhibit extended queues at this horizon.

During the PM peak hour at the intersection of Robertson Road and Moodie Drive, the southbound left movement is forecasted to be over theoretical capacity at this horizon. As residual capacity exists in the other movements, mitigation through signal timing optimization is possible, and these operations are summarized in Table 27.

Table 27: 2029 Future Total Mitigated Intersection Operations

Intersection	Lane	PM Peak Hour			
		LOS	V/C	Delay	Q (95th)
Robertson Road at Moodie Drive *Signalized*	EBL	C	0.77	73.7	**#68.4**
	EBT	A	0.55	41.7	81.1
	EBR	A	0.42	12.7	32.4
	WBL	D	0.84	70.7	**#96.3**
	WBT	C	0.76	43.1	**#143.4**
	WBR	A	0.49	9.0	23.2
	NBL	C	0.72	65.6	40.4
	NBT	A	0.58	46.4	52.7
	NBR	A	0.38	8.3	15.8
	SBL	E	0.94	**89.2**	**#65.5**
	SBT	B	0.70	49.9	66.8
	SBR	A	0.46	8.1	18.2
	Overall	**D**	**0.82**	**43.2**	**-**

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

With signal timing optimization, the intersection of Robertson Road and Moodie Drive is forecasted to operate similarly to the 2029 future background conditions.

12.2.2 2034 Future Total Network Intersection Operations

The 2034 future total intersection volumes are illustrated in Figure 16 and the 2034 future total network intersection operations, which includes signal timing optimization at the intersection of Robertson Road and Moodie Drive in the PM peak hour, are summarized below in Table 28. 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. The synchro worksheets have been provided in Appendix L.

Figure 16: 2034 Future Total Volumes

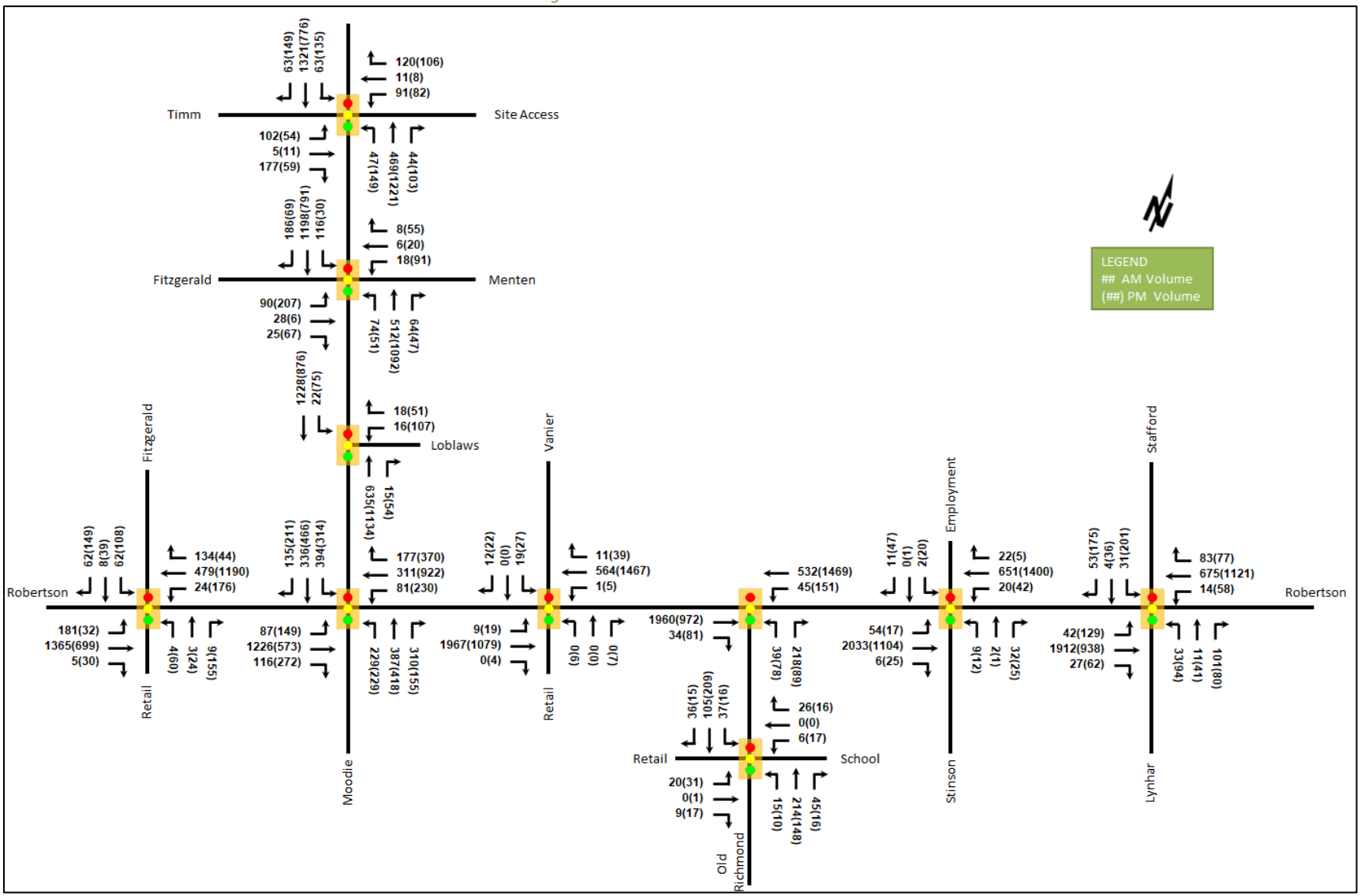


Table 28: 2034 Future Total Network Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Fitzgerald Road / Menten Place at Moodie Drive *Signalized*	EBL	A	0.39	31.8	19.8	B	0.66	32.2	35.5
	EBT/R	A	0.18	16.4	9.9	A	0.17	6.1	7.3
	WBL	A	0.08	24.2	6.0	A	0.29	20.9	16.5
	WBT/R	A	0.05	16.1	4.2	A	0.18	11.6	10.4
	NBL	A	0.37	17.1	**#26.5**	A	0.20	12.6	12.0
	NBT/R	A	0.24	6.0	35.7	A	0.60	12.8	88.8
	SBL	A	0.21	14.0	m21.8	A	0.16	12.7	8.3
	SBT/R	A	0.59	15.0	120.0	A	0.46	10.7	59.8
	Overall	**A**	**0.59**	**13.6**	-	**B**	**0.62**	**13.7**	-
Loblaws Access at Moodie Drive *Signalized*	WBL	A	0.11	43.1	9.2	A	0.41	37.1	26.5
	WBR	A	0.11	19.4	6.5	A	0.19	9.7	7.8
	NBT	A	0.22	2.2	18.2	A	0.45	6.9	81.4
	NBR	A	0.01	1.1	1.1	A	0.05	2.2	4.5
	SBL	A	0.04	2.5	2.2	A	0.25	9.2	16.4
	SBT	A	0.43	3.3	43.3	A	0.35	6.0	57.0
	Overall	**A**	**0.44**	**3.4**	-	**A**	**0.47**	**8.0**	-
Robertson Road at Fitzgerald Road *Signalized*	EBL	A	0.35	12.3	41.1	A	0.15	17.6	10.7
	EBT/R	A	0.58	12.5	142.8	A	0.39	16.5	71.5
	WBL	A	0.09	5.1	m5.5	A	0.38	7.1	m12.0
	WBT/R	A	0.26	5.3	40.7	A	0.54	5.8	39.1
	NBL	A	0.03	44.0	4.0	A	0.36	46.3	24.6
	NBT/R	A	0.06	26.1	6.1	A	0.45	12.4	23.3
	SBL	A	0.38	55.9	26.7	B	0.64	60.9	41.7
	SBT/R	A	0.30	16.1	14.3	A	0.52	26.6	41.5
	Overall	**A**	**0.56**	**11.9**	-	**A**	**0.59**	**13.9**	-
Robertson Road at Moodie Drive *Signalized*	EBL	B	0.64	**91.3**	**m#54.0**	C	0.77	73.7	**#68.4**
	EBT	D	0.89	35.5	**#210.5**	A	0.55	41.8	81.1
	EBR	A	0.17	1.2	2.4	A	0.43	12.7	32.4
	WBL	B	0.62	**86.8**	**#48.4**	D	0.84	70.9	**#96.3**
	WBT	A	0.24	24.8	20.2	C	0.77	43.3	**#143.4**
	WBR	A	0.25	8.5	17.9	A	0.50	9.8	24.0
	NBL	B	0.66	64.7	42.1	C	0.72	65.6	40.4
	NBT	B	0.67	55.0	61.0	B	0.65	48.4	60.1
	NBR	D	0.83	45.8	73.1	A	0.38	8.2	15.8
	SBL	E	0.97	**93.1**	**#83.6**	E	0.94	**89.2**	**#65.5**
	SBT	A	0.54	49.8	53.5	B	0.70	49.5	66.8
	SBR	A	0.35	8.8	15.5	A	0.46	8.1	18.2
	Overall	**D**	**0.85**	**45.6**	-	**D**	**0.82**	**43.5**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Robertson Road at Vanier Road ***Signalized***	EBL	A	0.01	5.2	m1.0	A	0.11	27.0	m8.0
	EBT/R	B	0.68	11.4	m152.9	A	0.43	21.9	m156.6
	WBL	A	0.02	7.0	m0.6	A	0.02	7.6	m0.6
	WBT/R	A	0.21	5.1	58.5	A	0.60	8.8	36.6
	NB	-	-	-	-	A	0.07	0.7	0.0
	SB	A	0.13	1.2	0.0	A	0.21	3.0	1.7
	Overall	**B**	**0.70**	**9.8**	**-**	**A**	**0.55**	**14.0**	**-**
Robertson Road at Old Richmond Road ***Signalized***	EBT/R	D	0.87	70.9	**#326.2**	A	0.50	6.6	11.3
	WBL	A	0.35	29.1	16.2	A	0.41	11.9	25.0
	WBT	A	0.22	4.6	27.0	A	0.58	8.2	84.0
	NBL	A	0.18	48.7	18.4	A	0.35	49.2	29.2
	NBR	C	0.80	52.4	57.5	A	0.33	11.6	13.4
	Overall	**D**	**0.84**	**56.0**	**-**	**A**	**0.58**	**9.1**	**-**
Robertson Road at Stinson Avenue ***Signalized***	EBL	A	0.12	2.4	m1.4	A	0.16	4.6	m0.7
	EBT/R	D	0.87	9.5	25.3	A	0.59	7.4	11.8
	WBL	A	0.38	27.1	**#10.3**	A	0.22	25.0	m12.4
	WBT/R	A	0.29	2.7	8.7	C	0.72	40.2	192.2
	NB	A	0.14	26.8	14.8	A	0.08	18.7	11.7
	SB	A	0.05	8.2	3.6	A	0.14	16.1	16.1
	Overall	**B**	**0.70**	**8.1**	**-**	**A**	**0.50**	**25.1**	**-**
Robertson Road at Stafford Road / Lynhar Road ***Signalized***	EBL	A	0.40	48.2	m12.2	A	0.52	52.7	49.3
	EBT	C	0.75	10.9	121.1	A	0.51	16.3	57.5
	EBR	A	0.02	0.2	m0.0	A	0.07	0.9	0.0
	WBL	A	0.16	62.7	10.3	A	0.44	62.3	26.0
	WBT/R	A	0.33	8.5	59.6	C	0.78	32.1	162.6
	NBL	A	0.28	60.5	17.8	A	0.45	46.1	32.0
	NBT	A	0.07	53.3	8.2	A	0.19	47.7	19.0
	NBR	A	0.45	16.5	16.0	A	0.27	2.4	0.6
	SBL	A	0.30	61.5	16.9	D	0.87	79.0	**#83.2**
	SBT	A	0.03	52.0	4.3	A	0.17	47.2	17.2
	SBR	A	0.27	7.6	5.7	A	0.53	13.0	19.7
	Overall	**C**	**0.73**	**12.3**	**-**	**C**	**0.78**	**30.1**	**-**
Bells Corners Public School Access / Mall Access at Old Richmond Road ***Signalized***	EB	A	0.07	6.8	4.4	A	0.12	8.1	6.9
	WB	A	0.07	5.9	4.3	A	0.08	7.4	5.0
	NB	A	0.48	11.3	25.3	A	0.30	9.1	16.2
	SB	A	0.35	9.6	16.7	A	0.43	10.9	22.6
	Overall	**A**	**0.26**	**10.1**	**-**	**A**	**0.26**	**9.8**	**-**

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

The network intersection operations for the 2034 future total horizon operate similarly to the 2034 future background conditions.

The northbound left movement at the intersection of Fitzgerald Road/Menten Place and Moodie Drive may exhibit extended queues during the AM peak hour.

As in the 2029 future total conditions, the westbound left movement at the intersection of Robertson Road and Stinson Avenue is forecasted to exhibit extended queues during the PM peak hour at this horizon.

12.2.3 Network Intersection MMLOS

Table 29 summarizes the MMLOS analysis for the network intersections of Fitzgerald Road/Menten Place at Moodie Drive, Loblaws Access at Moodie Drive, Robertson Road at Fitzgerald Road, Robertson Road at Moodie Drive, Robertson Road at Vanier Road, Robertson Road at Old Richmond Road, Robertson Road at Stinson Avenue, Robertson Road at Stafford Road/Lynhar Road, and the Bells Corners Public School access at Old Richmond Road. The existing and future conditions for both intersections will be the same and are considered in one row. The intersection analysis is based on the policy area of "Within 300m of a school" for the intersections of Robertson Road at Old Richmond Road, Robertson Road at Stinson Road, and the Bells Corners Public School access at Old Richmond Road as these intersections are within this distance of Bell's Corners Public School. The analysis is based upon the land use designation of "Urban Employment Area" for the intersections of Fitzgerald Road/Menten Place at Moodie Drive and the Loblaws Access at Moodie Drive, and of "Arterial Mainstreet" for Robertson Road Fitzgerald Road, Robertson Road at Moodie Drive, Robertson Road at Vanier Road, and Robertson Road at Stafford Road/Lynhar Road. The MMLOS worksheets has been provided in Appendix M.

Table 29: 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
Fitzgerald Rd / Menten Pl at Moodie Dr	F	C	F	C	C	D	-	-	B	D
Loblaws Access at Moodie Dr	F	C	F	C	B	D	-	-	A	D
Robertson Rd at Fitzgerald Rd	F	C	F	B	C	D	-	-	A	D
Robertson Rd at Moodie Dr	F	C	F	B	F	D	B	D	D	D
Robertson Rd at Vanier Rd	F	C	F	B	D	D	-	-	B	D
Robertson Rd at Old Richmond Rd	F	A	F	A	F	D	-	-	D	E
Robertson Rd at Stinson Ave	F	A	F	A	F	D	-	-	B	E
Robertson Rd at Stafford Rd / Lynhar Rd	F	C	F	B	E	D	-	-	C	D
Bells Corners Public School / Mall Access at Old Richmond Rd	C	A	C	B	C	D	-	-	A	E

The MMLOS targets will not be met for the pedestrian and bicycle LOS at all network intersections and for the transit LOS at the intersections of Robertson Road at Moodie Drive, Robertson Road at Old Richmond Road, Robertson Road at Stinson Road, and Robertson Road at Stafford Road/Lynhar Road.

Pedestrian LOS is limited by crossing distances, especially on the arterial roadways. To meet LOS C, the pedestrian crossing distances can be no greater than three lane-widths in the absence of turn restrictions, and to meet LOS A, they can be no greater than two lane-widths. In the case of the east crossing at the intersection of the Bell's Corners Public School Access and Old Richmond Road, a high visibility crossing treatment would additionally be required to meet targets.

Cycling LOS is limited by the left-turn configurations at all but the intersections of Robertson Road at Moodie Drive and Robertson Road at Stafford Road/Lynhar Road. At these two intersections, all approaches with auxiliary right-turn lanes would require separated facilities. To meet bicycle LOS targets, left turns at network intersections from

all approaches on Moodie Drive, on Robertson Road, and on Old Richmond Road would require bike boxes or two-stage left turns. Additionally, the southbound approach at the intersection of Robertson Road and Fitzgerald Road, the northbound and southbound approaches at the intersection of Robertson Road at Stinson Avenue, and the southbound approach at the intersection of Robertson Road at Stafford Road/Lynhar Road would require bike boxes or two-stage left turns to meet targets.

The transit LOS will not be met due to the intersection delays on all transit approaches at the intersection of Robertson Road at Moodie Drive, the northbound approach at the intersection of Robertson Road at Old Richmond Road, the westbound through movements at the intersection of Robertson Road at Stinson Road and the intersection of Robertson Road at Stafford Road/Lynhar Road. The delays on these transit movement would need to be reduced to 30 seconds or less to meet area targets.

The City may wish to explore the alternative crossing treatment at the intersection of Bell's Corners Public School Access and Old Richmond Road, however the other crossings cannot meet targets without the geometric changes previously stated.

It is assumed that cycling conditions at the intersections along Robertson Road will meet targets or balanced City objectives in future once the City designs and implements the planned cycletracks from the Ottawa Cycling Plan.

12.2.4 Recommended Design Elements

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

13 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 1925 high-rise dwelling units and 41,657 ft^2 of ground floor commercial space
- Accesses is proposed via a new east leg of the intersection of Moodie Drive and Timm Drive
- The development is proposed to be completed in five phases by 2029
- The Trip Generation, Location, and Safety triggers were met for the TIA Screening
- This report supports a zoning by-law amendment and official plan amendment

Existing Conditions

- Robertson Road, Timm Drive, Moodie Drive, are arterial roads, and Fitzgerald Road, Old Richmond Road, Stinson Road, Stafford Road, and Lynhar Road are collector roads in the study area
- Future roadways include the site access as a collector road
- Sidewalks are provided along both sides of Old Richmond Road, Robertson Road east of Fitzgerald Road, Moodie Drive south of Fitzgerald Road, and Stafford Road for 140 metres north of Robertson Road, and along one side on Stafford Road to the north of this point, on Fitzgerald Road, Stinson Avenue, and Lynhar Road
- Cycling facilities include curbside bike lanes on the approach and departures of all legs at the intersection of Robertson Road and Moodie Drive, and paved shoulders on Moodie Drive 100 metres north of Fitzgerald Road, on Timm Drive, and Robertson Road west of Fitzgerald Road
- Robertson Road, Moodie Drive, and Old Richmond Road are spine routes, Fitzgerald Road, Timm Drive, and Lynhar Road are local routes. Robertson Road is also a cross-town bikeway, and a pathway connection is along the decommissioned Carleton Place rail corridor

- The high volumes roadways have produced a high number of collisions at the study area intersections, primarily at the Robertson Road at Moodie Drive and Robertson Road at Stafford Road/Lyhnar Road intersections
- The collisions are predominantly rear end collisions indicating that they are lower speed and a result of congestion
- Some high delays and queueing are noted at the Robertson Road at Moodie Drive intersection during both peak hours and particularly in the AM peak hour, but generally the intersections operate adequately

Development Generated Travel Demand

- The proposed development is forecasted produce 1,590 two-way people trips during the AM peak hour and 1,936 two-way people trips during the PM peak hour
- Of the forecasted people trips, 313 two-way trips will be vehicle trips during the AM peak hour and 372 two-way trips will be vehicle trips during the PM peak hour based on the unmodified district modal share targets
- Of the forecasted trips, 25% are anticipated to travel north, 5% to travel south, 55% to travel east, and 15% to travel west

Background Conditions

- The background developments were explicitly included in the background conditions, along with a total background growth of 3.0% per annum along the mainline volumes on Moodie Drive in the southbound direction in the AM peak hour and in the northbound direction in the PM peak hour
- The study area intersections at all study area intersections will operate similar to the existing conditions

Transportation Demand Management

- TDM measures should be employed to ensure the subject development meets the average district mode share targets
- Supportive TDM measures to be included within the proposed development should include:
  - Designate an internal TDM program coordinator or contract with an external coordinator
  - Display local area maps with walking/cycling routes and key destinations at major entrances
  - Display local area transit maps and route schedules at major entrances
  - Contract with provider to install on-site bikeshare station if available
  - Inclusion of a 1-year Presto card for first time new condo purchase or apartment rental, with a set time frame for this offer (e.g. 6-months) from the initial opening of the site
  - Contract with provider to install on-site carshare vehicles and promote their use by residents
  - Provide a multi-modal travel option information package to new residents/employees
  - Provide online links to OC Transpo and STO information for the commercial component employees
  - Provide a dedicated ridematching portal for the commercial component employees
  - Unbundle parking cost from purchase or rental costs

Neighbourhood Traffic Management

- The proposed site access roadway is forecasted to have volumes above the collector road thresholds by 11%-48% depending on peak hour
- The classification of the future roadways as a collector road is considered to remain appropriate

Transit

- The site is anticipated to generate 323 AM and 275 PM peak hour two-way transit trips
- In addition to The site is proposing a pedestrian/cycling link to Robertson Road where stops will be 350-850 metres from building entrances
- To meet forecasted transit use, between three standard buses and two double-decker buses in the AM and between two standard buses and two articulated buses in the PM peak hour are anticipated to be required between the site access and Moodie Station, and approximately one standard bus on Robertson Road in each direction would be required
- Transit priority is not forecasted to be materially impacted by the addition of site traffic to the network

Network Concept

- Capacity exists within the screenline east of the site, if certain of the roadways that comprise it are nominally over theoretical capacity
- Should site traffic, an increase in less than 2% of traffic on any screenline element roadway, push one or other element roadway over capacity, other roadways have enough residual capacity to absorb any shifts in traffic

Network Intersection Design

- Generally, the network intersections at the future total horizons will operate similarly to the future background horizon, with the southbound left movement at the intersection of Robertson Road at Moodie Drive forecasted to be over theoretical capacity
- Mitigation for this movement's performance would be signal timing optimization, which reduces all movement's v/c ratios to 0.94 or better at both future horizon
- The MMLOS targets will not be met for the pedestrian and cycling LOS at all network intersections, and transit LOS at the intersections of Robertson Road at Moodie Drive, Robertson Road at Old Richmond Road, Robertson Road at Stinson Avenue, and Robertson Road at Stafford Road/Lynhar Road
- Pedestrian LOS targets cannot be met except for the east crossing of the intersection of the Bell's Corners Public School access at old Richmond Road which would require high visibility crossing treatments
- Improved cycling facilities, including left-turn configurations out of mixed flow at the intersections with the arterial roadways and along Old Richmond Road could meet the LOS targets

14 Next Steps

Following the circulation and review of the TIA, any outstanding comments will be documents within the context of the zoning by-law and official plan amendments 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.

Appendix A

TIA Screening Form and PM Certification Form

13 Markham Avenue
Ottawa ON K2G 3Z1

City of Ottawa 2017 TIA Guidelines
Step 1 - Screening Form

Date: 30-Nov-20
Project Number: 2020-90
Project Reference: Stillwater Station

1.1 Description of Proposed Development	
Municipal Address	1987 Robertson Road, 295 Moodie Drive
Description of Location	9.59 ha parcel fronting rail corridor, east of Moodie Drive along Hydro Corridor and north of Robertson Road, with 3.6m wide channel extending to
Land Use Classification	Majority IP2 with small areas IP, IP1, AM, AG, GM18
Development Size	18 buildings comprising 2,446 units and 4,461 m2 of commercial
Accesses	New east leg Moodie Dr @ Timm Dr interseciton
Phase of Development	Mutliple
Buildout Year	2025
TIA Requirement	Full TIA Required

1.2 Trip Generation Trigger		
Land Use Type	Townhomes or apartments	
Development Size	2446	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?	Yes	Moodie Drive Spine Route
Is the development in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone?	No	
Location Trigger	Yes	

1.4. Safety Triggers		
Are posted speed limits on a boundary street 80 km/hr or greater?	Yes	
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)?	Yes	
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?	Yes	Higher collisions: Robertson Road at Moodie Drive
Does the development include a drive-thru facility?	No	
Safety Trigger	Yes	

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

Transportation Services - Traffic Services

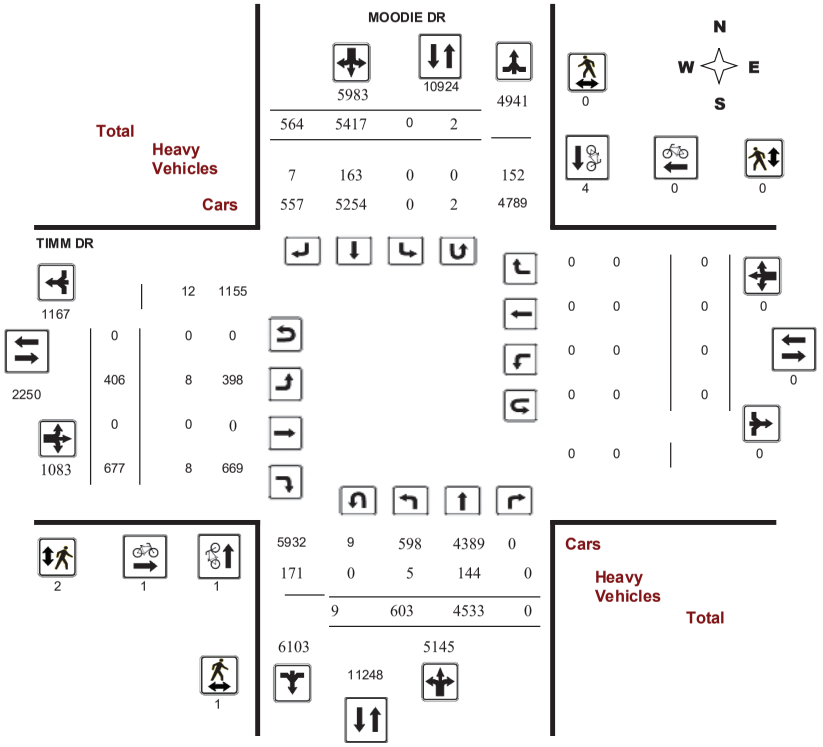
Turning Movement Count - Study Results

MOODIE DR @ TIMM DR

Survey Date: Wednesday, March 08, 2017 **WO No:** 36388

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

Full Study Diagram



Transportation Services - Traffic Services

Turning Movement Count - Study Results

MOODIE DR @ TIMM DR

Survey Date: Wednesday, March 08, 2017 **WO No:** 36388

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

Full Study Peak Hour Diagram

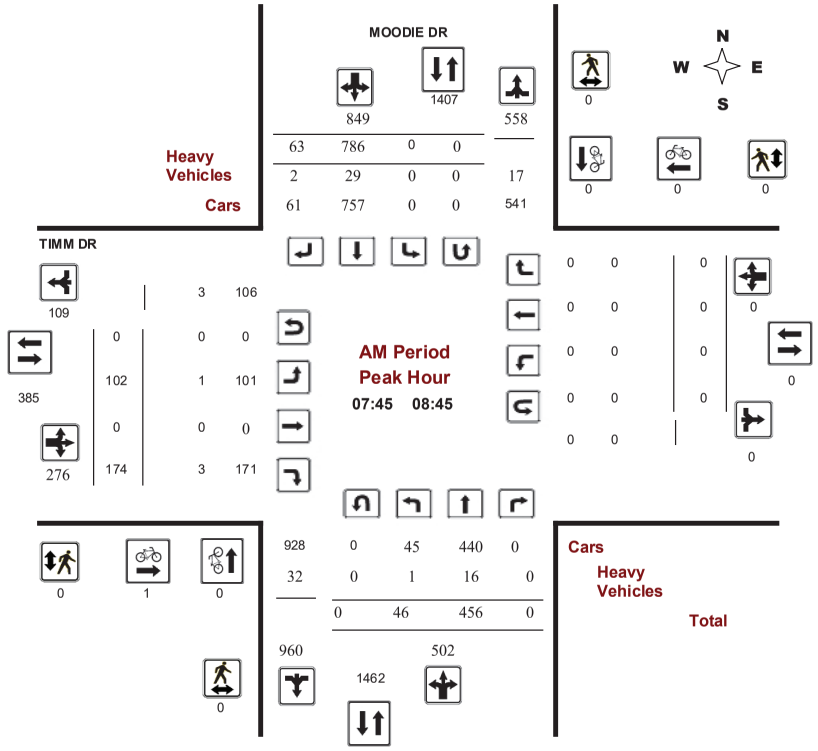
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MOODIE DR @ TIMM DR

Survey Date: Wednesday, March 08, 2017 **WO No:** 36388

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



Comments

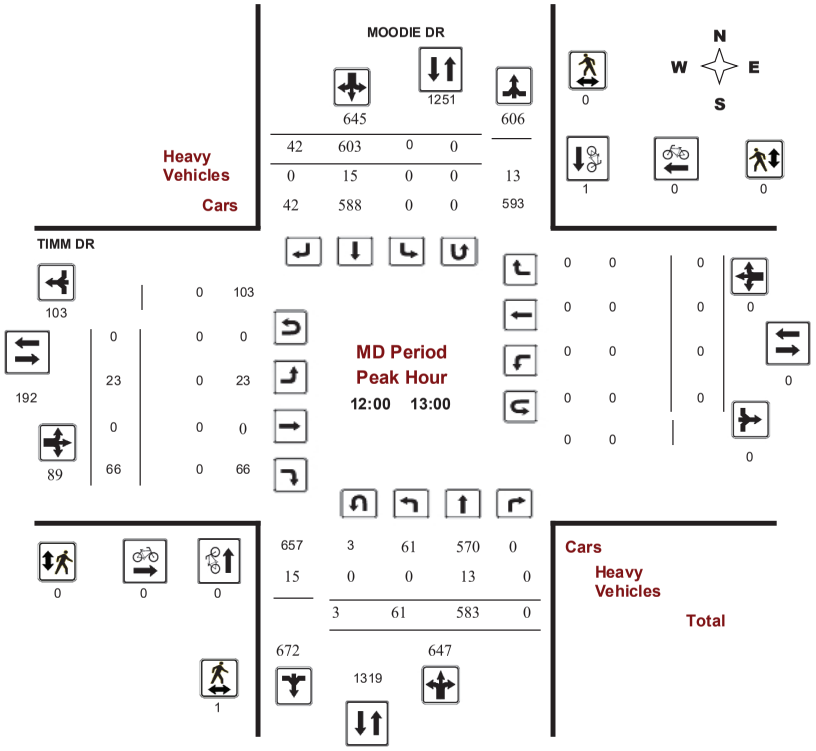
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MOODIE DR @ TIMM DR

Survey Date: Wednesday, March 08, 2017 **WO No:** 36388

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



Comments

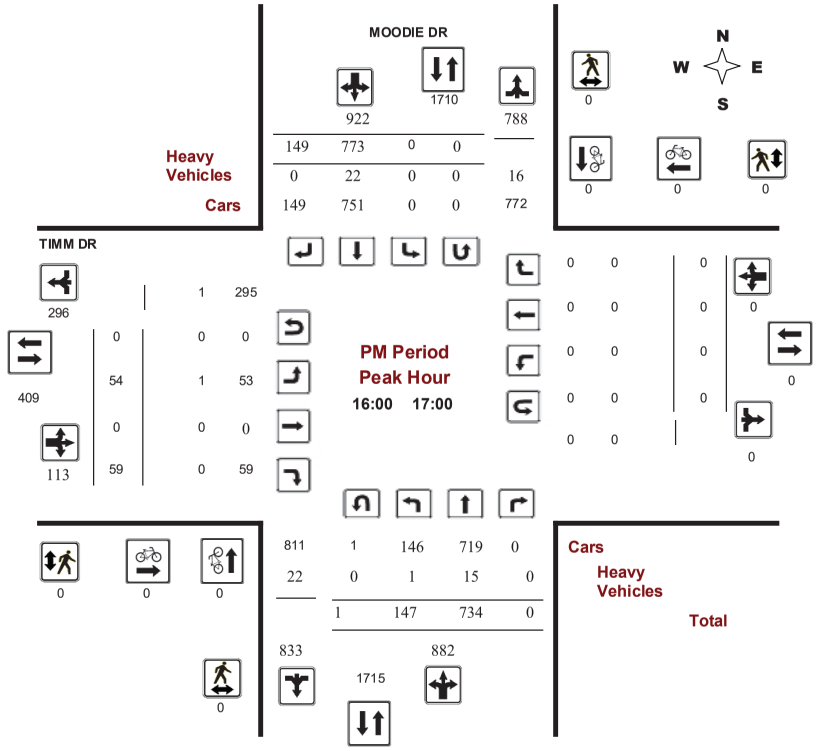
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MOODIE DR @ TIMM DR

Survey Date: Wednesday, March 08, 2017 **WO No:** 36388

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



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MOODIE DR @ TIMM DR

Survey Date: Wednesday, March 08, 2017 **WO No:** 36388

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

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, March 08, 2017

Total Observed U-Turns

Northbound: 9 Southbound: 2

Eastbound: 0 Westbound: 0

AADT Factor 1.00

	MOODIE DR								TIMM DR								
	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	34	428	0	**462**	0	645	48	**693**	**1155**	108	0	141	**249**	0	0	0	**0**	249	**1404**
08:00 09:00	43	452	0	**495**	0	815	58	**873**	**1368**	78	0	143	**221**	0	0	0	**0**	221	**1589**
09:00 10:00	47	449	0	**496**	0	615	36	**651**	**1147**	27	0	73	**100**	0	0	0	**0**	100	**1247**
11:30 12:30	48	594	0	**642**	0	589	26	**615**	**1257**	26	0	73	**99**	0	0	0	**0**	99	**1356**
12:30 13:30	67	547	0	**614**	0	616	38	**654**	**1268**	16	0	72	**88**	0	0	0	**0**	88	**1356**
15:00 16:00	96	673	0	**769**	0	647	107	**754**	**1523**	49	0	59	**108**	0	0	0	**0**	108	**1631**
16:00 17:00	147	734	0	**881**	0	773	149	**922**	**1803**	54	0	59	**113**	0	0	0	**0**	113	**1916**
17:00 18:00	121	656	0	**777**	0	717	102	**819**	**1596**	48	0	57	**105**	0	0	0	**0**	105	**1701**
Sub Total	603	4533	0	**5136**	0	5417	564	**5981**	**11117**	406	0	677	**1083**	0	0	0	**0**	1083	**12200**
U Turns	9			**9**	2			**2**	**11**	**0**			**0**	0			**0**	**0**	**11**
Total	612	4533	0	**5145**	2	5417	564	**5983**	**11128**	406	0	677	**1083**	0	0	0	**0**	1083	**12211**
EQ 12Hr	851	6301	0	**7152**	3	7530	784	**8317**	**15469**	564	0	941	**1505**	0	0	0	**0**	1505	**16974**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	851	6301	0	**7152**	3	7530	784	**8317**	**15469**	564	0	941	**1505**	0	0	0	**0**	1505	**16974**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1.00**					
AVG 24Hr	1115	8254	0	**9369**	4	9864	1027	**10895**	**20264**	739	0	1233	**1972**	0	0	0	**0**	1972	**22236**
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

MOODIE DR @ TIMM DR

Survey Date: Wednesday, March 08, 2017 **WO No:** 36388

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

Full Study 15 Minute Increments

		MOODIE DR									TIMM DR									
		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	2	103	0	105	0	140	5	145	**250**	16	0	19	35	0	0	0	0	**35**	**285**
07:15	07:30	6	96	0	102	0	146	12	158	**260**	20	0	28	48	0	0	0	0	**48**	**308**
07:30	07:45	11	112	0	123	0	158	9	167	**290**	40	0	36	76	0	0	0	0	**76**	**366**
07:45	08:00	15	117	0	132	0	201	22	223	**355**	32	0	58	90	0	0	0	0	**90**	**445**
08:00	08:15	13	131	0	144	0	186	20	206	**350**	27	0	38	65	0	0	0	0	**65**	**415**
08:15	08:30	9	108	0	117	0	198	11	209	**326**	25	0	40	65	0	0	0	0	**65**	**391**
08:30	08:45	9	100	0	109	0	201	10	211	**320**	18	0	38	56	0	0	0	0	**56**	**376**
08:45	09:00	12	113	0	125	0	230	17	247	**372**	8	0	27	35	0	0	0	0	**35**	**407**
09:00	09:15	20	127	0	147	0	171	16	187	**334**	12	0	20	32	0	0	0	0	**32**	**366**
09:15	09:30	11	106	0	117	0	149	8	157	**274**	4	0	25	29	0	0	0	0	**29**	**303**
09:30	09:45	13	97	0	110	1	149	6	156	**266**	8	0	13	21	0	0	0	0	**21**	**287**
09:45	10:00	6	119	0	125	0	146	6	152	**277**	3	0	15	18	0	0	0	0	**18**	**295**
11:30	11:45	15	139	0	154	0	147	4	151	**305**	7	0	18	25	0	0	0	0	**25**	**330**
11:45	12:00	13	161	0	174	0	156	3	159	**333**	7	0	19	26	0	0	0	0	**26**	**359**
12:00	12:15	11	136	0	147	0	142	12	154	**301**	6	0	15	21	0	0	0	0	**21**	**322**
12:15	12:30	11	158	0	169	0	144	7	151	**320**	6	0	21	27	0	0	0	0	**27**	**347**
12:30	12:45	22	152	0	174	0	149	9	158	**332**	5	0	11	16	0	0	0	0	**16**	**348**
12:45	13:00	20	137	0	157	0	168	14	182	**339**	6	0	19	25	0	0	0	0	**25**	**364**
13:00	13:15	15	118	0	133	1	149	7	157	**290**	4	0	18	22	0	0	0	0	**22**	**312**
13:15	13:30	11	140	0	151	0	150	8	158	**309**	1	0	24	25	0	0	0	0	**25**	**334**
15:00	15:15	22	181	0	203	0	141	24	165	**368**	12	0	13	25	0	0	0	0	**25**	**393**
15:15	15:30	18	157	0	175	0	185	28	213	**388**	12	0	14	26	0	0	0	0	**26**	**414**
15:30	15:45	25	159	0	184	0	160	34	194	**378**	7	0	13	20	0	0	0	0	**20**	**398**
15:45	16:00	32	176	0	208	0	161	21	182	**390**	18	0	19	37	0	0	0	0	**37**	**427**
16:00	16:15	30	214	0	244	0	188	31	219	**463**	17	0	14	31	0	0	0	0	**31**	**494**
16:15	16:30	39	189	0	228	0	178	29	207	**435**	7	0	15	22	0	0	0	0	**22**	**457**
16:30	16:45	37	168	0	205	0	195	45	240	**445**	16	0	13	29	0	0	0	0	**29**	**474**
16:45	17:00	42	163	0	205	0	212	44	256	**461**	14	0	17	31	0	0	0	0	**31**	**492**
17:00	17:15	34	220	0	254	0	183	25	208	**462**	13	0	12	25	0	0	0	0	**25**	**487**
17:15	17:30	38	164	0	202	0	186	39	225	**427**	16	0	19	35	0	0	0	0	**35**	**462**
17:30	17:45	22	162	0	184	0	174	14	188	**372**	5	0	18	23	0	0	0	0	**23**	**395**
17:45	18:00	28	110	0	138	0	174	24	198	**336**	14	0	8	22	0	0	0	0	**22**	**358**
Total:		612	4533	0	5145	2	5417	564	5983	**11128**	406	0	677	1083	0	0	0	0	**11128**	**12,211**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MOODIE DR @ TIMM DR

Survey Date: Wednesday, March 08, 2017 **WO No:** 36388

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

Full Study Cyclist Volume

		MOODIE DR			TIMM DR			
Time Period		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	**0**	0	0	**0**	**0**
07:15	07:30	0	0	**0**	0	0	**0**	**0**
07:30	07:45	0	0	**0**	0	0	**0**	**0**
07:45	08:00	0	0	**0**	1	0	**1**	**1**
08:00	08:15	0	0	**0**	0	0	**0**	**0**
08:15	08:30	0	0	**0**	0	0	**0**	**0**
08:30	08:45	0	0	**0**	0	0	**0**	**0**
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	0	**0**	**0**
09:30	09:45	0	0	**0**	0	0	**0**	**0**
09:45	10:00	0	1	**1**	0	0	**0**	**1**
11:30	11:45	0	0	**0**	0	0	**0**	**0**
11:45	12:00	0	0	**0**	0	0	**0**	**0**
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**	0	0	**0**	**0**
12:45	13:00	0	1	**1**	0	0	**0**	**1**
13:00	13:15	1	0	**1**	0	0	**0**	**1**
13:15	13:30	0	0	**0**	0	0	**0**	**0**
15:00	15:15	0	1	**1**	0	0	**0**	**1**
15:15	15:30	0	0	**0**	0	0	**0**	**0**
15:30	15:45	0	0	**0**	0	0	**0**	**0**
15:45	16:00	0	0	**0**	0	0	**0**	**0**
16:00	16:15	0	0	**0**	0	0	**0**	**0**
16:15	16:30	0	0	**0**	0	0	**0**	**0**
16:30	16:45	0	0	**0**	0	0	**0**	**0**
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**	0	0	**0**	**0**
17:30	17:45	0	0	**0**	0	0	**0**	**0**
17:45	18:00	0	0	**0**	0	0	**0**	**0**
Total		1	4	**5**	1	0	**1**	**6**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MOODIE DR @ TIMM DR

Survey Date: Wednesday, March 08, 2017 **WO No:** 36388

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

Full Study Pedestrian Volume

	MOODIE DR			TIMM DR			
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	0	0	**0**	0	0	**0**	**0**
07:15 07:30	0	0	**0**	0	0	**0**	**0**
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	0	**0**	**0**
08:15 08:30	0	0	**0**	0	0	**0**	**0**
08:30 08:45	0	0	**0**	0	0	**0**	**0**
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	0	**0**	**0**
09:30 09:45	0	0	**0**	0	0	**0**	**0**
09:45 10:00	0	0	**0**	1	0	**1**	**1**
11:30 11:45	0	0	**0**	0	0	**0**	**0**
11:45 12:00	0	0	**0**	0	0	**0**	**0**
12:00 12:15	1	0	**1**	0	0	**0**	**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	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**	1	0	**1**	**1**
15:15 15:30	0	0	**0**	0	0	**0**	**0**
15:30 15:45	0	0	**0**	0	0	**0**	**0**
15:45 16:00	0	0	**0**	0	0	**0**	**0**
16:00 16:15	0	0	**0**	0	0	**0**	**0**
16:15 16:30	0	0	**0**	0	0	**0**	**0**
16:30 16:45	0	0	**0**	0	0	**0**	**0**
16:45 17:00	0	0	**0**	0	0	**0**	**0**
17:00 17:15	0	0	**0**	0	0	**0**	**0**
17:15 17:30	0	0	**0**	0	0	**0**	**0**
17:30 17:45	0	0	**0**	0	0	**0**	**0**
17:45 18:00	0	0	**0**	0	0	**0**	**0**
Total	1	0	**1**	2	0	**2**	**3**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MOODIE DR @ TIMM DR

Survey Date: Wednesday, March 08, 2017 **WO No:** 36388

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

Full Study Heavy Vehicles

		MOODIE DR									TIMM DR									
		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	2	0	**2**	0	2	1	**3**	**5**	0	0	0	**0**	0	0	0	**0**	**0**	**5**
07:15	07:30	0	7	0	**7**	0	6	1	**7**	**14**	0	0	0	**0**	0	0	0	**0**	**0**	**14**
07:30	07:45	0	6	0	**6**	0	2	2	**4**	**10**	1	0	0	**1**	0	0	0	**0**	**1**	**11**
07:45	08:00	0	2	0	**2**	0	8	0	**8**	**10**	0	0	2	**2**	0	0	0	**0**	**2**	**12**
08:00	08:15	0	5	0	**5**	0	7	1	**8**	**13**	0	0	0	**0**	0	0	0	**0**	**0**	**13**
08:15	08:30	1	5	0	**6**	0	8	1	**9**	**15**	0	0	0	**0**	0	0	0	**0**	**0**	**15**
08:30	08:45	0	4	0	**4**	0	6	0	**6**	**10**	1	0	1	**2**	0	0	0	**0**	**2**	**12**
08:45	09:00	0	3	0	**3**	0	11	0	**11**	**14**	0	0	1	**1**	0	0	0	**0**	**1**	**15**
09:00	09:15	0	8	0	**8**	0	6	0	**6**	**14**	0	0	0	**0**	0	0	0	**0**	**0**	**14**
09:15	09:30	0	2	0	**2**	0	7	0	**7**	**9**	0	0	1	**1**	0	0	0	**0**	**1**	**10**
09:30	09:45	0	5	0	**5**	0	6	0	**6**	**11**	0	0	0	**0**	0	0	0	**0**	**0**	**11**
09:45	10:00	0	5	0	**5**	0	6	1	**7**	**12**	0	0	0	**0**	0	0	0	**0**	**0**	**12**
11:30	11:45	0	4	0	**4**	0	4	0	**4**	**8**	2	0	1	**3**	0	0	0	**0**	**3**	**11**
11:45	12:00	0	8	0	**8**	0	3	0	**3**	**11**	0	0	0	**0**	0	0	0	**0**	**0**	**11**
12:00	12:15	0	2	0	**2**	0	7	0	**7**	**9**	0	0	0	**0**	0	0	0	**0**	**0**	**9**
12:15	12:30	0	2	0	**2**	0	3	0	**3**	**5**	0	0	0	**0**	0	0	0	**0**	**0**	**5**
12:30	12:45	0	3	0	**3**	0	2	0	**2**	**5**	0	0	0	**0**	0	0	0	**0**	**0**	**5**
12:45	13:00	0	6	0	**6**	0	3	0	**3**	**9**	0	0	0	**0**	0	0	0	**0**	**0**	**9**
13:00	13:15	2	4	0	**6**	0	2	0	**2**	**8**	1	0	0	**1**	0	0	0	**0**	**1**	**9**
13:15	13:30	0	4	0	**4**	0	6	0	**6**	**10**	0	0	1	**1**	0	0	0	**0**	**1**	**11**
15:00	15:15	0	8	0	**8**	0	5	0	**5**	**13**	0	0	0	**0**	0	0	0	**0**	**0**	**13**
15:15	15:30	0	3	0	**3**	0	8	0	**8**	**11**	0	0	0	**0**	0	0	0	**0**	**0**	**11**
15:30	15:45	1	2	0	**3**	0	5	0	**5**	**8**	0	0	1	**1**	0	0	0	**0**	**1**	**9**
15:45	16:00	0	16	0	**16**	0	4	0	**4**	**20**	1	0	0	**1**	0	0	0	**0**	**1**	**21**
16:00	16:15	0	3	0	**3**	0	4	0	**4**	**7**	1	0	0	**1**	0	0	0	**0**	**1**	**8**
16:15	16:30	0	8	0	**8**	0	8	0	**8**	**16**	0	0	0	**0**	0	0	0	**0**	**0**	**16**
16:30	16:45	0	2	0	**2**	0	6	0	**6**	**8**	0	0	0	**0**	0	0	0	**0**	**0**	**8**
16:45	17:00	1	2	0	**3**	0	4	0	**4**	**7**	0	0	0	**0**	0	0	0	**0**	**0**	**7**
17:00	17:15	0	3	0	**3**	0	4	0	**4**	**7**	1	0	0	**1**	0	0	0	**0**	**1**	**8**
17:15	17:30	0	4	0	**4**	0	5	0	**5**	**9**	0	0	0	**0**	0	0	0	**0**	**0**	**9**
17:30	17:45	0	4	0	**4**	0	2	0	**2**	**6**	0	0	0	**0**	0	0	0	**0**	**0**	**6**
17:45	18:00	0	2	0	**2**	0	3	0	**3**	**5**	0	0	0	**0**	0	0	0	**0**	**0**	**5**
Total:	None	5	144	0	**149**	0	163	7	**170**	**319**	8	0	8	**16**	0	0	0	**0**	**16**	**335**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MOODIE DR @ TIMM DR

Survey Date: Wednesday, March 08, 2017 **WO No:** 36388

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

Full Study 15 Minute U-Turn Total

Time Period		MOODIE DR Northbound U-Turn Total	MOODIE DR Southbound U-Turn Total	TIMM DR Eastbound U-Turn Total	TIMM DR 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	2	1	0	0	**3**
09:45	10:00	1	0	0	0	**1**
11:30	11:45	0	0	0	0	**0**
11:45	12:00	0	0	0	0	**0**
12:00	12:15	1	0	0	0	**1**
12:15	12:30	1	0	0	0	**1**
12:30	12:45	1	0	0	0	**1**
12:45	13:00	0	0	0	0	**0**
13:00	13:15	0	1	0	0	**1**
13:15	13:30	0	0	0	0	**0**
15:00	15:15	1	0	0	0	**1**
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	1	0	0	0	**1**
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	1	0	0	0	**1**
17:45	18:00	0	0	0	0	**0**
Total		9	2	0	0	**11**

Transportation Services - Traffic Services

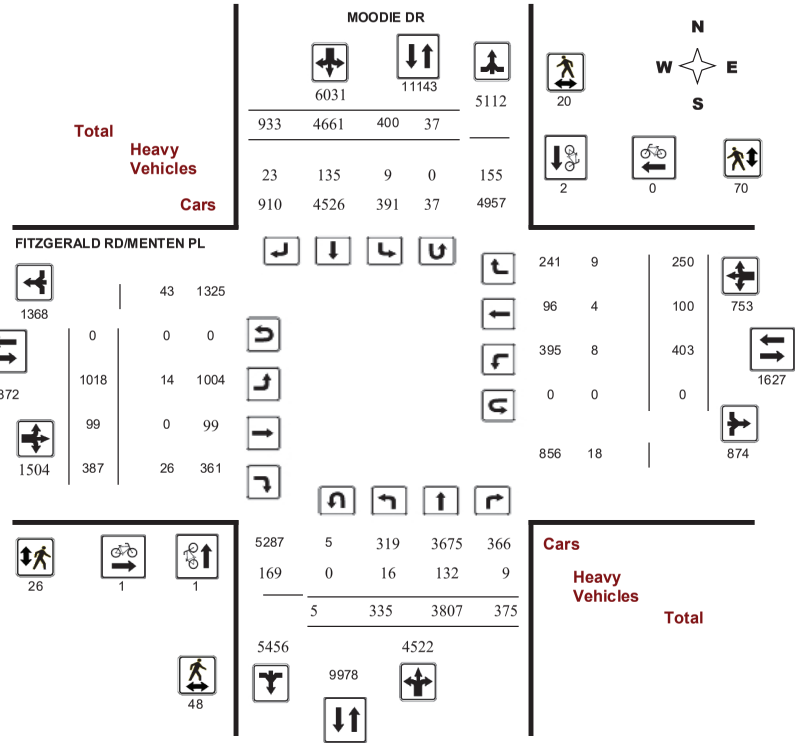
Turning Movement Count - Study Results

FITZGERALD RD/MENTEN PL @ MOODIE DR

Survey Date: Wednesday, March 08, 2017 **WO No:** 36641

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

Full Study Diagram



Transportation Services - Traffic Services

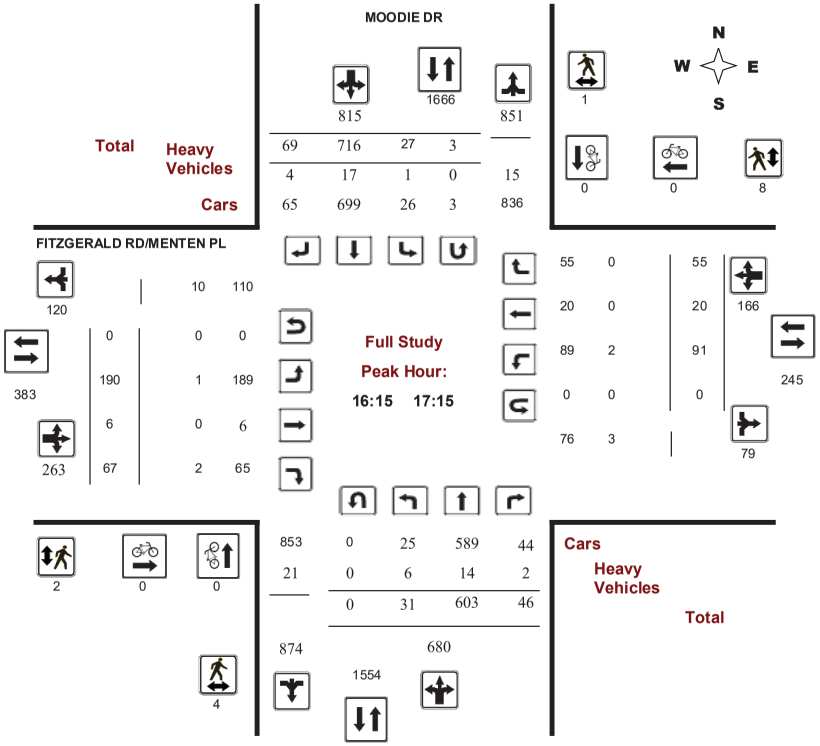
Turning Movement Count - Study Results

FITZGERALD RD/MENTEN PL @ MOODIE DR

Survey Date: Wednesday, March 08, 2017 **WO No:** 36641

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

Full Study Peak Hour Diagram



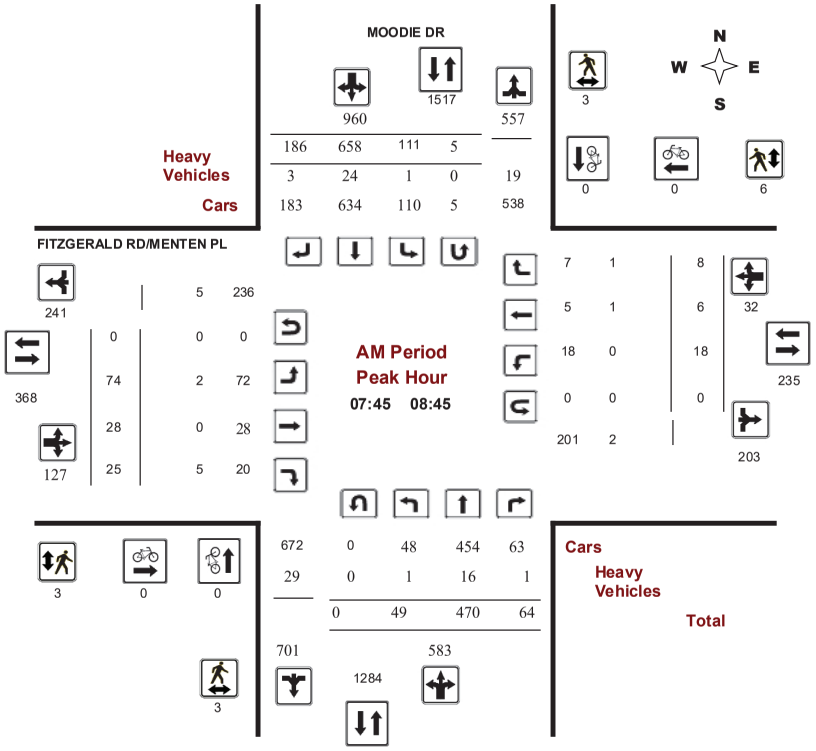
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

FITZGERALD RD/MENTEN PL @ MOODIE DR

Survey Date: Wednesday, March 08, 2017 **WO No:** 36641

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



Comments

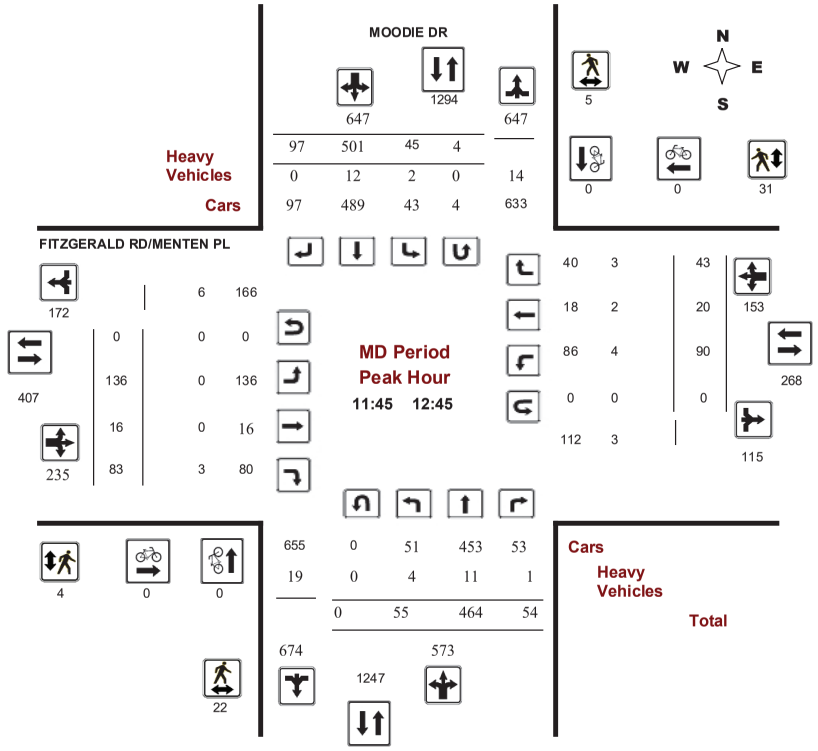
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

FITZGERALD RD/MENTEN PL @ MOODIE DR

Survey Date: Wednesday, March 08, 2017 **WO No:** 36641

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



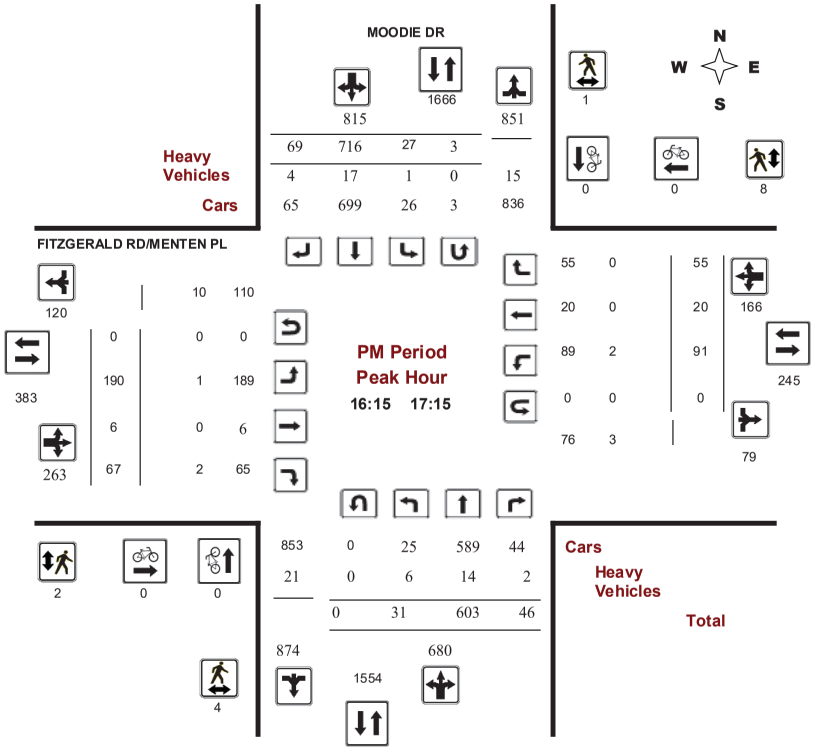
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

FITZGERALD RD/MENTEN PL @ MOODIE DR

Survey Date: Wednesday, March 08, 2017 **WO No:** 36641

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


MOODIE DR
FITZGERALD RD/MENTEN PL
N
W
E
S
Heavy Vehicles
Cars
PM Period
Peak Hour
16:15 17:15
815
1666
851
69 716 27 3
4 17 1 0 15
65 699 26 3 836
1
0 0 8
120
10 110
0 0
190 1 189
6 0 6
67 2 65
383
263
55 0
20 0
89 2
0 0
76 3
55
20
91
0
166
245
79
2 0 0
4
853
21
0 25 589 44
0 6 14 2
0 31 603 46
874
1554
680
Cars
Heavy Vehicles
Total
Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

FITZGERALD RD/MENTEN PL @ MOODIE DR

Survey Date: Wednesday, March 08, 2017 **WO No:** 36641

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

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, March 08, 2017

Total Observed U-Turns

Northbound: 5 Southbound: 37

Eastbound: 0 Westbound: 0

AADT Factor 1.00

	MOODIE DR									FITZGERALD RD/MENTEN PL									
	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	40	398	40	**478**	44	527	203	**774**	**1252**	60	9	20	**89**	7	4	11	**22**	**111**	**1363**
08:00 09:00	46	464	70	**580**	114	648	185	**947**	**1527**	73	30	27	**130**	21	4	8	**33**	**163**	**1690**
09:00 10:00	49	394	53	**496**	77	483	116	**676**	**1172**	93	16	31	**140**	22	16	24	**62**	**202**	**1374**
11:30 12:30	43	423	49	**515**	48	516	87	**651**	**1166**	152	16	87	**255**	91	18	45	**154**	**409**	**1575**
12:30 13:30	68	494	62	**624**	48	483	141	**672**	**1296**	91	14	47	**152**	63	15	31	**109**	**261**	**1557**
15:00 16:00	37	510	32	**579**	28	600	64	**692**	**1271**	215	5	54	**274**	48	9	33	**90**	**364**	**1635**
16:00 17:00	28	579	43	**650**	22	725	73	**820**	**1470**	194	5	65	**264**	84	19	55	**158**	**422**	**1892**
17:00 18:00	24	545	26	**595**	19	679	64	**762**	**1357**	140	4	56	**200**	67	15	43	**125**	**325**	**1682**
Sub Total	335	3807	375	**4517**	400	4661	933	**5994**	**10511**	1018	99	387	**1504**	403	100	250	**753**	**2257**	**12768**
U Turns	5			**5**	37			**37**	**42**	**0**			**0**	0			**0**	**0**	**42**
Total	340	3807	375	**4522**	437	4661	933	**6031**	**10553**	1018	99	387	**1504**	403	100	250	**753**	**2257**	**12810**
EQ 12Hr	473	5292	521	**6286**	607	6479	1297	**8383**	**14669**	1415	138	538	**2091**	560	139	348	**1047**	**3138**	**17807**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	473	5292	521	**6286**	607	6479	1297	**8383**	**14669**	1415	138	538	**2091**	560	139	348	**1047**	**3138**	**17807**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1.00**					
AVG 24Hr	620	6933	683	**8236**	795	8487	1699	**10981**	**19217**	1854	181	705	**2740**	734	182	456	**1372**	**4112**	**23329**
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

FITZGERALD RD/MENTEN PL @ MOODIE DR

Survey Date: Wednesday, March 08, 2017 **WO No:** 36641

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

Full Study 15 Minute Increments

		MOODIE DR									FITZGERALD RD/MENTEN PL									
		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	8	82	5	95	10	89	57	156	**251**	14	2	1	17	1	0	1	2	**19**	**270**
07:15	07:30	7	84	7	98	3	116	46	165	**263**	18	1	6	25	3	1	3	7	**32**	**295**
07:30	07:45	12	119	13	144	14	144	41	199	**343**	10	1	9	20	1	1	5	7	**27**	**370**
07:45	08:00	13	113	15	141	23	178	59	260	**401**	18	5	4	27	2	2	2	6	**33**	**434**
08:00	08:15	12	139	21	172	33	138	49	220	**392**	18	7	6	31	3	2	2	7	**38**	**430**
08:15	08:30	10	103	13	126	35	167	32	234	**360**	23	14	3	40	4	2	2	8	**48**	**408**
08:30	08:45	14	115	15	144	25	175	46	246	**390**	15	2	12	29	9	0	2	11	**40**	**430**
08:45	09:00	10	107	21	138	28	168	58	254	**392**	17	7	6	30	5	0	2	7	**37**	**429**
09:00	09:15	16	124	16	156	19	128	38	185	**341**	32	3	6	41	4	3	7	14	**55**	**396**
09:15	09:30	13	85	11	109	28	120	26	174	**283**	18	4	8	30	4	4	4	12	**42**	**325**
09:30	09:45	6	98	11	115	14	113	32	159	**274**	17	6	7	30	4	2	4	10	**40**	**314**
09:45	10:00	14	87	15	116	20	122	20	162	**278**	26	3	10	39	10	7	9	26	**65**	**343**
11:30	11:45	8	102	13	123	12	134	20	166	**289**	41	2	17	60	16	0	10	26	**86**	**375**
11:45	12:00	11	107	11	129	11	143	20	174	**303**	36	3	28	67	26	5	16	47	**114**	**417**
12:00	12:15	15	92	10	117	13	122	16	151	**268**	38	5	26	69	20	6	10	36	**105**	**373**
12:15	12:30	9	122	15	146	17	117	31	165	**311**	37	6	16	59	29	7	9	45	**104**	**415**
12:30	12:45	20	143	18	181	8	119	30	157	**338**	25	2	13	40	15	2	8	25	**65**	**403**
12:45	13:00	17	134	16	167	12	136	41	189	**356**	25	4	9	38	12	3	7	22	**60**	**416**
13:00	13:15	22	101	10	133	14	118	34	166	**299**	22	4	15	41	16	7	10	33	**74**	**373**
13:15	13:30	10	116	18	144	21	110	36	167	**311**	19	4	10	33	20	3	6	29	**62**	**373**
15:00	15:15	11	107	10	128	7	132	14	153	**281**	77	2	14	93	18	5	8	31	**124**	**405**
15:15	15:30	10	120	1	131	6	171	18	195	**326**	50	0	9	59	7	1	6	14	**73**	**399**
15:30	15:45	9	139	9	157	11	145	13	169	**326**	43	1	12	56	8	1	7	16	**72**	**398**
15:45	16:00	8	144	12	164	7	152	19	178	**342**	45	2	19	66	15	2	12	29	**95**	**437**
16:00	16:15	5	147	12	164	3	182	16	201	**365**	57	1	18	76	19	4	17	40	**116**	**481**
16:15	16:30	10	156	10	176	7	165	17	189	**365**	46	2	15	63	10	5	11	26	**89**	**454**
16:30	16:45	4	138	11	153	8	167	24	199	**352**	47	1	17	65	31	4	14	49	**114**	**466**
16:45	17:00	10	138	10	158	7	211	16	234	**392**	44	1	15	60	24	6	13	43	**103**	**495**
17:00	17:15	7	171	15	193	8	173	12	193	**386**	53	2	20	75	26	5	17	48	**123**	**509**
17:15	17:30	8	135	4	147	2	177	23	202	**349**	29	2	10	41	17	7	13	37	**78**	**427**
17:30	17:45	5	127	3	135	2	177	12	191	**326**	34	0	12	46	15	0	8	23	**69**	**395**
17:45	18:00	6	112	4	122	9	152	17	178	**300**	24	0	14	38	9	3	5	17	**55**	**355**
Total:		340	3807	375	4522	437	4661	933	6031	**10553**	1018	99	387	1504	403	100	250	753	**10553**	**12,810**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

FITZGERALD RD/MENTEN PL @ MOODIE DR

Survey Date: Wednesday, March 08, 2017 **WO No:** 36641

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

Full Study Cyclist Volume

Time Period		MOODIE DR			FITZGERALD RD/MENTEN PL			
		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	**0**	0	0	**0**	**0**
07:15	07:30	0	0	**0**	0	0	**0**	**0**
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	0	**0**	**0**
08:15	08:30	0	0	**0**	0	0	**0**	**0**
08:30	08:45	0	0	**0**	0	0	**0**	**0**
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	0	**0**	**0**
09:30	09:45	0	0	**0**	0	0	**0**	**0**
09:45	10:00	0	1	**1**	0	0	**0**	**1**
11:30	11:45	0	0	**0**	0	0	**0**	**0**
11:45	12:00	0	0	**0**	0	0	**0**	**0**
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**	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**	0	0	**0**	**0**
15:00	15:15	0	1	**1**	0	0	**0**	**1**
15:15	15:30	0	0	**0**	1	0	**1**	**1**
15:30	15:45	0	0	**0**	0	0	**0**	**0**
15:45	16:00	0	0	**0**	0	0	**0**	**0**
16:00	16:15	0	0	**0**	0	0	**0**	**0**
16:15	16:30	0	0	**0**	0	0	**0**	**0**
16:30	16:45	0	0	**0**	0	0	**0**	**0**
16:45	17:00	0	0	**0**	0	0	**0**	**0**
17:00	17:15	0	0	**0**	0	0	**0**	**0**
17:15	17:30	0	0	**0**	0	0	**0**	**0**
17:30	17:45	0	0	**0**	0	0	**0**	**0**
17:45	18:00	0	0	**0**	0	0	**0**	**0**
Total		1	2	**3**	1	0	**1**	**4**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

FITZGERALD RD/MENTEN PL @ MOODIE DR

Survey Date: Wednesday, March 08, 2017 **WO No:** 36641

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

Full Study Pedestrian Volume

Time Period	MOODIE DR			FITZGERALD RD/MENTEN PL			
	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	0	0	**0**	0	0	**0**	**0**
07:15 07:30	0	0	**0**	0	0	**0**	**0**
07:30 07:45	0	0	**0**	0	0	**0**	**0**
07:45 08:00	0	0	**0**	0	1	**1**	**1**
08:00 08:15	2	2	**4**	2	0	**2**	**6**
08:15 08:30	1	1	**2**	1	3	**4**	**6**
08:30 08:45	0	0	**0**	0	2	**2**	**2**
08:45 09:00	4	0	**4**	0	2	**2**	**6**
09:00 09:15	0	0	**0**	0	2	**2**	**2**
09:15 09:30	0	2	**2**	2	1	**3**	**5**
09:30 09:45	0	2	**2**	0	1	**1**	**3**
09:45 10:00	0	0	**0**	1	0	**1**	**1**
11:30 11:45	1	1	**2**	1	0	**1**	**3**
11:45 12:00	3	1	**4**	0	2	**2**	**6**
12:00 12:15	11	2	**13**	2	11	**13**	**26**
12:15 12:30	1	1	**2**	2	8	**10**	**12**
12:30 12:45	7	1	**8**	0	10	**10**	**18**
12:45 13:00	6	0	**6**	2	8	**10**	**16**
13:00 13:15	1	5	**6**	4	2	**6**	**12**
13:15 13:30	0	1	**1**	0	4	**4**	**5**
15:00 15:15	0	0	**0**	0	0	**0**	**0**
15:15 15:30	0	0	**0**	2	0	**2**	**2**
15:30 15:45	2	0	**2**	2	1	**3**	**5**
15:45 16:00	0	0	**0**	0	1	**1**	**1**
16:00 16:15	2	0	**2**	0	1	**1**	**3**
16:15 16:30	1	1	**2**	1	4	**5**	**7**
16:30 16:45	1	0	**1**	1	0	**1**	**2**
16:45 17:00	2	0	**2**	0	3	**3**	**5**
17:00 17:15	0	0	**0**	0	1	**1**	**1**
17:15 17:30	2	0	**2**	0	2	**2**	**4**
17:30 17:45	1	0	**1**	1	0	**1**	**2**
17:45 18:00	0	0	**0**	2	0	**2**	**2**
Total	48	20	**68**	26	70	**96**	**164**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

FITZGERALD RD/MENTEN PL @ MOODIE DR

Survey Date: Wednesday, March 08, 2017 **WO No:** 36641

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

Full Study Heavy Vehicles

		MOODIE DR									FITZGERALD RD/MENTEN PL									
		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	2	0	**2**	0	2	1	**3**	**5**	1	0	0	**1**	0	0	0	**0**	**1**	**6**
07:15	07:30	0	5	0	**5**	0	3	2	**5**	**10**	1	0	2	**3**	1	0	1	**2**	**5**	**15**
07:30	07:45	0	6	0	**6**	0	3	0	**3**	**9**	1	0	3	**4**	0	0	0	**0**	**4**	**13**
07:45	08:00	0	1	0	**1**	0	7	3	**10**	**11**	0	0	2	**2**	0	0	0	**0**	**2**	**13**
08:00	08:15	0	5	1	**6**	1	5	0	**6**	**12**	1	0	1	**2**	0	1	0	**1**	**3**	**15**
08:15	08:30	1	5	0	**6**	0	6	0	**6**	**12**	1	0	0	**1**	0	0	1	**1**	**2**	**14**
08:30	08:45	0	5	0	**5**	0	6	0	**6**	**11**	0	0	2	**2**	0	0	0	**0**	**2**	**13**
08:45	09:00	0	2	1	**3**	0	13	0	**13**	**16**	0	0	1	**1**	0	0	0	**0**	**1**	**17**
09:00	09:15	0	9	1	**10**	0	5	1	**6**	**16**	1	0	1	**2**	0	0	0	**0**	**2**	**18**
09:15	09:30	0	4	0	**4**	1	6	1	**8**	**12**	0	0	2	**2**	0	1	1	**2**	**4**	**16**
09:30	09:45	0	6	0	**6**	0	6	1	**7**	**13**	0	0	1	**1**	0	0	0	**0**	**1**	**14**
09:45	10:00	0	3	0	**3**	0	3	2	**5**	**8**	2	0	0	**2**	0	0	0	**0**	**2**	**10**
11:30	11:45	0	6	2	**8**	2	3	0	**5**	**13**	0	0	2	**2**	0	0	1	**1**	**3**	**16**
11:45	12:00	1	4	0	**5**	1	2	0	**3**	**8**	0	0	1	**1**	2	1	2	**5**	**6**	**14**
12:00	12:15	0	3	0	**3**	1	5	0	**6**	**9**	0	0	1	**1**	0	0	0	**0**	**1**	**10**
12:15	12:30	1	2	0	**3**	0	3	0	**3**	**6**	0	0	0	**0**	2	1	0	**3**	**3**	**9**
12:30	12:45	2	2	1	**5**	0	2	0	**2**	**7**	0	0	1	**1**	0	0	1	**1**	**2**	**9**
12:45	13:00	0	5	0	**5**	0	3	0	**3**	**8**	1	0	0	**1**	0	0	1	**1**	**2**	**10**
13:00	13:15	0	2	0	**2**	0	2	0	**2**	**4**	2	0	1	**3**	0	0	0	**0**	**3**	**7**
13:15	13:30	1	5	0	**6**	1	3	2	**6**	**12**	0	0	0	**0**	0	0	0	**0**	**0**	**12**
15:00	15:15	1	6	0	**7**	0	4	0	**4**	**11**	0	0	0	**0**	0	0	0	**0**	**0**	**11**
15:15	15:30	0	3	0	**3**	1	7	0	**8**	**11**	0	0	1	**1**	0	0	0	**0**	**1**	**12**
15:30	15:45	1	7	1	**9**	0	4	2	**6**	**15**	0	0	1	**1**	1	0	0	**1**	**2**	**17**
15:45	16:00	1	8	0	**9**	0	3	1	**4**	**13**	0	0	0	**0**	0	0	1	**1**	**1**	**14**
16:00	16:15	0	4	0	**4**	0	3	2	**5**	**9**	0	0	0	**0**	0	0	0	**0**	**0**	**9**
16:15	16:30	1	8	0	**9**	0	5	3	**8**	**17**	0	0	1	**1**	0	0	0	**0**	**1**	**18**
16:30	16:45	3	0	0	**3**	1	4	1	**6**	**9**	1	0	0	**1**	0	0	0	**0**	**1**	**10**
16:45	17:00	1	3	0	**4**	0	4	0	**4**	**8**	0	0	1	**1**	1	0	0	**1**	**2**	**10**
17:00	17:15	1	3	2	**6**	0	4	0	**4**	**10**	0	0	0	**0**	1	0	0	**1**	**1**	**11**
17:15	17:30	0	3	0	**3**	0	4	1	**5**	**8**	1	0	0	**1**	0	0	0	**0**	**1**	**9**
17:30	17:45	1	3	0	**4**	0	2	0	**2**	**6**	1	0	0	**1**	0	0	0	**0**	**1**	**7**
17:45	18:00	0	2	0	**2**	0	3	0	**3**	**5**	0	0	1	**1**	0	0	0	**0**	**1**	**6**
Total:	None	16	132	9	**157**	9	135	23	**167**	**324**	14	0	26	**40**	8	4	9	**21**	**61**	**385**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

FITZGERALD RD/MENTEN PL @ MOODIE DR

Survey Date: Wednesday, March 08, 2017 **WO No:** 36641

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

Full Study 15 Minute U-Turn Total

		MOODIE DR	MOODIE DR	FITZGERALD RD/MENTEN PL	FITZGERALD RD/MENTEN PL	
Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	2	0	0	**2**
07:15	07:30	0	1	0	0	**1**
07:30	07:45	0	2	0	0	**2**
07:45	08:00	0	1	0	0	**1**
08:00	08:15	0	1	0	0	**1**
08:15	08:30	0	3	0	0	**3**
08:30	08:45	0	0	0	0	**0**
08:45	09:00	0	3	0	0	**3**
09:00	09:15	0	0	0	0	**0**
09:15	09:30	0	3	0	0	**3**
09:30	09:45	0	1	0	0	**1**
09:45	10:00	0	0	0	0	**0**
11:30	11:45	0	3	0	0	**3**
11:45	12:00	0	1	0	0	**1**
12:00	12:15	0	0	0	0	**0**
12:15	12:30	0	1	0	0	**1**
12:30	12:45	0	2	0	0	**2**
12:45	13:00	1	2	0	0	**3**
13:00	13:15	0	0	0	0	**0**
13:15	13:30	0	3	0	0	**3**
15:00	15:15	0	0	0	0	**0**
15:15	15:30	0	1	0	0	**1**
15:30	15:45	1	0	0	0	**1**
15:45	16:00	0	2	0	0	**2**
16:00	16:15	1	1	0	0	**2**
16:15	16:30	0	1	0	0	**1**
16:30	16:45	0	0	0	0	**0**
16:45	17:00	0	1	0	0	**1**
17:00	17:15	0	1	0	0	**1**
17:15	17:30	1	0	0	0	**1**
17:30	17:45	0	0	0	0	**0**
17:45	18:00	1	1	0	0	**2**
Total		5	37	0	0	**42**

Transportation Services - Traffic Services

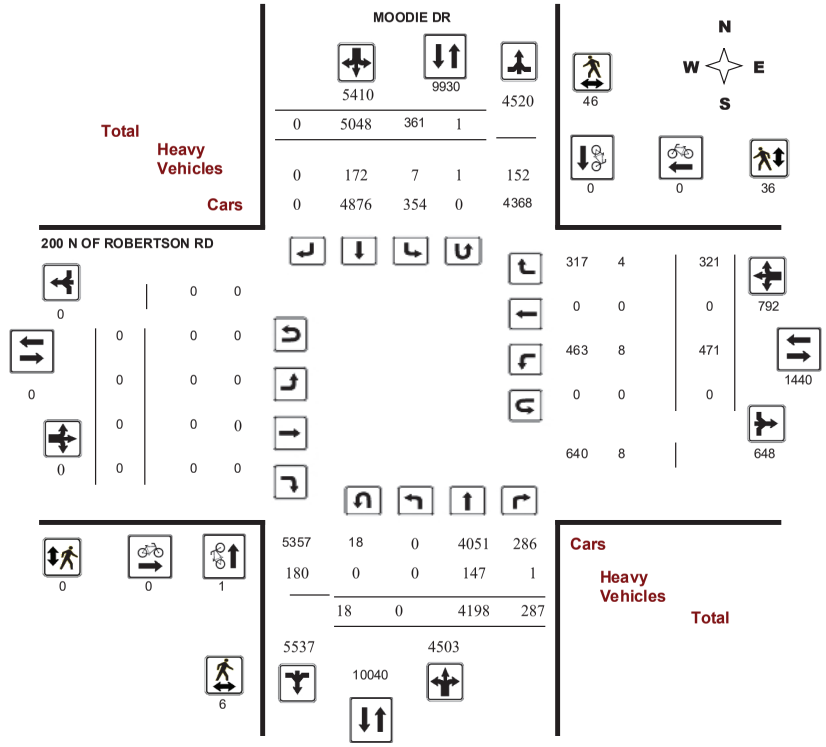
Turning Movement Count - Study Results

MOODIE DR @ 200 N OF ROBERTSON RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36596

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

Full Study Diagram



Transportation Services - Traffic Services

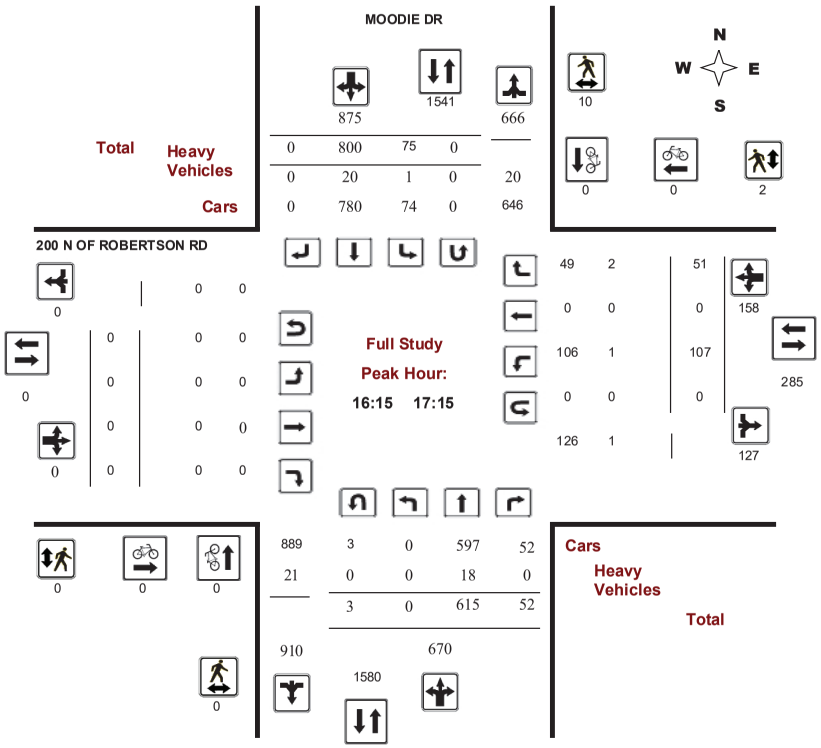
Turning Movement Count - Study Results

MOODIE DR @ 200 N OF ROBERTSON RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36596

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

Full Study Peak Hour Diagram



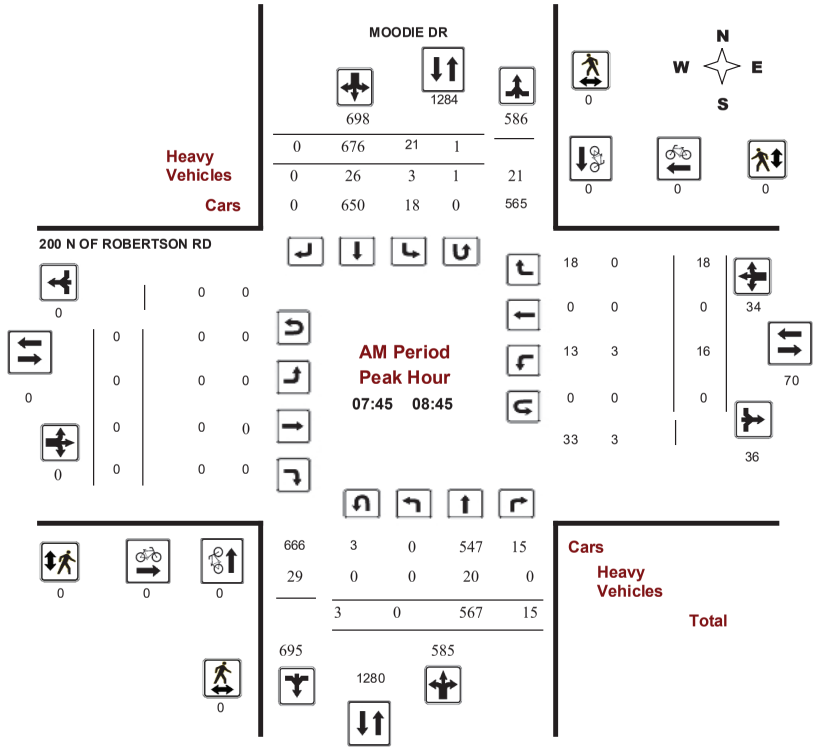
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MOODIE DR @ 200 N OF ROBERTSON RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36596

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



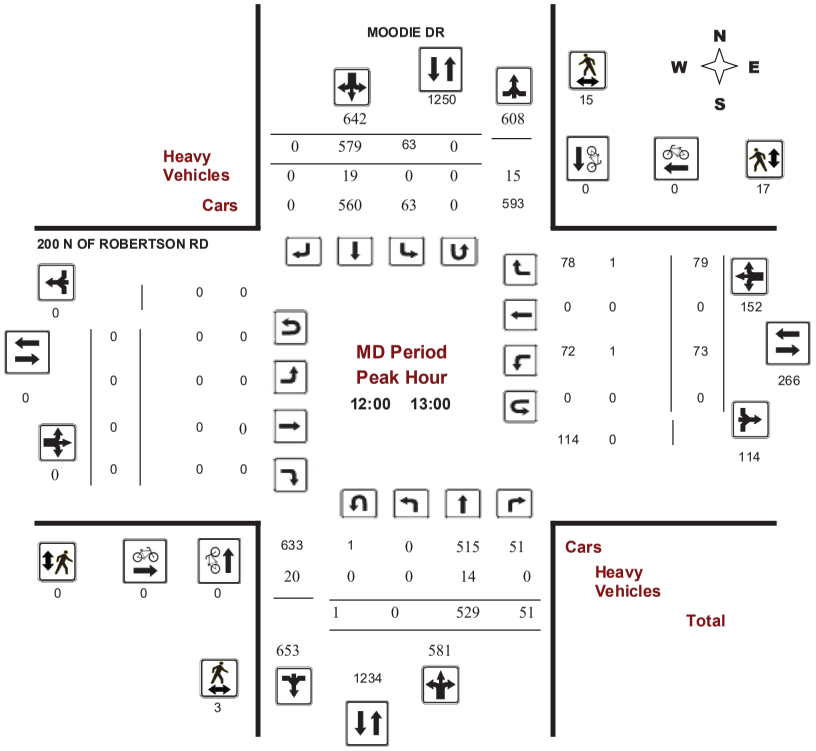
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MOODIE DR @ 200 N OF ROBERTSON RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36596

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



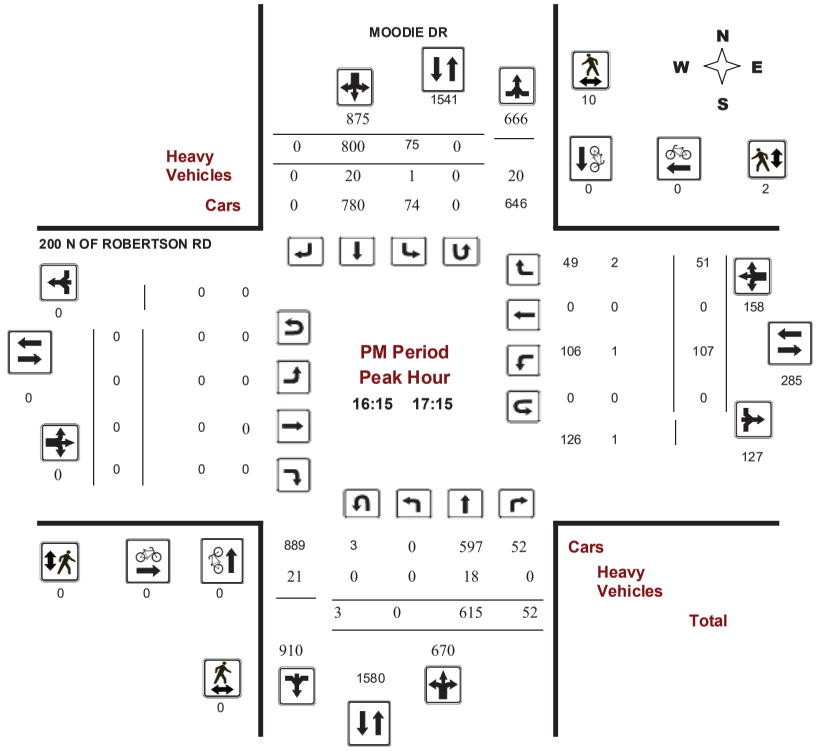
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MOODIE DR @ 200 N OF ROBERTSON RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36596

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



Transportation Services - Traffic Services

Turning Movement Count - Study Results

MOODIE DR @ 200 N OF ROBERTSON RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36596

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

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, March 08, 2017

Total Observed U-Turns

Northbound: 18 Southbound: 1

Eastbound: 0 Westbound: 0

AADT Factor 1.00

	MOODIE DR								200 N OF ROBERTSON 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	0	489	3	**492**	14	532	0	**546**	**1038**	0	0	0	**0**	7	0	9	**16**	**16**	**1054**
08:00 09:00	0	554	19	**573**	20	684	0	**704**	**1277**	0	0	0	**0**	15	0	17	**32**	**32**	**1309**
09:00 10:00	0	475	30	**505**	27	469	0	**496**	**1001**	0	0	0	**0**	19	0	19	**38**	**38**	**1039**
11:30 12:30	0	480	42	**522**	61	640	0	**701**	**1223**	0	0	0	**0**	67	0	54	**121**	**121**	**1344**
12:30 13:30	0	541	58	**599**	46	544	0	**590**	**1189**	0	0	0	**0**	64	0	68	**132**	**132**	**1321**
15:00 16:00	0	530	38	**568**	54	649	0	**703**	**1271**	0	0	0	**0**	103	0	55	**158**	**158**	**1429**
16:00 17:00	0	601	48	**649**	74	803	0	**877**	**1526**	0	0	0	**0**	100	0	47	**147**	**147**	**1673**
17:00 18:00	0	528	49	**577**	65	727	0	**792**	**1369**	0	0	0	**0**	96	0	52	**148**	**148**	**1517**
Sub Total	0	4198	287	**4485**	361	5048	0	**5409**	**9894**	0	0	0	**0**	471	0	321	**792**	**792**	**10686**
U Turns	18			**18**	1			**1**	**19**	**0**			**0**	0			**0**	**0**	**19**
Total	18	4198	287	**4503**	362	5048	0	**5410**	**9913**	0	0	0	**0**	471	0	321	**792**	**792**	**10705**
EQ 12Hr	25	5835	399	**6259**	503	7017	0	**7520**	**13779**	0	0	0	**0**	655	0	446	**1101**	**1101**	**14880**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													**1.39**						
AVG 12Hr	25	5835	399	**6259**	503	7017	0	**7520**	**13779**	0	0	0	**0**	655	0	446	**1101**	**1101**	**14880**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													**1.00**						
AVG 24Hr	33	7644	523	**8200**	659	9192	0	**9851**	**18051**	0	0	0	**0**	858	0	584	**1442**	**1442**	**19493**
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

MOODIE DR @ 200 N OF ROBERTSON RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36596

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

Full Study 15 Minute Increments

		MOODIE DR									200 N OF ROBERTSON 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	102	0	102	2	90	0	92	**194**	0	0	0	0	3	0	1	4	**4**	**198**
07:15	07:30	0	102	0	102	4	123	0	127	**229**	0	0	0	0	1	0	3	4	**4**	**233**
07:30	07:45	0	137	2	139	3	144	0	147	**286**	0	0	0	0	0	0	1	1	**1**	**287**
07:45	08:00	0	148	1	149	6	175	0	181	**330**	0	0	0	0	3	0	4	7	**7**	**337**
08:00	08:15	0	166	5	171	3	151	0	154	**325**	0	0	0	0	4	0	3	7	**7**	**332**
08:15	08:30	0	122	5	127	3	177	0	180	**307**	0	0	0	0	3	0	4	7	**7**	**314**
08:30	08:45	3	131	4	138	10	173	0	183	**321**	0	0	0	0	6	0	7	13	**13**	**334**
08:45	09:00	2	135	5	142	4	183	0	187	**329**	0	0	0	0	2	0	3	5	**5**	**334**
09:00	09:15	2	154	4	160	8	123	0	131	**291**	0	0	0	0	2	0	4	6	**6**	**297**
09:15	09:30	0	101	9	110	5	116	0	121	**231**	0	0	0	0	4	0	4	8	**8**	**239**
09:30	09:45	0	106	9	115	4	114	0	118	**233**	0	0	0	0	7	0	5	12	**12**	**245**
09:45	10:00	0	114	8	122	10	116	0	126	**248**	0	0	0	0	6	0	6	12	**12**	**260**
11:30	11:45	3	107	9	119	15	153	0	168	**287**	0	0	0	0	19	0	10	29	**29**	**316**
11:45	12:00	0	124	11	135	9	185	0	194	**329**	0	0	0	0	10	0	8	18	**18**	**347**
12:00	12:15	0	105	10	115	19	156	0	175	**290**	0	0	0	0	17	0	14	31	**31**	**321**
12:15	12:30	0	144	12	156	18	146	0	164	**320**	0	0	0	0	21	0	22	43	**43**	**363**
12:30	12:45	1	133	14	148	12	127	0	139	**287**	0	0	0	0	21	0	26	47	**47**	**334**
12:45	13:00	0	147	15	162	14	150	0	164	**326**	0	0	0	0	14	0	17	31	**31**	**357**
13:00	13:15	0	126	11	137	11	130	0	141	**278**	0	0	0	0	16	0	15	31	**31**	**309**
13:15	13:30	0	135	18	153	9	137	0	146	**299**	0	0	0	0	13	0	10	23	**23**	**322**
15:00	15:15	0	118	7	125	16	149	0	165	**290**	0	0	0	0	25	0	11	36	**36**	**326**
15:15	15:30	1	123	10	134	16	169	0	185	**319**	0	0	0	0	27	0	14	41	**41**	**360**
15:30	15:45	0	145	12	157	10	159	0	169	**326**	0	0	0	0	30	0	11	41	**41**	**367**
15:45	16:00	0	144	9	153	12	172	0	184	**337**	0	0	0	0	21	0	19	40	**40**	**377**
16:00	16:15	1	159	10	170	14	199	0	213	**383**	0	0	0	0	22	0	10	32	**32**	**415**
16:15	16:30	1	149	15	165	22	176	0	198	**363**	0	0	0	0	31	0	13	44	**44**	**407**
16:30	16:45	1	149	9	159	12	198	0	210	**369**	0	0	0	0	24	0	12	36	**36**	**405**
16:45	17:00	1	144	14	159	26	230	0	256	**415**	0	0	0	0	23	0	12	35	**35**	**450**
17:00	17:15	0	173	14	187	15	196	0	211	**398**	0	0	0	0	29	0	14	43	**43**	**441**
17:15	17:30	1	125	12	138	19	195	0	214	**352**	0	0	0	0	24	0	12	36	**36**	**388**
17:30	17:45	1	124	11	136	19	178	0	197	**333**	0	0	0	0	21	0	13	34	**34**	**367**
17:45	18:00	0	106	12	118	12	158	0	170	**288**	0	0	0	0	22	0	13	35	**35**	**323**
Total:		18	4198	287	4503	362	5048	0	5410	**9913**	0	0	0	0	471	0	321	792	**9913**	**10,705**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MOODIE DR @ 200 N OF ROBERTSON RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36596

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

Full Study Cyclist Volume

		MOODIE DR			200 N OF ROBERTSON RD			
Time Period		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	**0**	0	0	**0**	**0**
07:15	07:30	0	0	**0**	0	0	**0**	**0**
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	0	**0**	**0**
08:15	08:30	0	0	**0**	0	0	**0**	**0**
08:30	08:45	0	0	**0**	0	0	**0**	**0**
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	0	**0**	**0**
09:30	09:45	0	0	**0**	0	0	**0**	**0**
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	0	**0**	**0**
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**	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**	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**	0	0	**0**	**0**
15:45	16:00	0	0	**0**	0	0	**0**	**0**
16:00	16:15	0	0	**0**	0	0	**0**	**0**
16:15	16:30	0	0	**0**	0	0	**0**	**0**
16:30	16:45	0	0	**0**	0	0	**0**	**0**
16:45	17:00	0	0	**0**	0	0	**0**	**0**
17:00	17:15	0	0	**0**	0	0	**0**	**0**
17:15	17:30	0	0	**0**	0	0	**0**	**0**
17:30	17:45	0	0	**0**	0	0	**0**	**0**
17:45	18:00	0	0	**0**	0	0	**0**	**0**
Total		1	0	**1**	0	0	**0**	**1**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MOODIE DR @ 200 N OF ROBERTSON RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36596

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

Full Study Pedestrian Volume

Time Period	MOODIE DR NB Approach (E or W Crossing)	MOODIE DR SB Approach (E or W Crossing)	MOODIE DR Total	200 N OF ROBERTSON RD EB Approach (N or S Crossing)	200 N OF ROBERTSON RD WB Approach (N or S Crossing)	200 N OF ROBERTSON RD Total	Grand Total
07:00 07:15	0	0	**0**	0	0	**0**	**0**
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	0	**0**	**0**
08:00 08:15	0	0	**0**	0	0	**0**	**0**
08:15 08:30	0	0	**0**	0	0	**0**	**0**
08:30 08:45	0	0	**0**	0	0	**0**	**0**
08:45 09:00	0	1	**1**	0	2	**2**	**3**
09:00 09:15	0	0	**0**	0	1	**1**	**1**
09:15 09:30	0	1	**1**	0	1	**1**	**2**
09:30 09:45	0	0	**0**	0	0	**0**	**0**
09:45 10:00	0	1	**1**	0	0	**0**	**1**
11:30 11:45	0	0	**0**	0	2	**2**	**2**
11:45 12:00	0	3	**3**	0	0	**0**	**3**
12:00 12:15	0	6	**6**	0	4	**4**	**10**
12:15 12:30	0	5	**5**	0	1	**1**	**6**
12:30 12:45	3	1	**4**	0	7	**7**	**11**
12:45 13:00	0	3	**3**	0	5	**5**	**8**
13:00 13:15	0	1	**1**	0	0	**0**	**1**
13:15 13:30	0	1	**1**	0	4	**4**	**5**
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	2	2	**4**	0	2	**2**	**6**
15:45 16:00	1	1	**2**	0	0	**0**	**2**
16:00 16:15	0	5	**5**	0	1	**1**	**6**
16:15 16:30	0	2	**2**	0	2	**2**	**4**
16:30 16:45	0	3	**3**	0	0	**0**	**3**
16:45 17:00	0	3	**3**	0	0	**0**	**3**
17:00 17:15	0	2	**2**	0	0	**0**	**2**
17:15 17:30	0	2	**2**	0	1	**1**	**3**
17:30 17:45	0	3	**3**	0	1	**1**	**4**
17:45 18:00	0	0	**0**	0	1	**1**	**1**
Total	6	46	**52**	0	36	**36**	**88**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MOODIE DR @ 200 N OF ROBERTSON RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36596

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

Full Study Heavy Vehicles

		MOODIE DR									200 N OF ROBERTSON 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	1	0	**1**	0	1	0	**1**	**2**	0	0	0	**0**	1	0	0	**1**	**1**	**3**
07:15	07:30	0	5	0	**5**	0	6	0	**6**	**11**	0	0	0	**0**	1	0	0	**1**	**1**	**12**
07:30	07:45	0	6	0	**6**	0	6	0	**6**	**12**	0	0	0	**0**	0	0	0	**0**	**0**	**12**
07:45	08:00	0	2	0	**2**	1	7	0	**8**	**10**	0	0	0	**0**	1	0	0	**1**	**1**	**12**
08:00	08:15	0	5	0	**5**	0	7	0	**7**	**12**	0	0	0	**0**	0	0	0	**0**	**0**	**12**
08:15	08:30	0	7	0	**7**	1	5	0	**6**	**13**	0	0	0	**0**	0	0	0	**0**	**0**	**13**
08:30	08:45	0	6	0	**6**	1	7	0	**8**	**14**	0	0	0	**0**	2	0	0	**2**	**2**	**16**
08:45	09:00	0	3	0	**3**	0	15	0	**15**	**18**	0	0	0	**0**	0	0	0	**0**	**0**	**18**
09:00	09:15	0	11	0	**11**	0	7	0	**7**	**18**	0	0	0	**0**	0	0	0	**0**	**0**	**18**
09:15	09:30	0	3	0	**3**	1	7	0	**8**	**11**	0	0	0	**0**	0	0	0	**0**	**0**	**11**
09:30	09:45	0	5	1	**6**	1	7	0	**8**	**14**	0	0	0	**0**	0	0	0	**0**	**0**	**14**
09:45	10:00	0	4	0	**4**	1	6	0	**7**	**11**	0	0	0	**0**	0	0	0	**0**	**0**	**11**
11:30	11:45	0	4	0	**4**	0	7	0	**7**	**11**	0	0	0	**0**	0	0	1	**1**	**1**	**12**
11:45	12:00	0	5	0	**5**	0	4	0	**4**	**9**	0	0	0	**0**	0	0	0	**0**	**0**	**9**
12:00	12:15	0	3	0	**3**	0	6	0	**6**	**9**	0	0	0	**0**	0	0	0	**0**	**0**	**9**
12:15	12:30	0	3	0	**3**	0	7	0	**7**	**10**	0	0	0	**0**	1	0	0	**1**	**1**	**11**
12:30	12:45	0	5	0	**5**	0	3	0	**3**	**8**	0	0	0	**0**	0	0	1	**1**	**1**	**9**
12:45	13:00	0	3	0	**3**	0	3	0	**3**	**6**	0	0	0	**0**	0	0	0	**0**	**0**	**6**
13:00	13:15	0	3	0	**3**	0	2	0	**2**	**5**	0	0	0	**0**	0	0	0	**0**	**0**	**5**
13:15	13:30	0	4	0	**4**	0	4	0	**4**	**8**	0	0	0	**0**	0	0	0	**0**	**0**	**8**
15:00	15:15	0	6	0	**6**	0	6	0	**6**	**12**	0	0	0	**0**	1	0	0	**1**	**1**	**13**
15:15	15:30	0	3	0	**3**	0	8	0	**8**	**11**	0	0	0	**0**	0	0	0	**0**	**0**	**11**
15:30	15:45	0	9	0	**9**	0	5	0	**5**	**14**	0	0	0	**0**	0	0	0	**0**	**0**	**14**
15:45	16:00	0	9	0	**9**	0	3	0	**3**	**12**	0	0	0	**0**	0	0	0	**0**	**0**	**12**
16:00	16:15	0	5	0	**5**	0	4	0	**4**	**9**	0	0	0	**0**	0	0	0	**0**	**0**	**9**
16:15	16:30	0	11	0	**11**	1	5	0	**6**	**17**	0	0	0	**0**	0	0	0	**0**	**0**	**17**
16:30	16:45	0	1	0	**1**	0	3	0	**3**	**4**	0	0	0	**0**	0	0	0	**0**	**0**	**4**
16:45	17:00	0	4	0	**4**	0	7	0	**7**	**11**	0	0	0	**0**	1	0	0	**1**	**1**	**12**
17:00	17:15	0	2	0	**2**	0	5	0	**5**	**7**	0	0	0	**0**	0	0	2	**2**	**2**	**9**
17:15	17:30	0	3	0	**3**	0	3	0	**3**	**6**	0	0	0	**0**	0	0	0	**0**	**0**	**6**
17:30	17:45	0	4	0	**4**	0	2	0	**2**	**6**	0	0	0	**0**	0	0	0	**0**	**0**	**6**
17:45	18:00	0	2	0	**2**	0	4	0	**4**	**6**	0	0	0	**0**	0	0	0	**0**	**0**	**6**
Total:	None	0	147	1	**148**	7	172	0	**179**	**327**	0	0	0	**0**	8	0	4	**12**	**12**	**340**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MOODIE DR @ 200 N OF ROBERTSON RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36596

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

Full Study 15 Minute U-Turn Total

Time Period		MOODIE DR Northbound U-Turn Total	MOODIE DR Southbound U-Turn Total	200 N OF ROBERTSON RD Eastbound U-Turn Total	200 N OF ROBERTSON 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	1	0	0	**1**
08:00	08:15	0	0	0	0	**0**
08:15	08:30	0	0	0	0	**0**
08:30	08:45	3	0	0	0	**3**
08:45	09:00	2	0	0	0	**2**
09:00	09:15	2	0	0	0	**2**
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	3	0	0	0	**3**
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	1	0	0	0	**1**
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	1	0	0	0	**1**
15:30	15:45	0	0	0	0	**0**
15:45	16:00	0	0	0	0	**0**
16:00	16:15	1	0	0	0	**1**
16:15	16:30	1	0	0	0	**1**
16:30	16:45	1	0	0	0	**1**
16:45	17:00	1	0	0	0	**1**
17:00	17:15	0	0	0	0	**0**
17:15	17:30	1	0	0	0	**1**
17:30	17:45	1	0	0	0	**1**
17:45	18:00	0	0	0	0	**0**
Total		18	1	0	0	**19**

Transportation Services - Traffic Services W.O. 37325

Turning Movement Count - 15 Minute Summary Report

FITZGERALD RD @ ROBERTSON RD

Survey Date: Thursday, November 30, 2017

Total Observed U-Turns

Northbound: 1 Southbound: 0

Eastbound: 0 Westbound: 9

		FITZGERALD RD Northbound				FITZGERALD RD Southbound					ROBERTSON RD Eastbound					ROBERTSON RD 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	1	**2**	15	1	10	**26**	**28**	26	336	2	**364**	3	64	29	**96**	**460**	**488**
07:15	07:30	1	0	1	**2**	19	1	13	**33**	**35**	37	376	0	**413**	3	75	29	**107**	**520**	**555**
07:30	07:45	2	2	1	**5**	17	2	9	**28**	**33**	53	348	0	**401**	2	78	36	**117**	**518**	**551**
07:45	08:00	0	0	4	**4**	10	3	19	**32**	**36**	44	236	1	**281**	8	115	39	**163**	**444**	**480**
08:00	08:15	1	1	3	**5**	16	2	21	**39**	**44**	48	368	4	**420**	9	92	28	**129**	**549**	**593**
08:15	08:30	2	1	12	**15**	13	3	15	**31**	**46**	37	266	8	**311**	12	103	38	**154**	**465**	**511**
08:30	08:45	6	1	5	**12**	16	2	20	**38**	**50**	30	237	13	**280**	10	133	35	**178**	**458**	**508**
08:45	09:00	6	4	13	**23**	12	5	19	**36**	**59**	35	233	6	**274**	15	148	43	**206**	**480**	**539**
09:00	09:15	6	2	12	**20**	30	4	22	**56**	**76**	27	216	8	**251**	25	121	33	**179**	**430**	**506**
09:15	09:30	10	0	25	**35**	18	7	18	**43**	**78**	30	189	7	**226**	33	123	26	**182**	**408**	**486**
09:30	09:45	6	2	27	**35**	16	4	10	**30**	**65**	15	172	9	**196**	21	132	23	**177**	**373**	**438**
09:45	10:00	12	0	25	**37**	12	4	16	**32**	**69**	7	146	21	**174**	31	127	17	**175**	**349**	**418**
11:30	11:45	11	3	34	**48**	25	14	26	**65**	**113**	17	172	14	**203**	41	180	19	**240**	**443**	**556**
11:45	12:00	14	10	52	**76**	32	18	42	**92**	**168**	21	180	16	**217**	43	209	9	**261**	**478**	**646**
12:00	12:15	14	11	44	**69**	39	19	43	**101**	**170**	24	190	12	**226**	41	183	18	**242**	**468**	**638**
12:15	12:30	15	9	43	**67**	24	15	26	**65**	**132**	20	190	8	**218**	55	184	21	**260**	**478**	**610**
12:30	12:45	14	7	59	**80**	14	11	14	**39**	**119**	29	182	15	**226**	31	160	20	**211**	**437**	**556**
12:45	13:00	13	16	42	**71**	34	9	20	**63**	**134**	36	158	10	**204**	36	173	36	**247**	**451**	**585**
13:00	13:15	14	6	47	**67**	17	13	17	**47**	**114**	41	175	9	**225**	48	188	24	**260**	**485**	**599**
13:15	13:30	19	8	34	**61**	14	8	25	**47**	**108**	28	130	21	**179**	36	164	21	**222**	**401**	**509**
15:00	15:15	19	6	36	**61**	28	5	33	**66**	**127**	16	175	14	**205**	43	224	21	**288**	**493**	**620**
15:15	15:30	15	7	29	**51**	15	8	10	**33**	**84**	14	158	8	**180**	32	244	10	**286**	**466**	**550**
15:30	15:45	9	7	43	**59**	30	5	25	**60**	**119**	18	132	9	**159**	48	257	6	**311**	**470**	**589**
15:45	16:00	11	4	35	**50**	20	11	26	**57**	**107**	7	149	8	**164**	46	265	9	**320**	**484**	**591**
16:00	16:15	12	8	30	**50**	33	12	50	**95**	**145**	12	141	8	**161**	39	289	12	**340**	**501**	**646**
16:15	16:30	16	7	43	**66**	26	11	33	**70**	**136**	6	137	7	**150**	49	297	11	**357**	**507**	**643**
16:30	16:45	16	5	38	**59**	27	9	36	**72**	**131**	4	151	7	**162**	38	271	11	**320**	**482**	**613**
16:45	17:00	16	4	37	**57**	22	7	28	**57**	**114**	9	121	8	**138**	46	291	9	**346**	**484**	**598**
17:00	17:15	16	4	46	**66**	22	10	45	**77**	**143**	9	153	10	**172**	34	245	4	**284**	**456**	**599**
17:15	17:30	20	7	30	**57**	19	10	34	**63**	**120**	6	155	14	**175**	42	299	10	**352**	**527**	**647**
17:30	17:45	17	5	36	**58**	18	7	18	**43**	**101**	8	136	5	**149**	42	257	7	**306**	**455**	**556**
17:45	18:00	16	0	39	**55**	4	4	7	**15**	**70**	7	116	13	**136**	46	227	4	**277**	**413**	**483**
TOTAL:		349	147	926	**1423**	657	244	750	**1651**	**3074**	721	6224	295	**7240**	1008	5918	658	**7593**	**14833**	**17907**

Note: U-Turns are included in Totals.

Comment:

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order 37325

FITZGERALD RD @ ROBERTSON RD

Count Date: Thursday, November 30, 2017 **Start Time:** 07:00

	FITZGERALD RD			ROBERTSON RD			
Time Period	Northbound	Southbound	**Street Total**	Eastbound	Westbound	**Street Total**	**Grand Total**
07:00 08:00	0	0	**0**	0	0	**0**	**0**
08:00 09:00	0	0	**0**	0	0	**0**	**0**
09:00 10:00	0	0	**0**	0	0	**0**	**0**
11:30 12:30	0	0	**0**	0	0	**0**	**0**
12:30 13:30	0	0	**0**	0	0	**0**	**0**
15:00 16:00	0	1	**1**	0	1	**1**	**2**
16:00 17:00	0	0	**0**	0	0	**0**	**0**
17:00 18:00	0	0	**0**	0	0	**0**	**0**
Total	0	1	**1**	0	1	**1**	**2**

Comment:

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

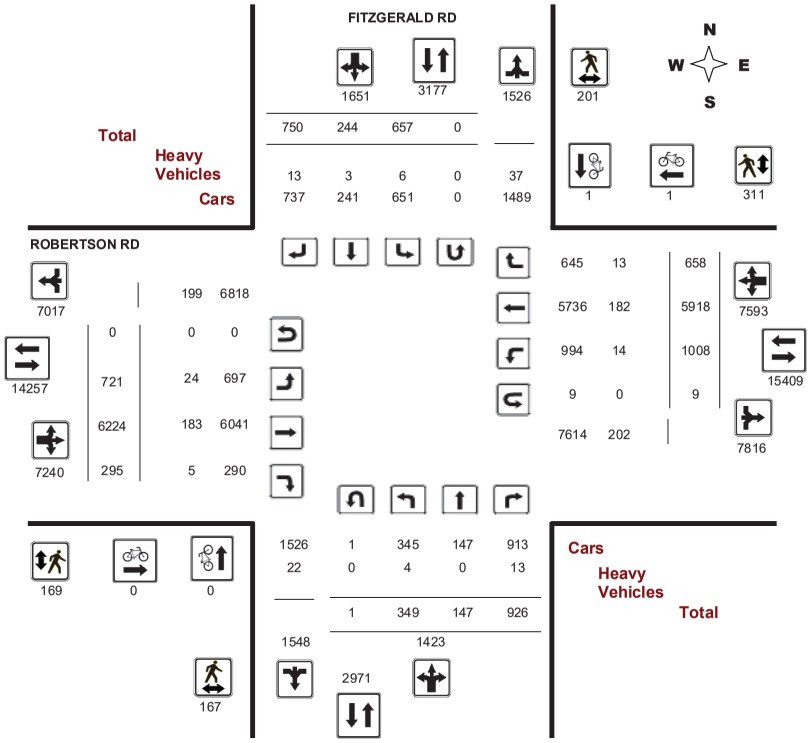
Transportation Services - Traffic Services

Turning Movement Count - Full Study Diagram

FITZGERALD RD @ ROBERTSON RD

Survey Date: Thursday, November 30, 2017 **WO#:** 37325

Device: Miovision



Comments

Transportation Services - Traffic Services

W.O. 37325

Turning Movement Count - Heavy Vehicle Report

FITZGERALD RD @ ROBERTSON RD

Survey Date: Thursday, November 30, 2017

		FITZGERALD RD									ROBERTSON 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	08:00	0	0	1	**1**	2	0	2	**4**	**5**	4	19	0	**23**	1	23	2	**26**	**49**	**54**
08:00	09:00	0	0	1	**1**	3	0	2	**5**	**6**	2	24	1	**27**	0	26	4	**30**	**57**	**63**
09:00	10:00	1	0	2	**3**	1	0	1	**2**	**5**	1	37	2	**40**	6	26	1	**33**	**73**	**78**
11:30	12:30	1	0	2	**3**	0	2	2	**4**	**7**	3	31	0	**34**	4	33	2	**39**	**73**	**80**
12:30	13:30	2	0	6	**8**	0	0	1	**1**	**9**	4	22	1	**27**	2	24	0	**26**	**53**	**62**
15:00	16:00	0	0	1	**1**	0	0	1	**1**	**2**	5	26	1	**32**	1	29	2	**32**	**64**	**66**
16:00	17:00	0	0	0	**0**	0	0	2	**2**	**2**	2	13	0	**15**	0	14	1	**15**	**30**	**32**
17:00	18:00	0	0	0	**0**	0	1	2	**3**	**3**	3	11	0	**14**	0	7	1	**8**	**22**	**25**
Sub Total		4	0	13	**17**	6	3	13	**22**	**39**	24	183	5	**212**	14	182	13	**209**	**421**	**460**
U-Turns (Heavy Vehicles)					**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total		4	0	13	**0**	6	3	13	**22**	**39**	24	183	5	**212**	14	182	13	**209**	**421**	**460**

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 37325

Turning Movement Count - Pedestrian Volume Report

FITZGERALD RD @ ROBERTSON RD

Count Date: Thursday, November 30, 2017 **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	1	**5**	2	3	**5**	**10**
07:15	07:30	3	2	**5**	2	4	**6**	**11**
07:30	07:45	4	8	**12**	2	1	**3**	**15**
07:45	08:00	3	4	**7**	4	8	**12**	**19**
07:00	08:00	14	15	**29**	10	16	**26**	**55**
08:00	08:15	4	2	**6**	3	5	**8**	**14**
08:15	08:30	3	4	**7**	3	6	**9**	**16**
08:30	08:45	6	4	**10**	2	9	**11**	**21**
08:45	09:00	11	6	**17**	9	6	**15**	**32**
08:00	09:00	24	16	**40**	17	26	**43**	**83**
09:00	09:15	5	4	**9**	3	14	**17**	**26**
09:15	09:30	4	6	**10**	2	8	**10**	**20**
09:30	09:45	5	9	**14**	4	12	**16**	**30**
09:45	10:00	2	3	**5**	1	12	**13**	**18**
09:00	10:00	16	22	**38**	10	46	**56**	**94**
11:30	11:45	3	6	**9**	2	6	**8**	**17**
11:45	12:00	6	6	**12**	7	15	**22**	**34**
12:00	12:15	3	11	**14**	17	22	**39**	**53**
12:15	12:30	10	3	**13**	12	19	**31**	**44**
11:30	12:30	22	26	**48**	38	62	**100**	**148**
12:30	12:45	9	5	**14**	8	18	**26**	**40**
12:45	13:00	7	11	**18**	8	6	**14**	**32**
13:00	13:15	8	18	**26**	12	18	**30**	**56**
13:15	13:30	8	11	**19**	6	14	**20**	**39**
12:30	13:30	32	45	**77**	34	56	**90**	**167**
15:00	15:15	2	13	**15**	9	8	**17**	**32**
15:15	15:30	2	7	**9**	5	7	**12**	**21**
15:30	15:45	8	12	**20**	3	16	**19**	**39**
15:45	16:00	2	5	**7**	6	6	**12**	**19**
15:00	16:00	14	37	**51**	23	37	**60**	**111**
16:00	16:15	3	9	**12**	6	10	**16**	**28**
16:15	16:30	9	7	**16**	6	10	**16**	**32**
16:30	16:45	8	2	**10**	4	8	**12**	**22**
16:45	17:00	3	4	**7**	2	12	**14**	**21**
16:00	17:00	23	22	**45**	18	40	**58**	**103**
17:00	17:15	6	2	**8**	5	5	**10**	**18**
17:15	17:30	3	4	**7**	4	4	**8**	**15**
17:30	17:45	7	4	**11**	4	11	**15**	**26**
17:45	18:00	6	8	**14**	6	8	**14**	**28**
17:00	18:00	22	18	**40**	19	28	**47**	**87**
Total	.....	167	201	**368**	169	311	**480**	**848**

Comment:

Transportation Services - Traffic Services

Work Order 37325

Turning Movement Count - Full Study Summary Report

FITZGERALD RD @ ROBERTSON RD

Survey Date: Thursday, November 30, 2017

Total Observed U-Turns

Northbound: 1 Southbound: 0

Eastbound: 0 Westbound: 9

AADT Factor .90

Full Study

	FITZGERALD RD									ROBERTSON 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	3	2	7	**12**	61	7	51	**119**	**131**	160	1296	3	**1459**	16	332	133	**481**	**1940**	**2071**
08:00 09:00	15	7	33	**55**	57	12	75	**144**	**199**	150	1104	31	**1285**	46	476	144	**666**	**1951**	**2150**
09:00 10:00	34	4	89	**127**	76	19	66	**161**	**288**	79	723	45	**847**	110	503	99	**712**	**1559**	**1847**
11:30 12:30	54	33	173	**260**	120	66	137	**323**	**583**	82	732	50	**864**	180	756	67	**1003**	**1867**	**2450**
12:30 13:30	60	37	182	**279**	79	41	76	**196**	**475**	134	645	55	**834**	151	685	101	**937**	**1771**	**2246**
15:00 16:00	54	24	143	**221**	93	29	94	**216**	**437**	55	614	39	**708**	169	990	46	**1205**	**1913**	**2350**
16:00 17:00	60	24	148	**232**	108	39	147	**294**	**526**	31	550	30	**611**	172	1148	43	**1363**	**1974**	**2500**
17:00 18:00	69	16	151	**236**	63	31	104	**198**	**434**	30	560	42	**632**	164	1028	25	**1217**	**1849**	**2283**
Sub Total	349	147	926	**1422**	657	244	750	**1651**	**3073**	721	6224	295	**7240**	1008	5918	658	**7584**	**14824**	**17897**
U Turns				**1**				**0**	**1**				**0**				**9**	**9**	**10**
Total	349	147	926	**1423**	657	244	750	**1651**	**3074**	721	6224	295	**7240**	1008	5918	658	**7593**	**14833**	**17907**
EQ 12Hr	485	204	1287	**1978**	913	339	1042	**2295**	**4273**	1002	8651	410	**10064**	1401	8226	915	**10554**	**20618**	**24891**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor. **1.39**																			
AVG 12Hr	437	184	1158	**1780**	822	305	938	**2065**	**3845**	902	7786	369	**9057**	1261	7403	823	**9499**	**18556**	**22401**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor. **.90**																			
AVG 24Hr	572	241	1518	**2332**	1077	400	1229	**2706**	**5038**	1182	10200	483	**11865**	1652	9698	1078	**12443**	**24308**	**29346**
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.

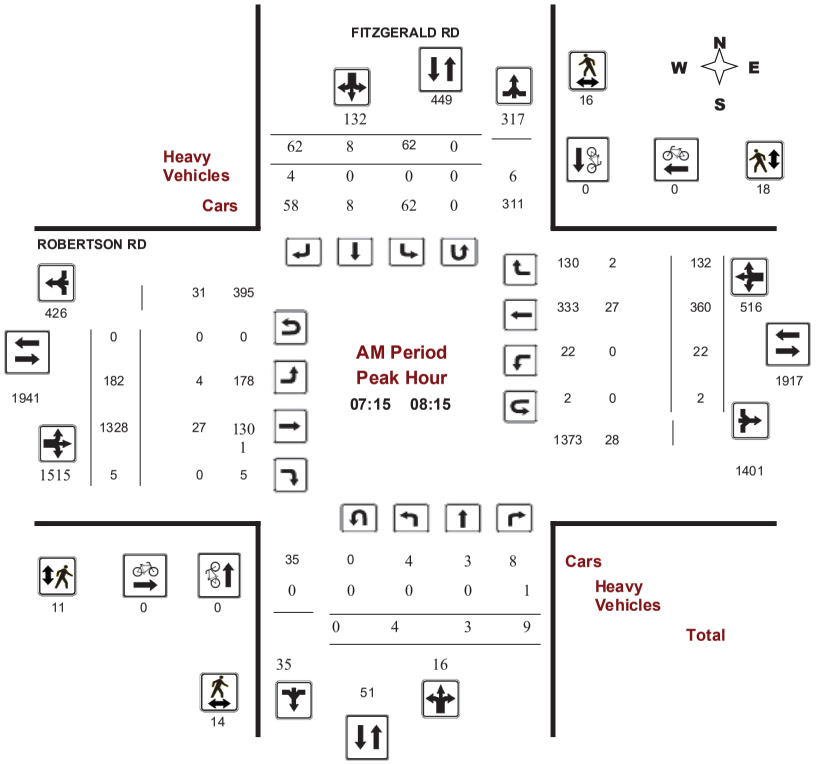
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

FITZGERALD RD @ ROBERTSON RD

Survey Date: Thursday, November 30, 2017 **WO No:** 37325

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



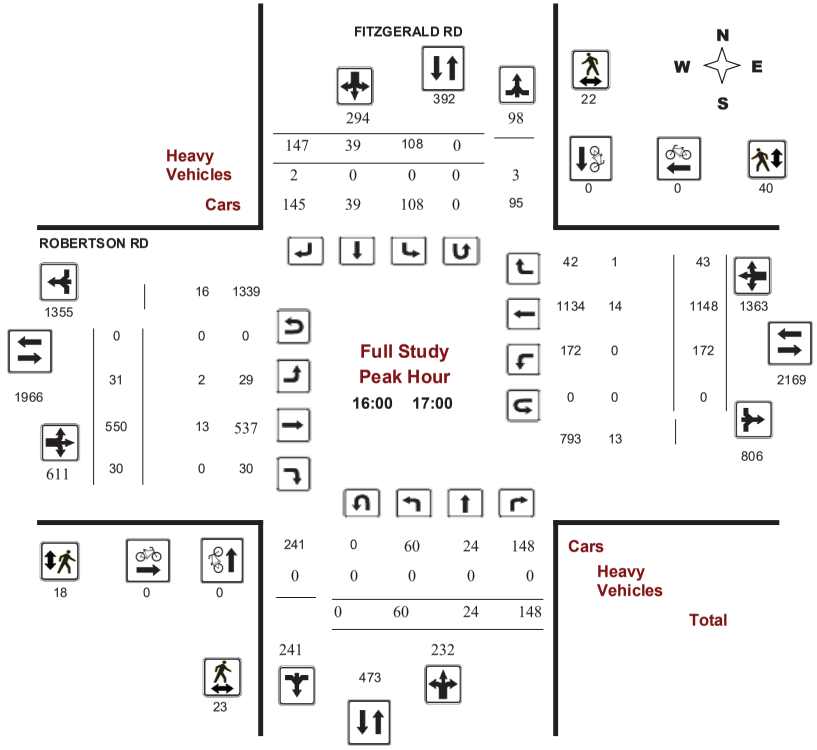
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

FITZGERALD RD @ ROBERTSON RD

Survey Date: Thursday, November 30, 2017 **WO No:** 37325

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



Comments

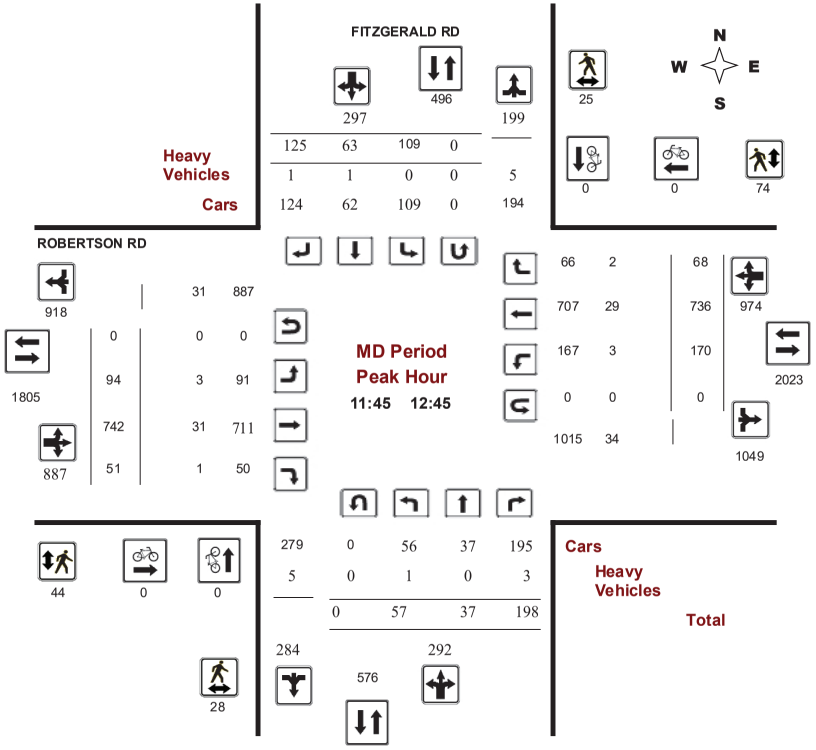
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

FITZGERALD RD @ ROBERTSON RD

Survey Date: Thursday, November 30, 2017 **WO No:** 37325

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



Comments

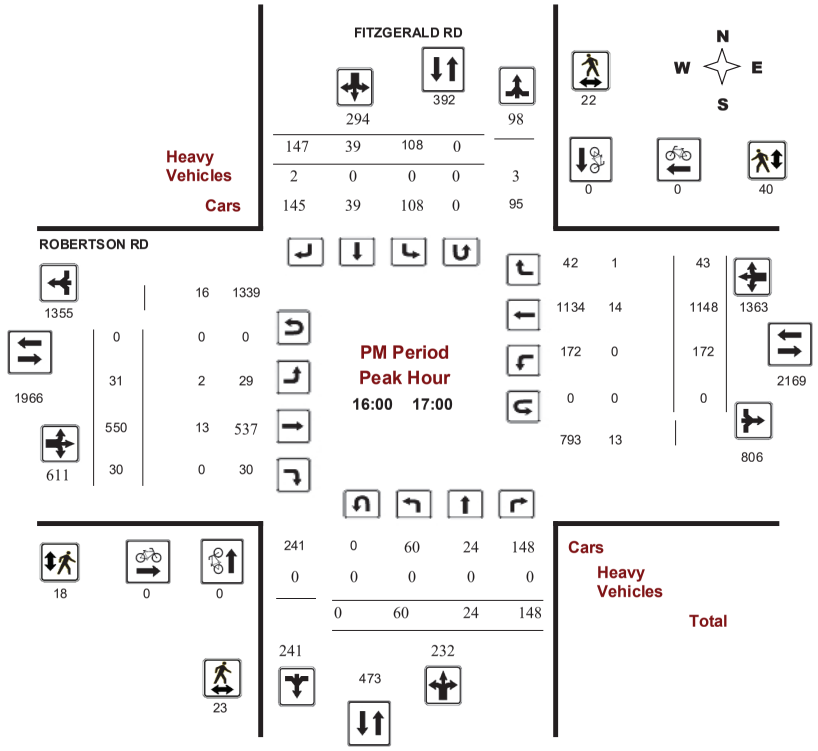
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

FITZGERALD RD @ ROBERTSON RD

Survey Date: Thursday, November 30, 2017 **WO No:** 37325

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



Comments

Transportation Services - Traffic Services

Work Order 37325

Turning Movement Count - 15 Min U-Turn Total Report

FITZGERALD RD @ ROBERTSON RD

Survey Date: Thursday, November 30, 2017

Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	1	0	0	0	1
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	1	1
07:45	08:00	0	0	0	1	1
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	1	1
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	1	1
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	2	2
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	1	1
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	1	1
17:15	17:30	0	0	0	1	1
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		1	0	0	9	10

Transportation Services - Traffic Services

W.O. 36743

Turning Movement Count - 15 Minute Summary Report

MOODIE DR @ ROBERTSON RD

Survey Date: Wednesday, March 08, 2017

Total Observed U-Turns

Northbound: 6 Southbound: 1

Eastbound: 6 Westbound: 4

		MOODIE DR									ROBERTSON 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	36	60	77	**173**	49	33	15	**97**	**270**	13	318	34	**365**	12	59	16	**88**	**453**	**723**
07:15	07:30	47	68	87	**202**	67	31	17	**115**	**317**	7	321	31	**359**	12	61	27	**100**	**459**	**776**
07:30	07:45	48	83	88	**219**	91	35	16	**142**	**361**	13	384	19	**416**	20	66	32	**118**	**534**	**895**
07:45	08:00	66	91	80	**237**	100	44	27	**171**	**408**	16	307	28	**351**	21	90	52	**163**	**514**	**922**
08:00	08:15	50	92	76	**218**	75	48	30	**153**	**371**	19	293	36	**349**	22	77	39	**138**	**487**	**858**
08:15	08:30	61	95	65	**221**	90	49	34	**173**	**394**	22	227	29	**278**	18	74	29	**121**	**399**	**793**
08:30	08:45	70	70	67	**207**	93	58	31	**182**	**389**	24	256	34	**314**	31	95	41	**167**	**481**	**870**
08:45	09:00	62	76	74	**212**	87	60	28	**175**	**387**	20	221	23	**264**	21	108	52	**181**	**445**	**832**
09:00	09:15	65	72	59	**197**	64	43	30	**137**	**334**	18	197	28	**243**	28	88	60	**176**	**419**	**753**
09:15	09:30	46	70	51	**168**	68	40	30	**138**	**306**	21	155	38	**214**	26	104	34	**164**	**378**	**684**
09:30	09:45	39	52	50	**141**	49	36	36	**121**	**262**	26	145	24	**197**	30	103	35	**168**	**365**	**627**
09:45	10:00	48	50	47	**145**	60	30	35	**125**	**270**	24	144	24	**192**	18	102	52	**173**	**365**	**635**
11:30	11:45	48	40	45	**133**	78	35	42	**155**	**288**	20	144	35	**199**	29	139	58	**226**	**425**	**713**
11:45	12:00	62	47	39	**148**	102	64	41	**207**	**355**	32	145	39	**217**	28	151	44	**223**	**440**	**795**
12:00	12:15	58	53	46	**157**	77	47	43	**167**	**324**	24	146	39	**209**	38	141	51	**230**	**439**	**763**
12:15	12:30	58	36	39	**133**	67	51	44	**162**	**295**	37	142	47	**226**	43	152	77	**272**	**498**	**793**
12:30	12:45	54	49	37	**140**	63	51	39	**153**	**293**	46	158	46	**250**	36	147	51	**235**	**485**	**778**
12:45	13:00	45	65	43	**153**	64	38	48	**150**	**303**	32	169	39	**240**	31	142	66	**239**	**479**	**782**
13:00	13:15	47	41	44	**132**	61	59	39	**159**	**291**	29	137	43	**209**	28	184	59	**271**	**480**	**771**
13:15	13:30	64	58	43	**166**	62	44	42	**148**	**314**	26	148	53	**227**	31	130	65	**226**	**453**	**767**
15:00	15:15	43	43	30	**117**	59	75	42	**176**	**293**	28	170	52	**250**	43	169	42	**254**	**504**	**797**
15:15	15:30	42	44	31	**117**	47	90	55	**192**	**309**	26	158	61	**245**	52	169	63	**284**	**529**	**838**
15:30	15:45	59	55	34	**148**	70	80	37	**187**	**335**	35	148	49	**232**	62	197	47	**306**	**538**	**873**
15:45	16:00	57	69	64	**190**	73	85	42	**200**	**390**	26	144	51	**221**	69	190	60	**319**	**540**	**930**
16:00	16:15	54	54	48	**156**	69	108	47	**224**	**380**	29	143	57	**230**	52	252	76	**380**	**610**	**990**
16:15	16:30	63	70	29	**163**	68	105	44	**217**	**380**	32	126	66	**224**	51	237	75	**363**	**587**	**967**
16:30	16:45	59	42	32	**133**	78	91	48	**217**	**350**	30	140	72	**242**	40	241	71	**352**	**594**	**944**
16:45	17:00	54	63	41	**158**	68	133	53	**254**	**412**	22	115	59	**196**	73	194	82	**349**	**545**	**957**
17:00	17:15	49	50	46	**145**	73	104	49	**226**	**371**	36	155	72	**264**	61	229	97	**387**	**651**	**1022**
17:15	17:30	49	58	28	**135**	62	97	44	**203**	**338**	24	150	56	**230**	63	193	58	**315**	**545**	**883**
17:30	17:45	52	37	50	**140**	61	92	44	**198**	**338**	25	141	58	**224**	69	198	70	**337**	**561**	**899**
17:45	18:00	54	44	43	**141**	55	95	38	**188**	**329**	17	121	53	**191**	57	166	58	**281**	**472**	**801**
TOTAL:		1709	1897	1633	**5245**	2250	2051	1210	**5512**	**10757**	799	5868	1395	**8068**	1215	4648	1739	**7606**	**15674**	**26431**

Note: U-Turns are included in Totals.

Comment:

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order 36743

MOODIE DR @ ROBERTSON RD

Count Date: Wednesday, March 08, 2017 **Start Time:** 07:00

	MOODIE DR			ROBERTSON RD			
Time Period	Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00 08:00	0	0	**0**	0	0	**0**	**0**
08:00 09:00	0	0	**0**	0	0	**0**	**0**
09:00 10:00	0	0	**0**	0	0	**0**	**0**
11:30 12:30	0	0	**0**	0	0	**0**	**0**
12:30 13:30	1	0	**1**	0	0	**0**	**1**
15:00 16:00	0	1	**1**	0	1	**1**	**2**
16:00 17:00	0	0	**0**	0	0	**0**	**0**
17:00 18:00	0	0	**0**	0	0	**0**	**0**
Total	1	1	**2**	0	1	**1**	**3**

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

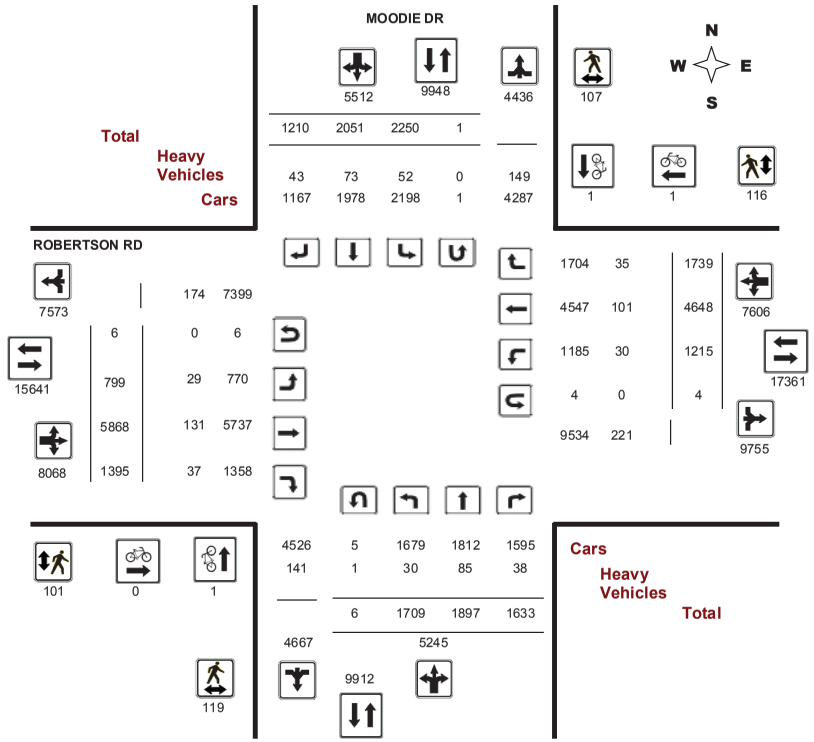
Turning Movement Count - Full Study Diagram

MOODIE DR @ ROBERTSON RD

Survey Date: Wednesday, March 08, 2017

WO#: 36743

Device: Miovision



Comments

Transportation Services - Traffic Services

W.O. 36743

Turning Movement Count - Heavy Vehicle Report

MOODIE DR @ ROBERTSON RD

Survey Date: Wednesday, March 08, 2017

		MOODIE DR								ROBERTSON 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	08:00	5	11	4	**20**	8	11	5	**24**	**44**	0	24	7	**31**	3	15	4	**22**	**53**	**97**
08:00	09:00	1	14	2	**17**	7	17	8	**32**	**49**	6	22	3	**31**	4	21	2	**27**	**58**	**107**
09:00	10:00	5	16	10	**31**	9	6	9	**24**	**55**	2	23	3	**28**	7	12	7	**26**	**54**	**109**
11:30	12:30	8	2	4	**14**	11	5	6	**22**	**36**	4	12	5	**21**	3	11	8	**22**	**43**	**79**
12:30	13:30	4	5	4	**13**	4	4	5	**13**	**26**	5	16	8	**29**	2	11	6	**19**	**48**	**74**
15:00	16:00	2	18	9	**29**	6	12	4	**22**	**51**	4	13	1	**18**	9	11	5	**25**	**43**	**94**
16:00	17:00	5	13	2	**21**	4	11	2	**17**	**38**	3	7	6	**16**	0	9	2	**11**	**27**	**65**
17:00	18:00	0	6	3	**9**	3	7	4	**14**	**23**	5	14	4	**23**	2	11	1	**14**	**37**	**60**
Sub Total		30	85	38	**154**	52	73	43	**168**	**322**	29	131	37	**197**	30	101	35	**166**	**363**	**685**
U-Turns (Heavy Vehicles)					**1**				**0**	**1**				**0**				**0**	**0**	**1**
Total		30	85	38	**0**	52	73	43	**168**	**323**	29	131	37	**197**	30	101	35	**166**	**363**	**686**

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 36743

Turning Movement Count - Pedestrian Volume Report

MOODIE DR @ ROBERTSON RD

Count Date: Wednesday, March 08, 2017 **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	1	1	**2**	1	1	**2**	**4**
07:15 07:30	0	2	**2**	0	0	**0**	**2**
07:30 07:45	3	1	**4**	2	0	**2**	**6**
07:45 08:00	0	3	**3**	1	3	**4**	**7**
07:00 08:00	4	7	**11**	4	4	**8**	**19**
08:00 08:15	1	2	**3**	1	0	**1**	**4**
08:15 08:30	0	0	**0**	2	1	**3**	**3**
08:30 08:45	0	3	**3**	4	1	**5**	**8**
08:45 09:00	2	2	**4**	2	1	**3**	**7**
08:00 09:00	3	7	**10**	9	3	**12**	**22**
09:00 09:15	1	1	**2**	0	1	**1**	**3**
09:15 09:30	4	1	**5**	2	1	**3**	**8**
09:30 09:45	1	3	**4**	1	4	**5**	**9**
09:45 10:00	2	4	**6**	4	0	**4**	**10**
09:00 10:00	8	9	**17**	7	6	**13**	**30**
11:30 11:45	2	3	**5**	4	5	**9**	**14**
11:45 12:00	7	5	**12**	2	2	**4**	**16**
12:00 12:15	3	5	**8**	9	5	**14**	**22**
12:15 12:30	6	8	**14**	10	7	**17**	**31**
11:30 12:30	18	21	**39**	25	19	**44**	**83**
12:30 12:45	16	13	**29**	7	16	**23**	**52**
12:45 13:00	10	9	**19**	6	7	**13**	**32**
13:00 13:15	3	4	**7**	4	3	**7**	**14**
13:15 13:30	5	10	**15**	6	10	**16**	**31**
12:30 13:30	34	36	**70**	23	36	**59**	**129**
15:00 15:15	5	2	**7**	3	3	**6**	**13**
15:15 15:30	5	2	**7**	4	1	**5**	**12**
15:30 15:45	9	4	**13**	6	6	**12**	**25**
15:45 16:00	3	0	**3**	3	3	**6**	**9**
15:00 16:00	22	8	**30**	16	13	**29**	**59**
16:00 16:15	5	4	**9**	0	4	**4**	**13**
16:15 16:30	4	0	**4**	2	7	**9**	**13**
16:30 16:45	2	0	**2**	1	0	**1**	**3**
16:45 17:00	2	2	**4**	3	9	**12**	**16**
16:00 17:00	13	6	**19**	6	20	**26**	**45**
17:00 17:15	7	3	**10**	6	5	**11**	**21**
17:15 17:30	4	3	**7**	3	4	**7**	**14**
17:30 17:45	3	3	**6**	1	2	**3**	**9**
17:45 18:00	3	4	**7**	1	4	**5**	**12**
17:00 18:00	17	13	**30**	11	15	**26**	**56**
Total	119	107	**226**	101	116	**217**	**443**

Comment:

Transportation Services - Traffic Services

Work Order 36743

Turning Movement Count - Full Study Summary Report

MOODIE DR @ ROBERTSON RD

Survey Date: Wednesday, March 08, 2017

Total Observed U-Turns

Northbound: 6 Southbound: 1

Eastbound: 6 Westbound: 4

AADT Factor 1.00

Full Study

	MOODIE DR									ROBERTSON 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	197	302	332	**831**	307	143	75	**525**	**1356**	49	1330	112	**1491**	65	276	127	**468**	**1959**	**3315**
08:00 09:00	243	333	282	**858**	345	215	123	**683**	**1541**	85	997	122	**1204**	92	354	161	**607**	**1811**	**3352**
09:00 10:00	198	244	207	**649**	241	149	131	**521**	**1170**	89	641	114	**844**	102	397	181	**680**	**1524**	**2694**
11:30 12:30	226	176	169	**571**	324	197	170	**691**	**1262**	113	577	160	**850**	138	583	230	**951**	**1801**	**3063**
12:30 13:30	210	213	167	**590**	250	192	168	**610**	**1200**	133	612	181	**926**	126	603	241	**970**	**1896**	**3096**
15:00 16:00	201	211	159	**571**	249	330	176	**755**	**1326**	115	620	213	**948**	226	725	212	**1163**	**2111**	**3437**
16:00 17:00	230	229	150	**609**	283	437	192	**912**	**1521**	113	524	254	**891**	216	924	304	**1444**	**2335**	**3856**
17:00 18:00	204	189	167	**560**	251	388	175	**814**	**1374**	102	567	239	**908**	250	786	283	**1319**	**2227**	**3601**
Sub Total	1709	1897	1633	**5239**	2250	2051	1210	**5511**	**10750**	799	5868	1395	**8062**	1215	4648	1739	**7602**	**15664**	**26414**
U Turns				**6**				**1**	**7**				**6**				**4**	**10**	**17**
Total	1709	1897	1633	**5245**	2250	2051	1210	**5512**	**10757**	799	5868	1395	**8068**	1215	4648	1739	**7606**	**15674**	**26431**
EQ 12Hr	2376	2637	2270	**7291**	3128	2851	1682	**7662**	**14953**	1111	8157	1939	**11215**	1689	6461	2417	**10572**	**21787**	**36740**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.																	**1.39**		
AVG 12Hr	2376	2637	2270	**7291**	3128	2851	1682	**7662**	**14953**	1111	8157	1939	**11215**	1689	6461	2417	**10572**	**21787**	**36740**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.																	**1.00**		
AVG 24Hr	3112	3454	2974	**9551**	4097	3735	2203	**10037**	**19588**	1455	10685	2540	**14691**	2212	8464	3167	**13850**	**28541**	**48129**
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.

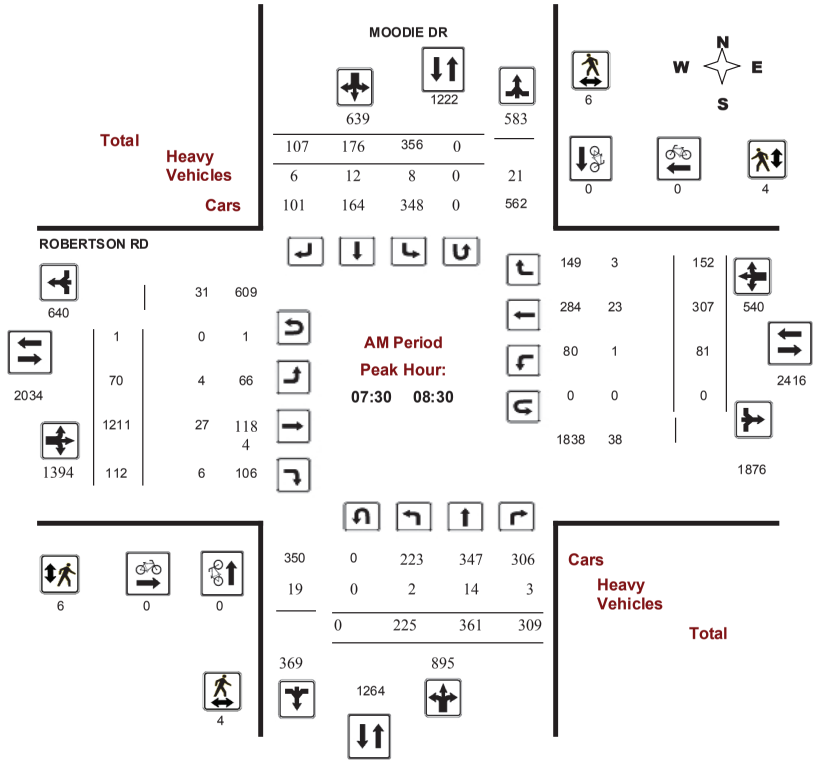
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

MOODIE DR @ ROBERTSON RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36743

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



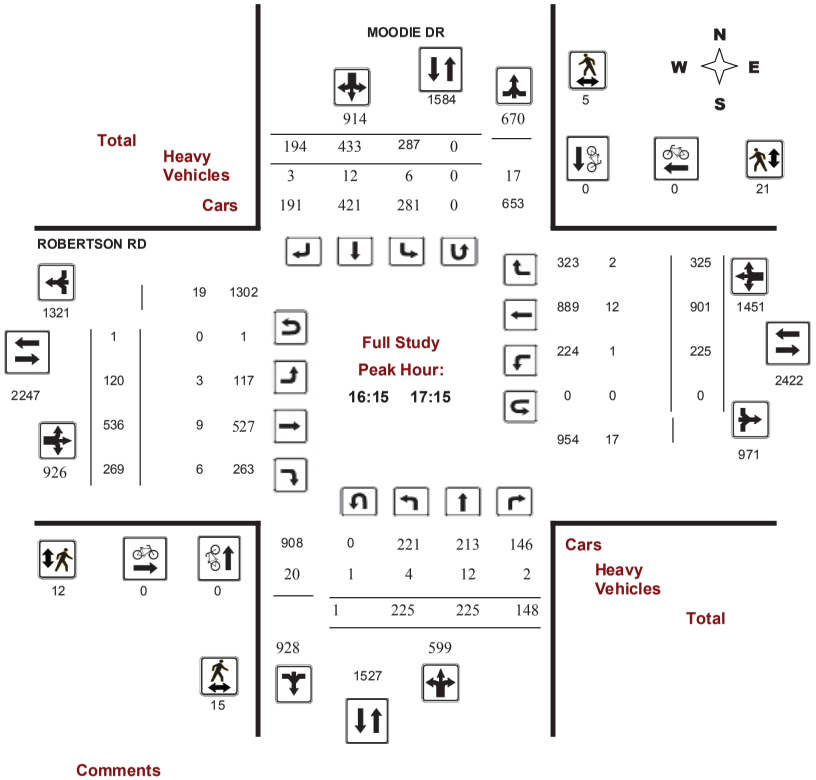
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

MOODIE DR @ ROBERTSON RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36743

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



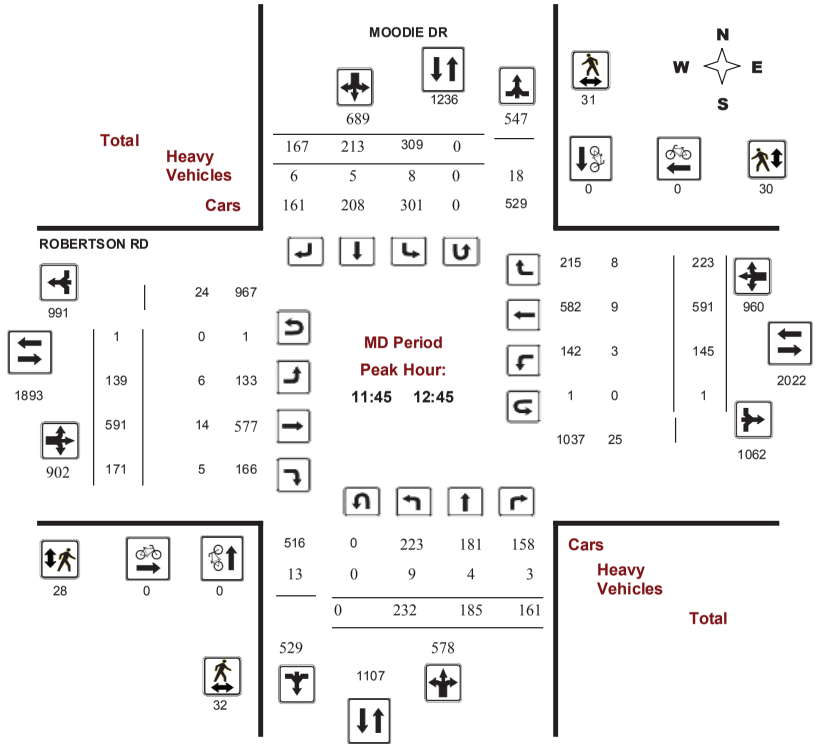
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

MOODIE DR @ ROBERTSON RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36743

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



Comments

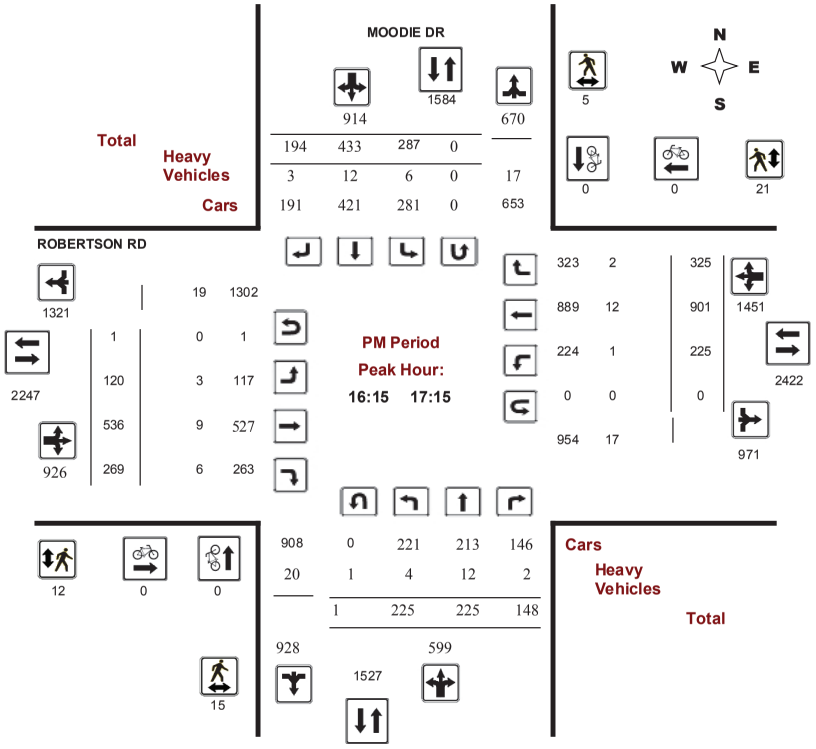
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

MOODIE DR @ ROBERTSON RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36743

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



Comments

Transportation Services - Traffic Services

Work Order 36743

Turning Movement Count - 15 Min U-Turn Total Report

MOODIE DR @ ROBERTSON RD

Survey Date: Wednesday, March 08, 2017

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	1	1
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	1	0	1
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	1	0	0	0	1
09:15	09:30	1	0	0	0	1
09:30	09:45	0	0	2	0	2
09:45	10:00	0	0	0	1	1
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	1	0	1
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	1	1
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	1	0	0	0	1
15:00	15:15	1	0	0	0	1
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	1	0	1
16:15	16:30	1	0	0	0	1
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	1	0	1
17:15	17:30	0	0	0	1	1
17:30	17:45	1	1	0	0	2
17:45	18:00	0	0	0	0	0
Total		6	1	6	4	17

Transportation Services - Traffic Services

W.O. 37325

Turning Movement Count - 15 Minute Summary Report

FITZGERALD RD @ ROBERTSON RD

Survey Date: Thursday, November 30, 2017

Total Observed U-Turns

Northbound: 1 Southbound: 0

Eastbound: 0 Westbound: 9

		FITZGERALD RD								ROBERTSON 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	1	**2**	15	1	10	**26**	**28**	26	336	2	**364**	3	64	29	**96**	**460**	**488**
07:15	07:30	1	0	1	**2**	19	1	13	**33**	**35**	37	376	0	**413**	3	75	29	**107**	**520**	**555**
07:30	07:45	2	2	1	**5**	17	2	9	**28**	**33**	53	348	0	**401**	2	78	36	**117**	**518**	**551**
07:45	08:00	0	0	4	**4**	10	3	19	**32**	**36**	44	236	1	**281**	8	115	39	**163**	**444**	**480**
08:00	08:15	1	1	3	**5**	16	2	21	**39**	**44**	48	368	4	**420**	9	92	28	**129**	**549**	**593**
08:15	08:30	2	1	12	**15**	13	3	15	**31**	**46**	37	266	8	**311**	12	103	38	**154**	**465**	**511**
08:30	08:45	6	1	5	**12**	16	2	20	**38**	**50**	30	237	13	**280**	10	133	35	**178**	**458**	**508**
08:45	09:00	6	4	13	**23**	12	5	19	**36**	**59**	35	233	6	**274**	15	148	43	**206**	**480**	**539**
09:00	09:15	6	2	12	**20**	30	4	22	**56**	**76**	27	216	8	**251**	25	121	33	**179**	**430**	**506**
09:15	09:30	10	0	25	**35**	18	7	18	**43**	**78**	30	189	7	**226**	33	123	26	**182**	**408**	**486**
09:30	09:45	6	2	27	**35**	16	4	10	**30**	**65**	15	172	9	**196**	21	132	23	**177**	**373**	**438**
09:45	10:00	12	0	25	**37**	12	4	16	**32**	**69**	7	146	21	**174**	31	127	17	**175**	**349**	**418**
11:30	11:45	11	3	34	**48**	25	14	26	**65**	**113**	17	172	14	**203**	41	180	19	**240**	**443**	**556**
11:45	12:00	14	10	52	**76**	32	18	42	**92**	**168**	21	180	16	**217**	43	209	9	**261**	**478**	**646**
12:00	12:15	14	11	44	**69**	39	19	43	**101**	**170**	24	190	12	**226**	41	183	18	**242**	**468**	**638**
12:15	12:30	15	9	43	**67**	24	15	26	**65**	**132**	20	190	8	**218**	55	184	21	**260**	**478**	**610**
12:30	12:45	14	7	59	**80**	14	11	14	**39**	**119**	29	182	15	**226**	31	160	20	**211**	**437**	**556**
12:45	13:00	13	16	42	**71**	34	9	20	**63**	**134**	36	158	10	**204**	36	173	36	**247**	**451**	**585**
13:00	13:15	14	6	47	**67**	17	13	17	**47**	**114**	41	175	9	**225**	48	188	24	**260**	**485**	**599**
13:15	13:30	19	8	34	**61**	14	8	25	**47**	**108**	28	130	21	**179**	36	164	21	**222**	**401**	**509**
15:00	15:15	19	6	36	**61**	28	5	33	**66**	**127**	16	175	14	**205**	43	224	21	**288**	**493**	**620**
15:15	15:30	15	7	29	**51**	15	8	10	**33**	**84**	14	158	8	**180**	32	244	10	**286**	**466**	**550**
15:30	15:45	9	7	43	**59**	30	5	25	**60**	**119**	18	132	9	**159**	48	257	6	**311**	**470**	**589**
15:45	16:00	11	4	35	**50**	20	11	26	**57**	**107**	7	149	8	**164**	46	265	9	**320**	**484**	**591**
16:00	16:15	12	8	30	**50**	33	12	50	**95**	**145**	12	141	8	**161**	39	289	12	**340**	**501**	**646**
16:15	16:30	16	7	43	**66**	26	11	33	**70**	**136**	6	137	7	**150**	49	297	11	**357**	**507**	**643**
16:30	16:45	16	5	38	**59**	27	9	36	**72**	**131**	4	151	7	**162**	38	271	11	**320**	**482**	**613**
16:45	17:00	16	4	37	**57**	22	7	28	**57**	**114**	9	121	8	**138**	46	291	9	**346**	**484**	**598**
17:00	17:15	16	4	46	**66**	22	10	45	**77**	**143**	9	153	10	**172**	34	245	4	**284**	**456**	**599**
17:15	17:30	20	7	30	**57**	19	10	34	**63**	**120**	6	155	14	**175**	42	299	10	**352**	**527**	**647**
17:30	17:45	17	5	36	**58**	18	7	18	**43**	**101**	8	136	5	**149**	42	257	7	**306**	**455**	**556**
17:45	18:00	16	0	39	**55**	4	4	7	**15**	**70**	7	116	13	**136**	46	227	4	**277**	**413**	**483**
TOTAL:		349	147	926	**1423**	657	244	750	**1651**	**3074**	721	6224	295	**7240**	1008	5918	658	**7593**	**14833**	**17907**

Note: U-Turns are included in Totals.

Comment:

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order 37325

FITZGERALD RD @ ROBERTSON RD

Count Date: Thursday, November 30, 2017 **Start Time:** 07:00

	FITZGERALD RD			ROBERTSON RD			
Time Period	Northbound	Southbound	**Street Total**	Eastbound	Westbound	**Street Total**	**Grand Total**
07:00 08:00	0	0	**0**	0	0	**0**	**0**
08:00 09:00	0	0	**0**	0	0	**0**	**0**
09:00 10:00	0	0	**0**	0	0	**0**	**0**
11:30 12:30	0	0	**0**	0	0	**0**	**0**
12:30 13:30	0	0	**0**	0	0	**0**	**0**
15:00 16:00	0	1	**1**	0	1	**1**	**2**
16:00 17:00	0	0	**0**	0	0	**0**	**0**
17:00 18:00	0	0	**0**	0	0	**0**	**0**
Total	0	1	**1**	0	1	**1**	**2**

Comment:

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

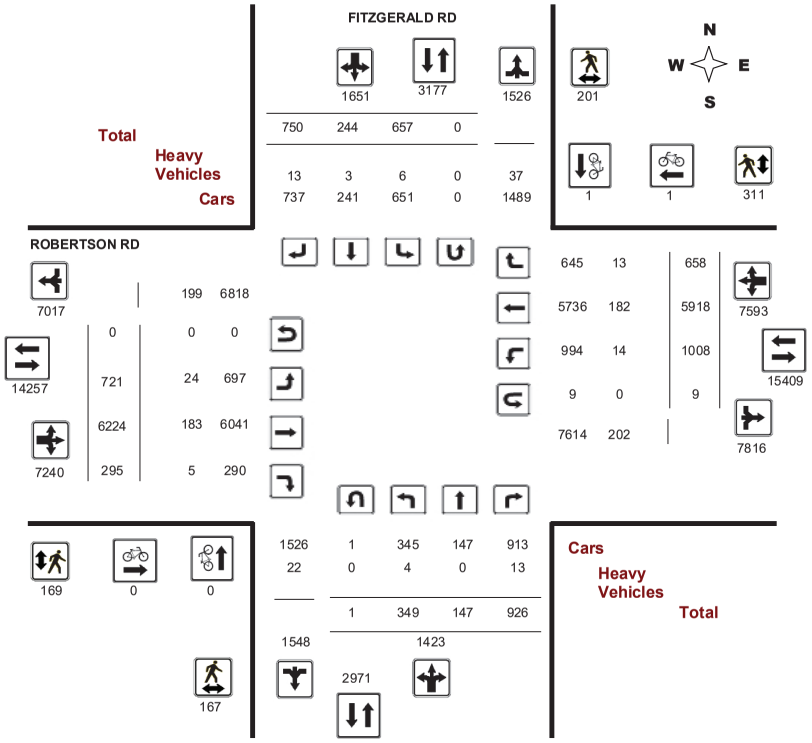
Transportation Services - Traffic Services

Turning Movement Count - Full Study Diagram

FITZGERALD RD @ ROBERTSON RD

Survey Date: Thursday, November 30, 2017 **WO#:** 37325

Device: Miovision



Comments

Transportation Services - Traffic Services

W.O. 37325

Turning Movement Count - Heavy Vehicle Report

FITZGERALD RD @ ROBERTSON RD

Survey Date: Thursday, November 30, 2017

Time Period	FITZGERALD RD Northbound LT	ST	RT	N TOT	FITZGERALD RD Southbound LT	ST	RT	S TOT	STR TOT	ROBERTSON RD Eastbound LT	ST	RT	E TOT	ROBERTSON RD Westbound LT	ST	RT	W TOT	STR TOT	Grand Total
07:00 08:00	0	0	1	**1**	2	0	2	**4**	**5**	4	19	0	**23**	1	23	2	**26**	**49**	**54**
08:00 09:00	0	0	1	**1**	3	0	2	**5**	**6**	2	24	1	**27**	0	26	4	**30**	**57**	**63**
09:00 10:00	1	0	2	**3**	1	0	1	**2**	**5**	1	37	2	**40**	6	26	1	**33**	**73**	**78**
11:30 12:30	1	0	2	**3**	0	2	2	**4**	**7**	3	31	0	**34**	4	33	2	**39**	**73**	**80**
12:30 13:30	2	0	6	**8**	0	0	1	**1**	**9**	4	22	1	**27**	2	24	0	**26**	**53**	**62**
15:00 16:00	0	0	1	**1**	0	0	1	**1**	**2**	5	26	1	**32**	1	29	2	**32**	**64**	**66**
16:00 17:00	0	0	0	**0**	0	0	2	**2**	**2**	2	13	0	**15**	0	14	1	**15**	**30**	**32**
17:00 18:00	0	0	0	**0**	0	1	2	**3**	**3**	3	11	0	**14**	0	7	1	**8**	**22**	**25**
Sub Total	4	0	13	**17**	6	3	13	**22**	**39**	24	183	5	**212**	14	182	13	**209**	**421**	**460**
U-Turns (Heavy Vehicles)				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	4	0	13	**0**	6	3	13	**22**	**39**	24	183	5	**212**	14	182	13	**209**	**421**	**460**

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

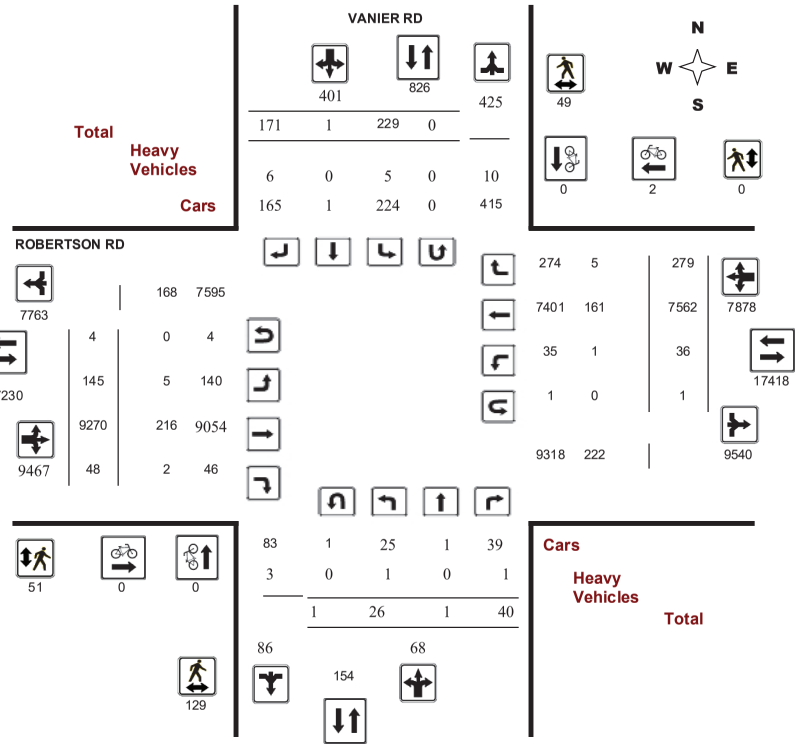
Transportation Services - Traffic Services

Turning Movement Count - Study Results

ROBERTSON RD @ VANIER RD

Survey Date: Wednesday, March 08, 2017
Start Time: 07:00
WO No: 36196
Device: Miovision

Full Study Diagram



Transportation Services - Traffic Services

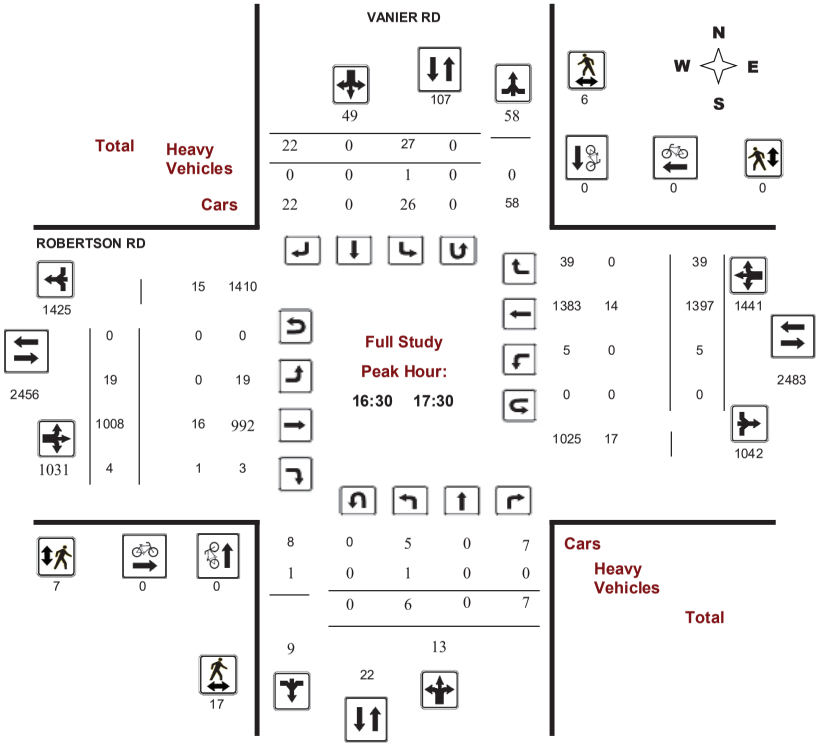
Turning Movement Count - Study Results

ROBERTSON RD @ VANIER RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36196

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

Full Study Peak Hour Diagram



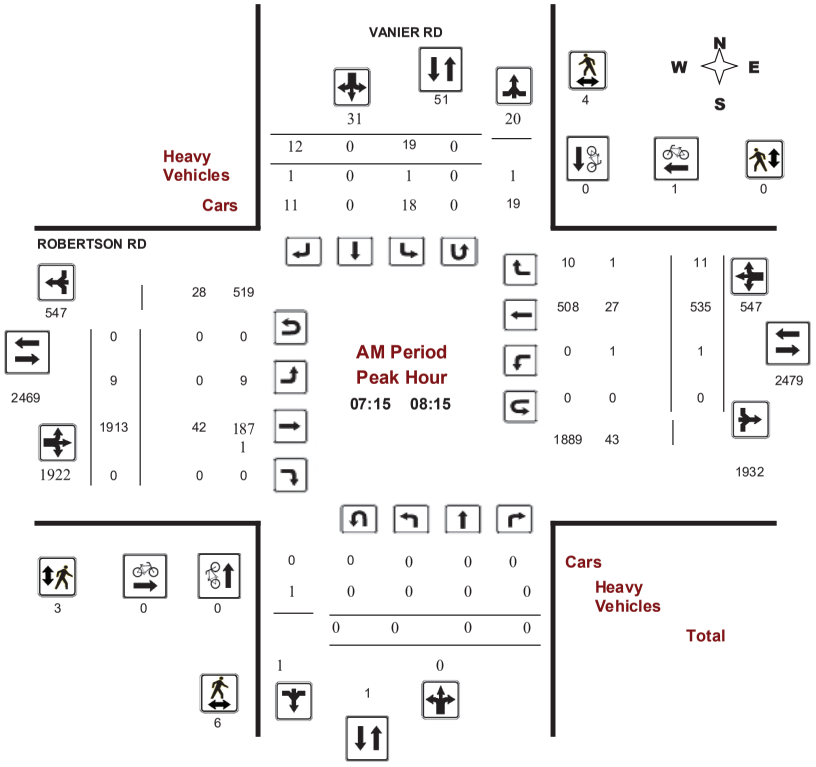
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ROBERTSON RD @ VANIER RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36196

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



Comments

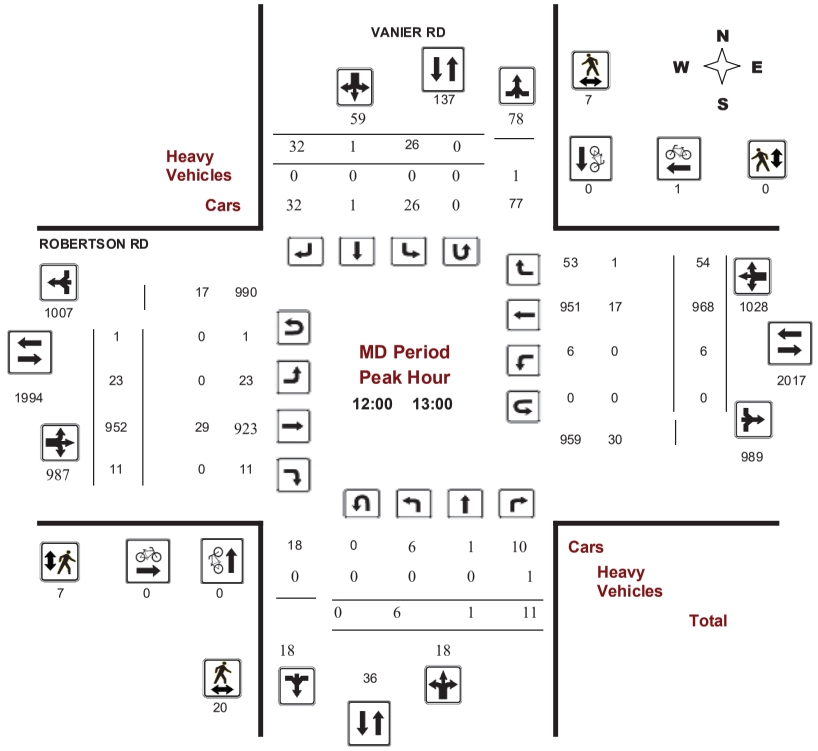
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ROBERTSON RD @ VANIER RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36196

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



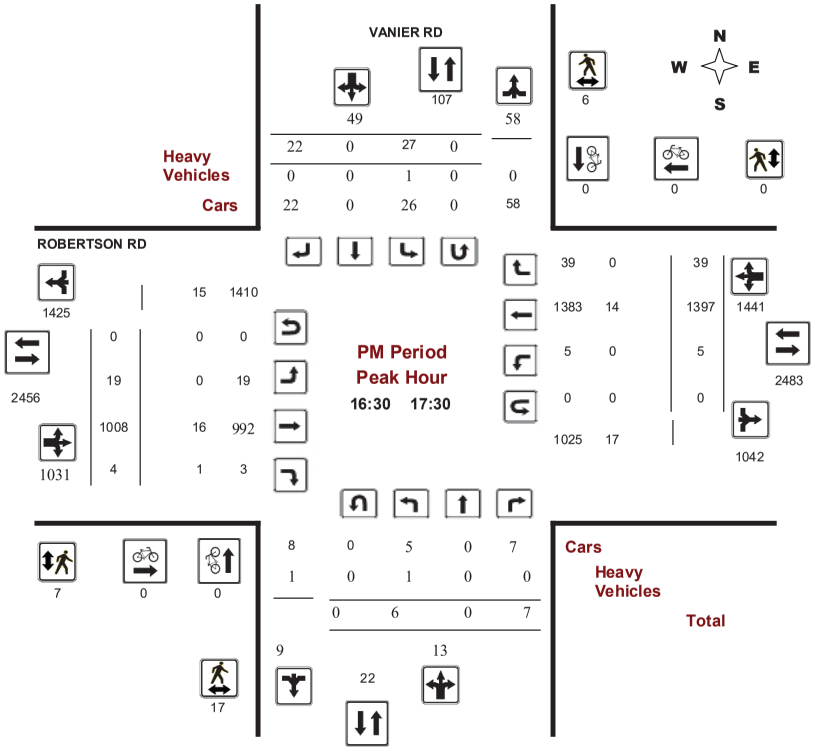
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ROBERTSON RD @ VANIER RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36196

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



Transportation Services - Traffic Services

Turning Movement Count - Study Results

ROBERTSON RD @ VANIER RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36196

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

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, March 08, 2017

Total Observed U-Turns

Northbound: 1 Southbound: 0

Eastbound: 4 Westbound: 1

AADT Factor 1.00

	VANIER RD									ROBERTSON 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	0	0	0	**0**	18	0	12	**30**	**30**	8	1948	0	**1956**	1	479	9	**489**	**2445**	**2475**
08:00 09:00	0	0	1	**1**	22	0	10	**32**	**33**	11	1525	0	**1536**	1	623	24	**648**	**2184**	**2217**
09:00 10:00	0	0	0	**0**	20	0	16	**36**	**36**	13	1036	3	**1052**	1	697	30	**728**	**1780**	**1816**
11:30 12:30	7	1	6	**14**	37	1	37	**75**	**89**	20	983	9	**1012**	5	900	36	**941**	**1953**	**2042**
12:30 13:30	4	0	10	**14**	34	0	28	**62**	**76**	24	933	12	**969**	9	950	58	**1017**	**1986**	**2062**
15:00 16:00	3	0	9	**12**	34	0	25	**59**	**71**	34	968	8	**1010**	4	1217	45	**1266**	**2276**	**2347**
16:00 17:00	11	0	5	**16**	33	0	26	**59**	**75**	14	931	9	**954**	9	1424	42	**1475**	**2429**	**2504**
17:00 18:00	1	0	9	**10**	31	0	17	**48**	**58**	21	946	7	**974**	6	1272	35	**1313**	**2287**	**2345**
Sub Total	26	1	40	**67**	229	1	171	**401**	**468**	145	9270	48	**9463**	36	7562	279	**7877**	**17340**	**17808**
U Turns	1			**1**	0			**0**	**1**	**4**			**4**	1			**1**	**5**	**6**
Total	27	1	40	**68**	229	1	171	**401**	**469**	149	9270	48	**9467**	37	7562	279	**7878**	**17345**	**17814**
EQ 12Hr	38	1	56	**95**	318	1	238	**557**	**652**	207	12885	67	**13159**	51	10511	388	**10950**	**24109**	**24761**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	38	1	56	**95**	318	1	238	**557**	**652**	207	12885	67	**13159**	51	10511	388	**10950**	**24109**	**24761**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1.00**					
AVG 24Hr	50	1	73	**124**	417	1	312	**730**	**854**	271	16879	88	**17238**	67	13769	508	**14344**	**31582**	**32436**
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

ROBERTSON RD @ VANIER RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36196

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

Full Study 15 Minute Increments

		VANIER RD									ROBERTSON 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	6	0	3	9	**9**	1	473	0	474	0	85	1	86	**560**	**569**
07:15	07:30	0	0	0	0	6	0	1	7	**7**	1	487	0	488	0	104	0	104	**592**	**599**
07:30	07:45	0	0	0	0	5	0	4	9	**9**	3	551	0	554	0	139	3	142	**696**	**705**
07:45	08:00	0	0	0	0	1	0	4	5	**5**	3	437	0	440	1	151	5	157	**597**	**602**
08:00	08:15	0	0	0	0	7	0	3	10	**10**	2	438	0	440	0	141	3	144	**584**	**594**
08:15	08:30	0	0	0	0	2	0	2	4	**4**	2	368	0	370	1	123	6	130	**500**	**504**
08:30	08:45	0	0	0	0	6	0	3	9	**9**	4	416	0	420	0	175	10	185	**605**	**614**
08:45	09:00	0	0	1	1	7	0	2	9	**10**	3	303	0	306	1	184	5	190	**496**	**506**
09:00	09:15	0	0	0	0	9	0	1	10	**10**	1	303	0	304	0	177	12	189	**493**	**503**
09:15	09:30	0	0	0	0	4	0	2	6	**6**	3	256	0	259	0	151	6	157	**416**	**422**
09:30	09:45	0	0	0	0	4	0	5	9	**9**	6	233	2	241	0	190	4	194	**435**	**444**
09:45	10:00	0	0	0	0	3	0	8	11	**11**	4	244	1	249	1	179	8	188	**437**	**448**
11:30	11:45	0	0	0	0	17	0	5	22	**22**	7	243	2	252	1	204	9	214	**466**	**488**
11:45	12:00	2	0	2	4	7	0	11	18	**22**	6	244	2	252	2	226	7	235	**487**	**509**
12:00	12:15	3	0	3	6	7	0	8	15	**21**	3	257	3	263	2	242	10	254	**517**	**538**
12:15	12:30	2	1	1	4	6	1	13	20	**24**	5	239	2	246	0	228	10	238	**484**	**508**
12:30	12:45	0	0	1	1	8	0	4	12	**13**	8	229	4	241	2	238	20	260	**501**	**514**
12:45	13:00	1	0	6	7	5	0	7	12	**19**	8	227	2	237	2	260	14	276	**513**	**532**
13:00	13:15	1	0	2	3	12	0	7	19	**22**	6	231	2	239	1	234	13	248	**487**	**509**
13:15	13:30	2	0	1	3	9	0	10	19	**22**	3	246	4	253	4	218	11	233	**486**	**508**
15:00	15:15	0	0	1	1	11	0	6	17	**18**	5	243	1	249	0	261	7	268	**517**	**535**
15:15	15:30	1	0	2	3	7	0	9	16	**19**	5	229	3	237	1	296	12	309	**546**	**565**
15:30	15:45	1	0	2	3	4	0	4	8	**11**	13	239	2	254	2	334	15	351	**605**	**616**
15:45	16:00	1	0	4	5	12	0	6	18	**23**	11	257	2	270	1	326	11	338	**608**	**631**
16:00	16:15	3	0	2	5	8	0	4	12	**17**	5	251	4	260	3	399	10	412	**672**	**689**
16:15	16:30	4	0	0	4	9	0	9	18	**22**	1	194	2	197	2	307	11	320	**517**	**539**
16:30	16:45	3	0	2	5	6	0	4	10	**15**	5	257	3	265	2	367	10	379	**644**	**659**
16:45	17:00	2	0	1	3	10	0	9	19	**22**	3	229	0	232	2	351	11	364	**596**	**618**
17:00	17:15	0	0	3	3	6	0	3	9	**12**	4	297	1	302	1	374	9	384	**686**	**698**
17:15	17:30	1	0	1	2	5	0	6	11	**13**	7	225	0	232	0	305	9	314	**546**	**559**
17:30	17:45	0	0	2	2	6	0	5	11	**13**	5	226	4	235	3	315	7	325	**560**	**573**
17:45	18:00	0	0	3	3	14	0	3	17	**20**	6	198	2	206	2	278	10	290	**496**	**516**
Total:		27	1	40	68	229	1	171	401	**469**	149	9270	48	9467	37	7562	279	7878	**469**	**17,814**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ROBERTSON RD @ VANIER RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36196

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

Full Study Cyclist Volume

Time Period		VANIER RD Northbound	VANIER RD Southbound	VANIER RD Street Total	ROBERTSON RD Eastbound	ROBERTSON RD Westbound	ROBERTSON RD Street Total	Grand Total
07:00	07:15	0	0	**0**	0	0	**0**	**0**
07:15	07:30	0	0	**0**	0	0	**0**	**0**
07:30	07:45	0	0	**0**	0	0	**0**	**0**
07:45	08:00	0	0	**0**	0	1	**1**	**1**
08:00	08:15	0	0	**0**	0	0	**0**	**0**
08:15	08:30	0	0	**0**	0	0	**0**	**0**
08:30	08:45	0	0	**0**	0	0	**0**	**0**
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	0	**0**	**0**
09:30	09:45	0	0	**0**	0	0	**0**	**0**
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	0	**0**	**0**
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**	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	0	**0**	0	0	**0**	**0**
15:45	16:00	0	0	**0**	0	0	**0**	**0**
16:00	16:15	0	0	**0**	0	0	**0**	**0**
16:15	16:30	0	0	**0**	0	0	**0**	**0**
16:30	16:45	0	0	**0**	0	0	**0**	**0**
16:45	17:00	0	0	**0**	0	0	**0**	**0**
17:00	17:15	0	0	**0**	0	0	**0**	**0**
17:15	17:30	0	0	**0**	0	0	**0**	**0**
17:30	17:45	0	0	**0**	0	0	**0**	**0**
17:45	18:00	0	0	**0**	0	0	**0**	**0**
Total		0	0	**0**	0	2	**2**	**2**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ROBERTSON RD @ VANIER RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36196

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

Full Study Pedestrian Volume

Time Period	VANIER RD NB Approach (E or W Crossing)	VANIER RD SB Approach (E or W Crossing)	VANIER RD Total	ROBERTSON RD EB Approach (N or S Crossing)	ROBERTSON RD WB Approach (N or S Crossing)	ROBERTSON RD Total	Grand Total
07:00 07:15	0	0	**0**	1	0	**1**	**1**
07:15 07:30	2	1	**3**	1	0	**1**	**4**
07:30 07:45	0	1	**1**	0	0	**0**	**1**
07:45 08:00	2	1	**3**	0	0	**0**	**3**
08:00 08:15	2	1	**3**	2	0	**2**	**5**
08:15 08:30	2	2	**4**	0	0	**0**	**4**
08:30 08:45	6	3	**9**	5	0	**5**	**14**
08:45 09:00	5	0	**5**	0	0	**0**	**5**
09:00 09:15	5	0	**5**	1	0	**1**	**6**
09:15 09:30	3	3	**6**	2	0	**2**	**8**
09:30 09:45	4	0	**4**	2	0	**2**	**6**
09:45 10:00	3	1	**4**	2	0	**2**	**6**
11:30 11:45	2	4	**6**	3	0	**3**	**9**
11:45 12:00	5	2	**7**	0	0	**0**	**7**
12:00 12:15	3	2	**5**	1	0	**1**	**6**
12:15 12:30	4	0	**4**	2	0	**2**	**6**
12:30 12:45	8	2	**10**	2	0	**2**	**12**
12:45 13:00	5	3	**8**	2	0	**2**	**10**
13:00 13:15	7	4	**11**	2	0	**2**	**13**
13:15 13:30	3	1	**4**	1	0	**1**	**5**
15:00 15:15	3	2	**5**	3	0	**3**	**8**
15:15 15:30	4	1	**5**	3	0	**3**	**8**
15:30 15:45	9	0	**9**	0	0	**0**	**9**
15:45 16:00	3	0	**3**	4	0	**4**	**7**
16:00 16:15	5	5	**10**	3	0	**3**	**13**
16:15 16:30	8	1	**9**	2	0	**2**	**11**
16:30 16:45	3	3	**6**	1	0	**1**	**7**
16:45 17:00	4	1	**5**	0	0	**0**	**5**
17:00 17:15	4	0	**4**	2	0	**2**	**6**
17:15 17:30	6	2	**8**	4	0	**4**	**12**
17:30 17:45	1	2	**3**	0	0	**0**	**3**
17:45 18:00	8	1	**9**	0	0	**0**	**9**
Total	129	49	**178**	51	0	**51**	**229**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ROBERTSON RD @ VANIER RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36196

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

Full Study Heavy Vehicles

		VANIER RD									ROBERTSON 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	5	0	**5**	0	3	0	**3**	**8**	**8**
07:15	07:30	0	0	0	**0**	0	0	1	**1**	**1**	0	14	0	**14**	0	7	0	**7**	**21**	**22**
07:30	07:45	0	0	0	**0**	0	0	0	**0**	**0**	0	14	0	**14**	0	4	0	**4**	**18**	**18**
07:45	08:00	0	0	0	**0**	0	0	0	**0**	**0**	0	6	0	**6**	1	8	1	**10**	**16**	**16**
08:00	08:15	0	0	0	**0**	1	0	0	**1**	**1**	0	8	0	**8**	0	8	0	**8**	**16**	**17**
08:15	08:30	0	0	0	**0**	0	0	1	**1**	**1**	0	6	0	**6**	0	4	1	**5**	**11**	**12**
08:30	08:45	0	0	0	**0**	0	0	0	**0**	**0**	0	13	0	**13**	0	10	0	**10**	**23**	**23**
08:45	09:00	0	0	0	**0**	0	0	0	**0**	**0**	1	6	0	**7**	0	10	0	**10**	**17**	**17**
09:00	09:15	0	0	0	**0**	0	0	0	**0**	**0**	0	16	0	**16**	0	6	0	**6**	**22**	**22**
09:15	09:30	0	0	0	**0**	0	0	0	**0**	**0**	0	9	0	**9**	0	6	0	**6**	**15**	**15**
09:30	09:45	0	0	0	**0**	2	0	0	**2**	**2**	0	7	0	**7**	0	5	1	**6**	**13**	**15**
09:45	10:00	0	0	0	**0**	0	0	1	**1**	**1**	0	6	0	**6**	0	3	0	**3**	**9**	**10**
11:30	11:45	0	0	0	**0**	0	0	1	**1**	**1**	0	6	0	**6**	0	5	1	**6**	**12**	**13**
11:45	12:00	0	0	0	**0**	0	0	0	**0**	**0**	1	3	1	**5**	0	5	0	**5**	**10**	**10**
12:00	12:15	0	0	1	**1**	0	0	0	**0**	**1**	0	8	0	**8**	0	5	0	**5**	**13**	**14**
12:15	12:30	0	0	0	**0**	0	0	0	**0**	**0**	0	11	0	**11**	0	5	0	**5**	**16**	**16**
12:30	12:45	0	0	0	**0**	0	0	0	**0**	**0**	0	3	0	**3**	0	2	0	**2**	**5**	**5**
12:45	13:00	0	0	0	**0**	0	0	0	**0**	**0**	0	7	0	**7**	0	5	1	**6**	**13**	**13**
13:00	13:15	0	0	0	**0**	0	0	0	**0**	**0**	0	8	0	**8**	0	7	0	**7**	**15**	**15**
13:15	13:30	0	0	0	**0**	0	0	1	**1**	**1**	0	3	0	**3**	0	6	0	**6**	**9**	**10**
15:00	15:15	0	0	0	**0**	0	0	1	**1**	**1**	0	4	0	**4**	0	6	0	**6**	**10**	**11**
15:15	15:30	0	0	0	**0**	0	0	0	**0**	**0**	0	5	0	**5**	0	6	0	**6**	**11**	**11**
15:30	15:45	0	0	0	**0**	0	0	0	**0**	**0**	0	11	0	**11**	0	4	0	**4**	**15**	**15**
15:45	16:00	0	0	0	**0**	1	0	0	**1**	**1**	1	4	0	**5**	0	8	0	**8**	**13**	**14**
16:00	16:15	0	0	0	**0**	0	0	0	**0**	**0**	1	7	0	**8**	0	3	0	**3**	**11**	**11**
16:15	16:30	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**2**	0	5	0	**5**	**7**	**7**
16:30	16:45	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**2**	0	2	0	**2**	**4**	**4**
16:45	17:00	0	0	0	**0**	0	0	0	**0**	**0**	0	7	0	**7**	0	2	0	**2**	**9**	**9**
17:00	17:15	0	0	0	**0**	1	0	0	**1**	**1**	0	2	1	**3**	0	6	0	**6**	**9**	**10**
17:15	17:30	1	0	0	**1**	0	0	0	**0**	**1**	0	5	0	**5**	0	4	0	**4**	**9**	**10**
17:30	17:45	0	0	0	**0**	0	0	0	**0**	**0**	0	3	0	**3**	0	0	0	**0**	**3**	**3**
17:45	18:00	0	0	0	**0**	0	0	0	**0**	**0**	1	5	0	**6**	0	1	0	**1**	**7**	**7**
Total:	None	1	0	1	**2**	5	0	6	**11**	**13**	5	216	2	**223**	1	161	5	**167**	**390**	**403**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ROBERTSON RD @ VANIER RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36196

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

Full Study 15 Minute U-Turn Total

		VANIER RD	ROBERTSON 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	1	**1**
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	1	0	**1**
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	1	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	1	0	**1**
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	1	0	0	0	**1**
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	1	0	**1**
Total		1	0	4	1	**6**

Transportation Services - Traffic Services

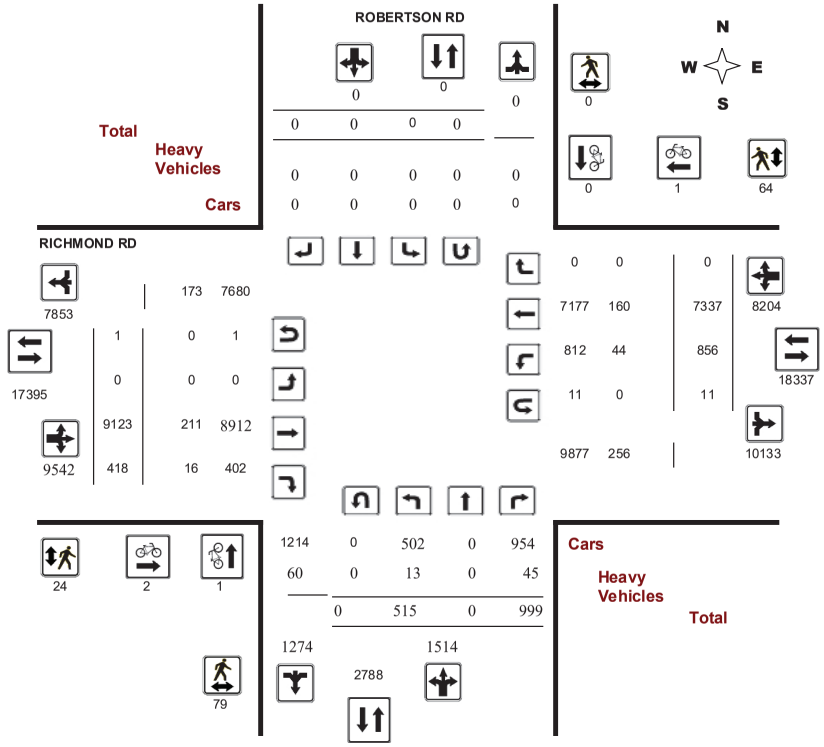
Turning Movement Count - Study Results

RICHMOND RD @ ROBERTSON RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36746

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

Full Study Diagram



Transportation Services - Traffic Services

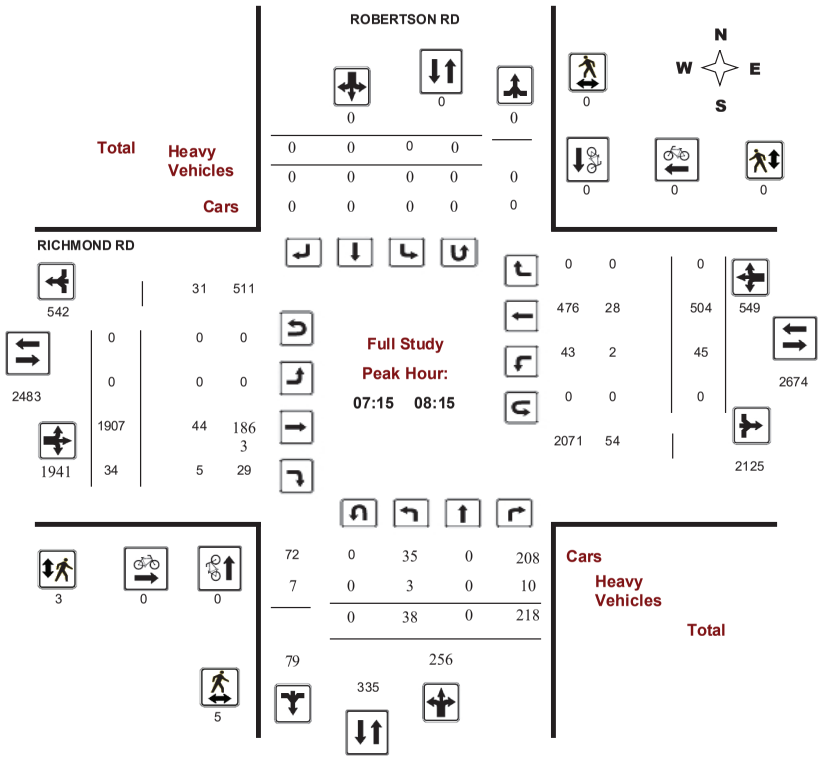
Turning Movement Count - Study Results

RICHMOND RD @ ROBERTSON RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36746

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

Full Study Peak Hour Diagram



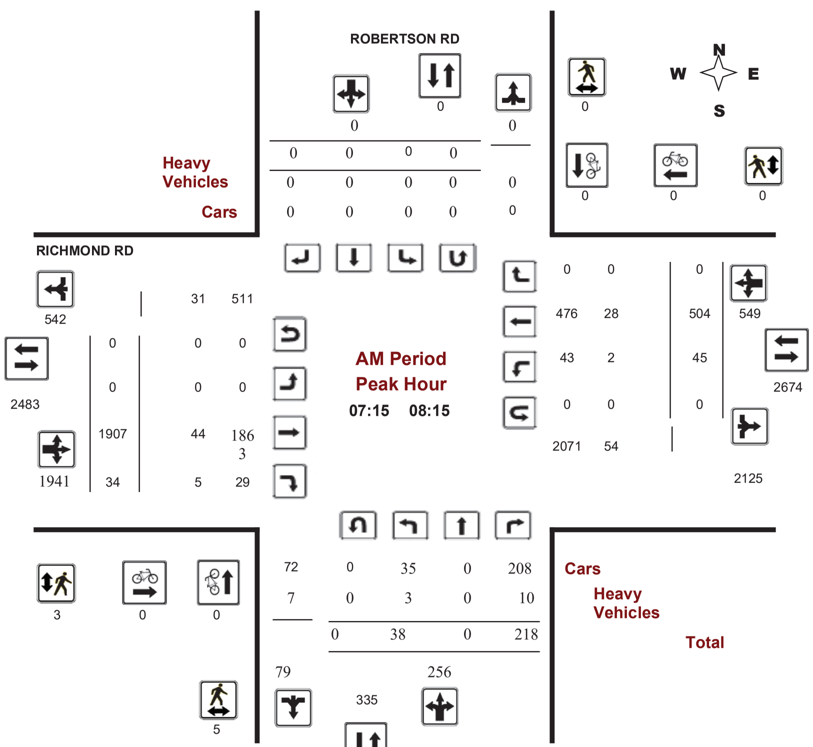
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RICHMOND RD @ ROBERTSON RD

Survey Date: Wednesday, March 08, 2017
Start Time: 07:00

WO No: 36746
Device: Miovision



Comments

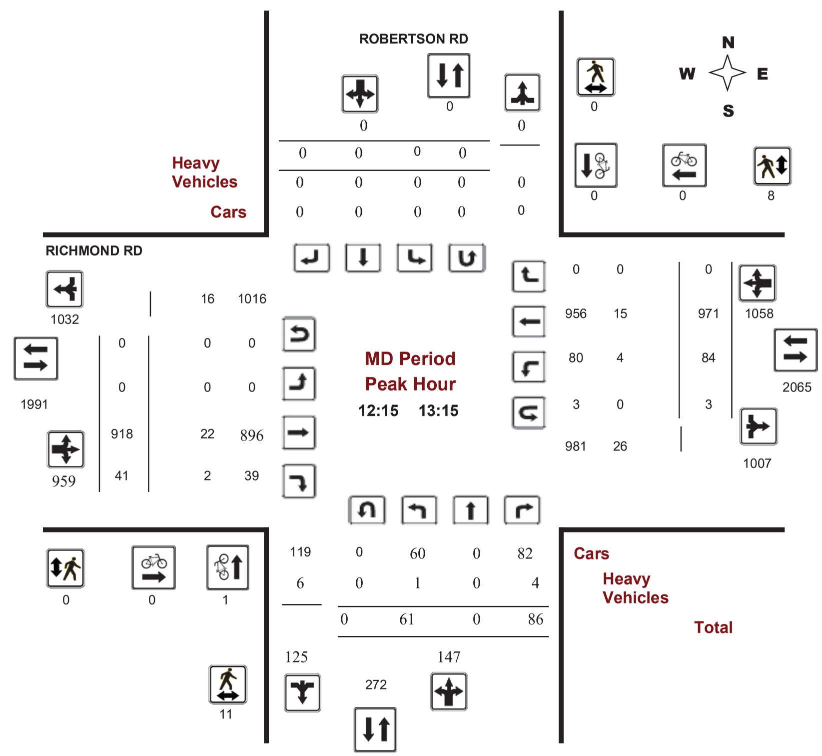
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RICHMOND RD @ ROBERTSON RD

Survey Date: Wednesday, March 08, 2017
Start Time: 07:00

WO No: 36746
Device: Miovision



Comments

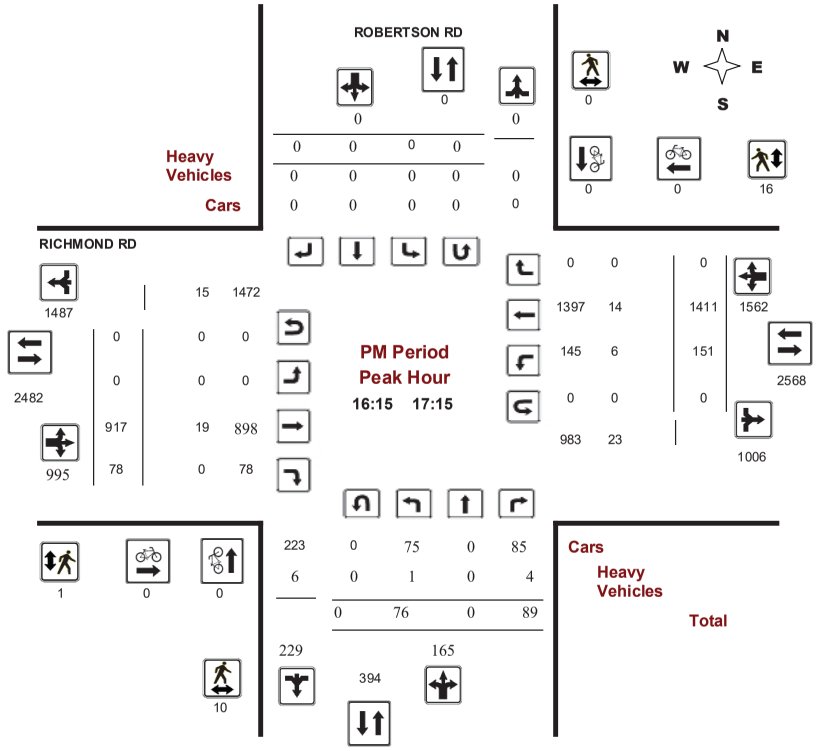
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RICHMOND RD @ ROBERTSON RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36746

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



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RICHMOND RD @ ROBERTSON RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36746

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

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, March 08, 2017

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 1 Westbound: 11

AADT Factor 1.00

	ROBERTSON RD								RICHMOND 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	30	0	209	**239**	0	0	0	**0**	**239**	0	1923	29	**1952**	35	450	0	**485**	**2437**	**2676**
08:00 09:00	64	0	184	**248**	0	0	0	**0**	**248**	0	1524	49	**1573**	102	581	0	**683**	**2256**	**2504**
09:00 10:00	77	0	147	**224**	0	0	0	**0**	**224**	0	996	43	**1039**	88	646	0	**734**	**1773**	**1997**
11:30 12:30	56	0	81	**137**	0	0	0	**0**	**137**	0	985	43	**1028**	78	894	0	**972**	**2000**	**2137**
12:30 13:30	63	0	84	**147**	0	0	0	**0**	**147**	0	921	45	**966**	94	944	0	**1038**	**2004**	**2151**
15:00 16:00	80	0	102	**182**	0	0	0	**0**	**182**	0	946	65	**1011**	152	1150	0	**1302**	**2313**	**2495**
16:00 17:00	80	0	94	**174**	0	0	0	**0**	**174**	0	910	75	**985**	150	1383	0	**1533**	**2518**	**2692**
17:00 18:00	65	0	98	**163**	0	0	0	**0**	**163**	0	918	69	**987**	157	1289	0	**1446**	**2433**	**2596**
Sub Total	515	0	999	**1514**	0	0	0	**0**	**1514**	0	9123	418	**9541**	856	7337	0	**8193**	**17734**	**19248**
U Turns	0			**0**	0			**0**	**0**	**1**			**1**	11			**11**	**12**	**12**
Total	515	0	999	**1514**	0	0	0	**0**	**1514**	1	9123	418	**9542**	867	7337	0	**8204**	**17746**	**19260**
EQ 12Hr	716	0	1389	**2105**	0	0	0	**0**	**2105**	1	12681	581	**13263**	1205	10198	0	**11403**	**24666**	**26771**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	716	0	1389	**2105**	0	0	0	**0**	**2105**	1	12681	581	**13263**	1205	10198	0	**11403**	**24666**	**26771**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1.00**					
AVG 24Hr	938	0	1820	**2758**	0	0	0	**0**	**2758**	1	16612	761	**17374**	1579	13359	0	**14938**	**32312**	**35070**

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

RICHMOND RD @ ROBERTSON RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36746

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

Full Study 15 Minute Increments

		ROBERTSON RD									RICHMOND 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	6	0	46	52	0	0	0	0	**52**	0	447	3	450	7	67	0	74	**524**	**576**
07:15	07:30	6	0	47	53	0	0	0	0	**53**	0	483	8	491	10	111	0	121	**612**	**665**
07:30	07:45	5	0	57	62	0	0	0	0	**62**	0	538	7	545	7	118	0	125	**670**	**732**
07:45	08:00	13	0	59	72	0	0	0	0	**72**	0	455	11	466	11	154	0	165	**631**	**703**
08:00	08:15	14	0	55	69	0	0	0	0	**69**	0	431	8	439	17	121	0	138	**577**	**646**
08:15	08:30	11	0	52	63	0	0	0	0	**63**	0	375	12	387	24	125	0	149	**536**	**599**
08:30	08:45	18	0	42	60	0	0	0	0	**60**	0	382	15	397	29	153	0	182	**579**	**639**
08:45	09:00	21	0	35	56	0	0	0	0	**56**	0	336	14	350	32	182	0	214	**564**	**620**
09:00	09:15	20	0	72	92	0	0	0	0	**92**	0	285	20	305	25	163	0	188	**493**	**585**
09:15	09:30	22	0	32	54	0	0	0	0	**54**	0	263	9	272	23	151	0	174	**446**	**500**
09:30	09:45	17	0	27	44	0	0	0	0	**44**	0	228	7	235	20	160	0	180	**415**	**459**
09:45	10:00	18	0	16	34	0	0	0	0	**34**	0	220	7	227	21	172	0	193	**420**	**454**
11:30	11:45	13	0	22	35	0	0	0	0	**35**	0	250	7	257	12	210	0	222	**479**	**514**
11:45	12:00	17	0	20	37	0	0	0	0	**37**	1	247	13	261	34	221	0	255	**516**	**553**
12:00	12:15	20	0	23	43	0	0	0	0	**43**	0	252	14	266	23	214	0	237	**503**	**546**
12:15	12:30	6	0	16	22	0	0	0	0	**22**	0	236	9	245	12	249	0	261	**506**	**528**
12:30	12:45	17	0	17	34	0	0	0	0	**34**	0	222	9	231	31	237	0	268	**499**	**533**
12:45	13:00	16	0	30	46	0	0	0	0	**46**	0	239	16	255	29	227	0	256	**511**	**557**
13:00	13:15	22	0	23	45	0	0	0	0	**45**	0	221	7	228	15	258	0	273	**501**	**546**
13:15	13:30	8	0	14	22	0	0	0	0	**22**	0	239	13	252	22	222	0	244	**496**	**518**
15:00	15:15	16	0	10	26	0	0	0	0	**26**	0	230	12	242	32	253	0	285	**527**	**553**
15:15	15:30	13	0	19	32	0	0	0	0	**32**	0	233	13	246	34	283	0	317	**563**	**595**
15:30	15:45	19	0	33	52	0	0	0	0	**52**	0	230	22	252	55	292	0	347	**599**	**651**
15:45	16:00	32	0	40	72	0	0	0	0	**72**	0	253	18	271	34	322	0	356	**627**	**699**
16:00	16:15	20	0	29	49	0	0	0	0	**49**	0	249	15	264	37	338	0	375	**639**	**688**
16:15	16:30	13	0	23	36	0	0	0	0	**36**	0	224	15	239	32	371	0	403	**642**	**678**
16:30	16:45	18	0	21	39	0	0	0	0	**39**	0	205	22	227	34	324	0	358	**585**	**624**
16:45	17:00	29	0	21	50	0	0	0	0	**50**	0	232	23	255	47	350	0	397	**652**	**702**
17:00	17:15	16	0	24	40	0	0	0	0	**40**	0	256	18	274	38	366	0	404	**678**	**718**
17:15	17:30	19	0	21	40	0	0	0	0	**40**	0	245	18	263	38	329	0	367	**630**	**670**
17:30	17:45	13	0	20	33	0	0	0	0	**33**	0	215	12	227	40	308	0	348	**575**	**608**
17:45	18:00	17	0	33	50	0	0	0	0	**50**	0	202	21	223	42	286	0	328	**551**	**601**
Total:		515	0	999	1514	0	0	0	0	**1514**	1	9123	418	9542	867	7337	0	8204	**1514**	**19,260**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RICHMOND RD @ ROBERTSON RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36746

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

Full Study Cyclist Volume

		ROBERTSON RD			RICHMOND RD			
Time Period		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	**0**	0	0	**0**	**0**
07:15	07:30	0	0	**0**	0	0	**0**	**0**
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	0	**0**	**0**
08:15	08:30	0	0	**0**	0	0	**0**	**0**
08:30	08:45	0	0	**0**	0	0	**0**	**0**
08:45	09:00	0	0	**0**	0	1	**1**	**1**
09:00	09:15	0	0	**0**	0	0	**0**	**0**
09:15	09:30	0	0	**0**	0	0	**0**	**0**
09:30	09:45	0	0	**0**	0	0	**0**	**0**
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	0	**0**	**0**
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**	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**	0	0	**0**	**0**
15:00	15:15	0	0	**0**	1	0	**1**	**1**
15:15	15:30	0	0	**0**	0	0	**0**	**0**
15:30	15:45	0	0	**0**	0	0	**0**	**0**
15:45	16:00	0	0	**0**	0	0	**0**	**0**
16:00	16:15	0	0	**0**	1	0	**1**	**1**
16:15	16:30	0	0	**0**	0	0	**0**	**0**
16:30	16:45	0	0	**0**	0	0	**0**	**0**
16:45	17:00	0	0	**0**	0	0	**0**	**0**
17:00	17:15	0	0	**0**	0	0	**0**	**0**
17:15	17:30	0	0	**0**	0	0	**0**	**0**
17:30	17:45	0	0	**0**	0	0	**0**	**0**
17:45	18:00	0	0	**0**	0	0	**0**	**0**
Total		1	0	**1**	2	1	**3**	**4**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RICHMOND RD @ ROBERTSON RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36746

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

Full Study Pedestrian Volume

		ROBERTSON RD			RICHMOND 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	0	0	**0**	0	0	**0**	**0**
07:15	07:30	0	0	**0**	1	0	**1**	**1**
07:30	07:45	2	0	**2**	0	0	**0**	**2**
07:45	08:00	1	0	**1**	1	0	**1**	**2**
08:00	08:15	2	0	**2**	1	0	**1**	**3**
08:15	08:30	2	0	**2**	2	1	**3**	**5**
08:30	08:45	0	0	**0**	0	3	**3**	**3**
08:45	09:00	8	0	**8**	0	3	**3**	**11**
09:00	09:15	5	0	**5**	0	5	**5**	**10**
09:15	09:30	0	0	**0**	1	2	**3**	**3**
09:30	09:45	2	0	**2**	1	1	**2**	**4**
09:45	10:00	4	0	**4**	2	1	**3**	**7**
11:30	11:45	2	0	**2**	1	1	**2**	**4**
11:45	12:00	1	0	**1**	0	0	**0**	**1**
12:00	12:15	3	0	**3**	1	3	**4**	**7**
12:15	12:30	1	0	**1**	0	1	**1**	**2**
12:30	12:45	2	0	**2**	0	3	**3**	**5**
12:45	13:00	3	0	**3**	0	0	**0**	**3**
13:00	13:15	5	0	**5**	0	4	**4**	**9**
13:15	13:30	1	0	**1**	1	3	**4**	**5**
15:00	15:15	0	0	**0**	2	2	**4**	**4**
15:15	15:30	9	0	**9**	1	1	**2**	**11**
15:30	15:45	3	0	**3**	1	8	**9**	**12**
15:45	16:00	4	0	**4**	4	2	**6**	**10**
16:00	16:15	7	0	**7**	1	3	**4**	**11**
16:15	16:30	4	0	**4**	1	5	**6**	**10**
16:30	16:45	1	0	**1**	0	0	**0**	**1**
16:45	17:00	2	0	**2**	0	3	**3**	**5**
17:00	17:15	3	0	**3**	0	8	**8**	**11**
17:15	17:30	2	0	**2**	0	0	**0**	**2**
17:30	17:45	0	0	**0**	1	1	**2**	**2**
17:45	18:00	0	0	**0**	1	0	**1**	**1**
Total	.....	79	0	**79**	24	64	**88**	**167**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RICHMOND RD @ ROBERTSON RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36746

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

Full Study Heavy Vehicles

		ROBERTSON RD									RICHMOND 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	2	**2**	0	0	0	**0**	**2**	0	4	0	**4**	1	2	0	**3**	**7**	**9**
07:15	07:30	2	0	2	**4**	0	0	0	**0**	**4**	0	10	2	**12**	1	5	0	**6**	**18**	**22**
07:30	07:45	0	0	2	**2**	0	0	0	**0**	**2**	0	13	2	**15**	0	7	0	**7**	**22**	**24**
07:45	08:00	0	0	5	**5**	0	0	0	**0**	**5**	0	8	1	**9**	1	7	0	**8**	**17**	**22**
08:00	08:15	1	0	1	**2**	0	0	0	**0**	**2**	0	13	0	**13**	0	9	0	**9**	**22**	**24**
08:15	08:30	0	0	2	**2**	0	0	0	**0**	**2**	0	5	0	**5**	1	5	0	**6**	**11**	**13**
08:30	08:45	1	0	5	**6**	0	0	0	**0**	**6**	0	10	1	**11**	1	5	0	**6**	**17**	**23**
08:45	09:00	1	0	1	**2**	0	0	0	**0**	**2**	0	5	0	**5**	1	10	0	**11**	**16**	**18**
09:00	09:15	0	0	3	**3**	0	0	0	**0**	**3**	0	14	3	**17**	2	8	0	**10**	**27**	**30**
09:15	09:30	0	0	4	**4**	0	0	0	**0**	**4**	0	11	0	**11**	1	4	0	**5**	**16**	**20**
09:30	09:45	2	0	0	**2**	0	0	0	**0**	**2**	0	8	1	**9**	0	4	0	**4**	**13**	**15**
09:45	10:00	0	0	1	**1**	0	0	0	**0**	**1**	0	8	0	**8**	1	3	0	**4**	**12**	**13**
11:30	11:45	0	0	0	**0**	0	0	0	**0**	**0**	0	5	0	**5**	0	8	0	**8**	**13**	**13**
11:45	12:00	0	0	1	**1**	0	0	0	**0**	**1**	0	4	0	**4**	2	5	0	**7**	**11**	**12**
12:00	12:15	1	0	0	**1**	0	0	0	**0**	**1**	0	5	1	**6**	0	8	0	**8**	**14**	**15**
12:15	12:30	0	0	1	**1**	0	0	0	**0**	**1**	0	10	1	**11**	1	4	0	**5**	**16**	**17**
12:30	12:45	1	0	0	**1**	0	0	0	**0**	**1**	0	2	1	**3**	1	2	0	**3**	**6**	**7**
12:45	13:00	0	0	3	**3**	0	0	0	**0**	**3**	0	5	0	**5**	1	2	0	**3**	**8**	**11**
13:00	13:15	0	0	0	**0**	0	0	0	**0**	**0**	0	5	0	**5**	1	7	0	**8**	**13**	**13**
13:15	13:30	0	0	1	**1**	0	0	0	**0**	**1**	0	6	0	**6**	1	7	0	**8**	**14**	**15**
15:00	15:15	0	0	1	**1**	0	0	0	**0**	**1**	0	6	1	**7**	1	7	0	**8**	**15**	**16**
15:15	15:30	0	0	0	**0**	0	0	0	**0**	**0**	0	3	0	**3**	1	5	0	**6**	**9**	**9**
15:30	15:45	0	0	2	**2**	0	0	0	**0**	**2**	0	8	2	**10**	7	4	0	**11**	**21**	**23**
15:45	16:00	3	0	2	**5**	0	0	0	**0**	**5**	0	8	0	**8**	1	5	0	**6**	**14**	**19**
16:00	16:15	0	0	0	**0**	0	0	0	**0**	**0**	0	3	0	**3**	4	4	0	**8**	**11**	**11**
16:15	16:30	0	0	1	**1**	0	0	0	**0**	**1**	0	8	0	**8**	2	7	0	**9**	**17**	**18**
16:30	16:45	1	0	0	**1**	0	0	0	**0**	**1**	0	1	0	**1**	3	1	0	**4**	**5**	**6**
16:45	17:00	0	0	0	**0**	0	0	0	**0**	**0**	0	5	0	**5**	0	1	0	**1**	**6**	**6**
17:00	17:15	0	0	3	**3**	0	0	0	**0**	**3**	0	5	0	**5**	1	5	0	**6**	**11**	**14**
17:15	17:30	0	0	1	**1**	0	0	0	**0**	**1**	0	5	0	**5**	3	6	0	**9**	**14**	**15**
17:30	17:45	0	0	0	**0**	0	0	0	**0**	**0**	0	4	0	**4**	2	2	0	**4**	**8**	**8**
17:45	18:00	0	0	1	**1**	0	0	0	**0**	**1**	0	4	0	**4**	2	1	0	**3**	**7**	**8**
Total:	None	13	0	45	**58**	0	0	0	**0**	**58**	0	211	16	**227**	44	160	0	**204**	**431**	**489**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RICHMOND RD @ ROBERTSON RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36746

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

Full Study 15 Minute U-Turn Total

Time Period		ROBERTSON RD Northbound U-Turn Total	ROBERTSON RD Southbound U-Turn Total	RICHMOND RD Eastbound U-Turn Total	RICHMOND 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	1	**1**
09:45	10:00	0	0	0	0	**0**
11:30	11:45	0	0	0	1	**1**
11:45	12:00	0	0	1	1	**2**
12:00	12:15	0	0	0	1	**1**
12:15	12:30	0	0	0	0	**0**
12:30	12:45	0	0	0	1	**1**
12:45	13:00	0	0	0	2	**2**
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	1	**1**
15:45	16:00	0	0	0	2	**2**
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	1	**1**
Total		0	0	1	11	**12**

Transportation Services - Traffic Services

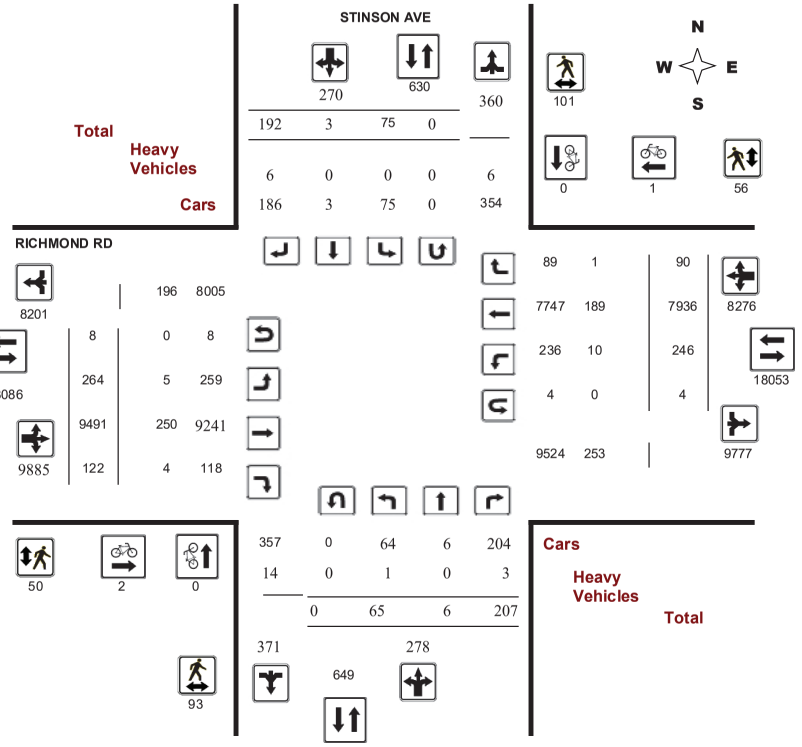
Turning Movement Count - Study Results

RICHMOND RD @ STINSON AVE

Survey Date: Wednesday, March 08, 2017 **WO No:** 36747

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

Full Study Diagram



Transportation Services - Traffic Services

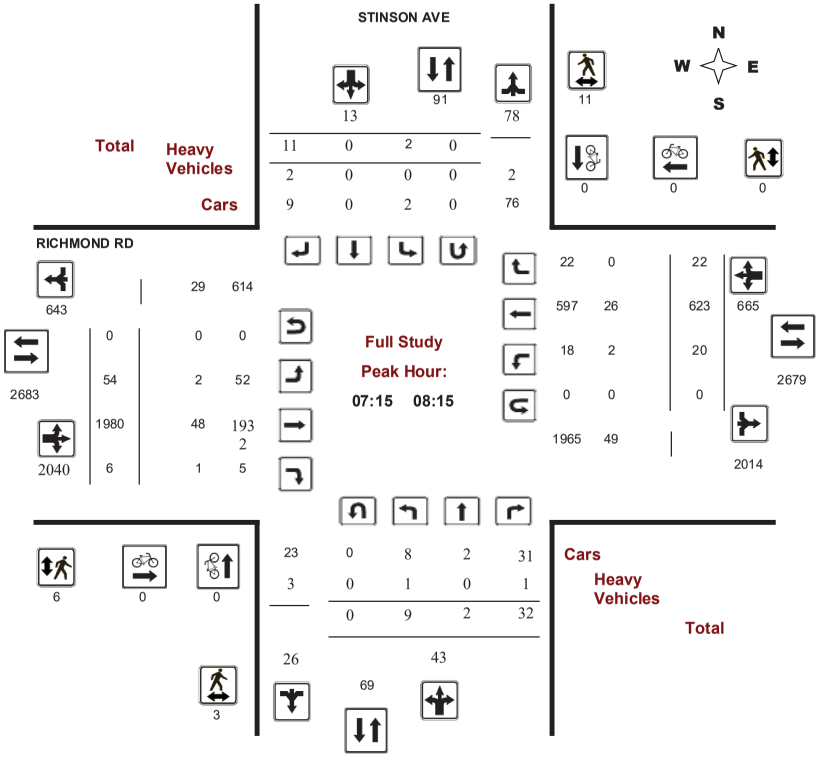
Turning Movement Count - Study Results

RICHMOND RD @ STINSON AVE

Survey Date: Wednesday, March 08, 2017 **WO No:** 36747

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

Full Study Peak Hour Diagram



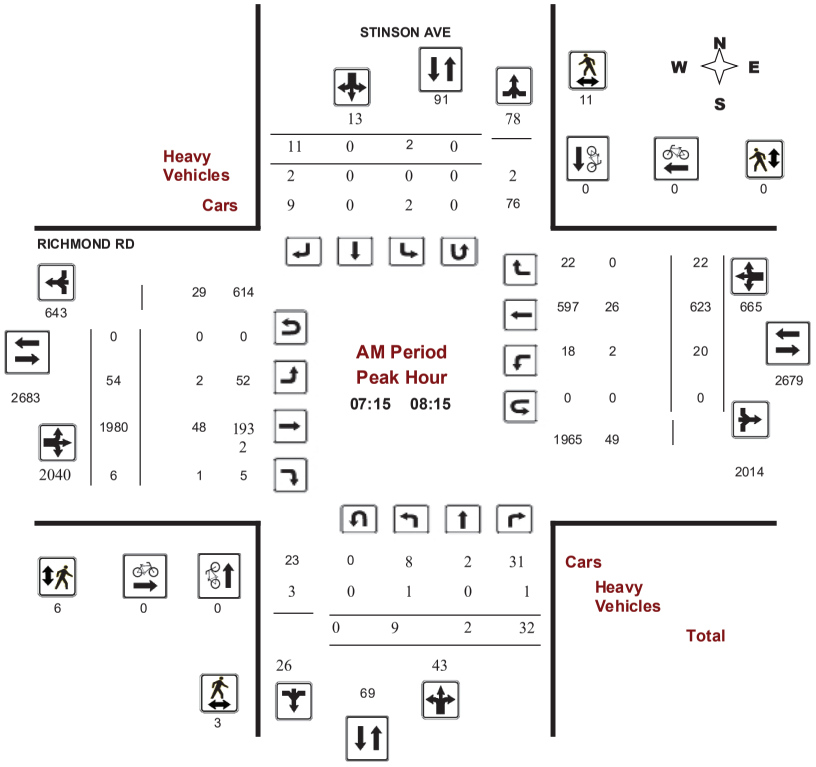
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RICHMOND RD @ STINSON AVE

Survey Date: Wednesday, March 08, 2017 **WO No:** 36747

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



Comments

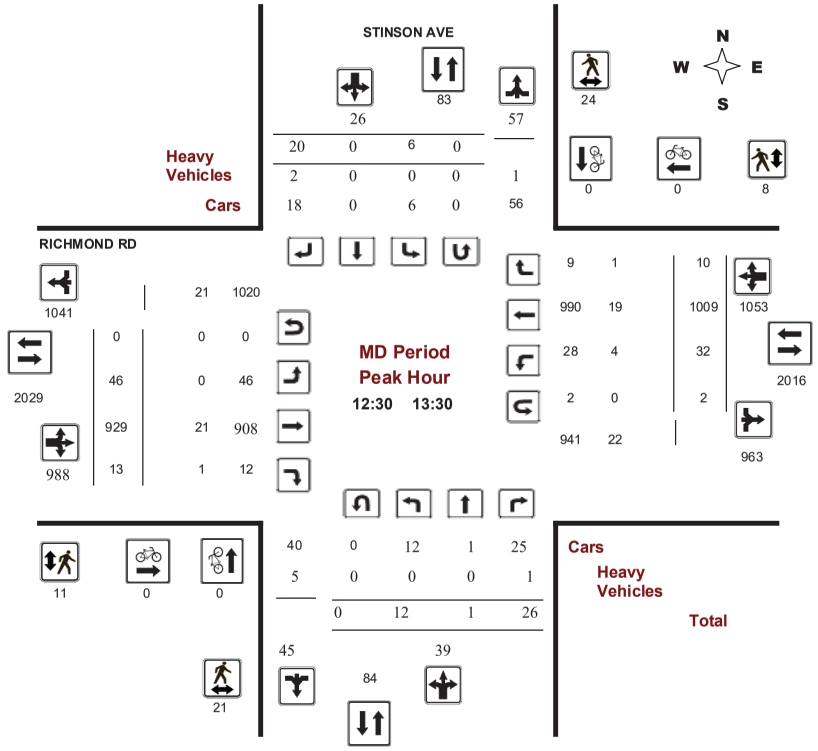
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RICHMOND RD @ STINSON AVE

Survey Date: Wednesday, March 08, 2017 **WO No:** 36747

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



Comments

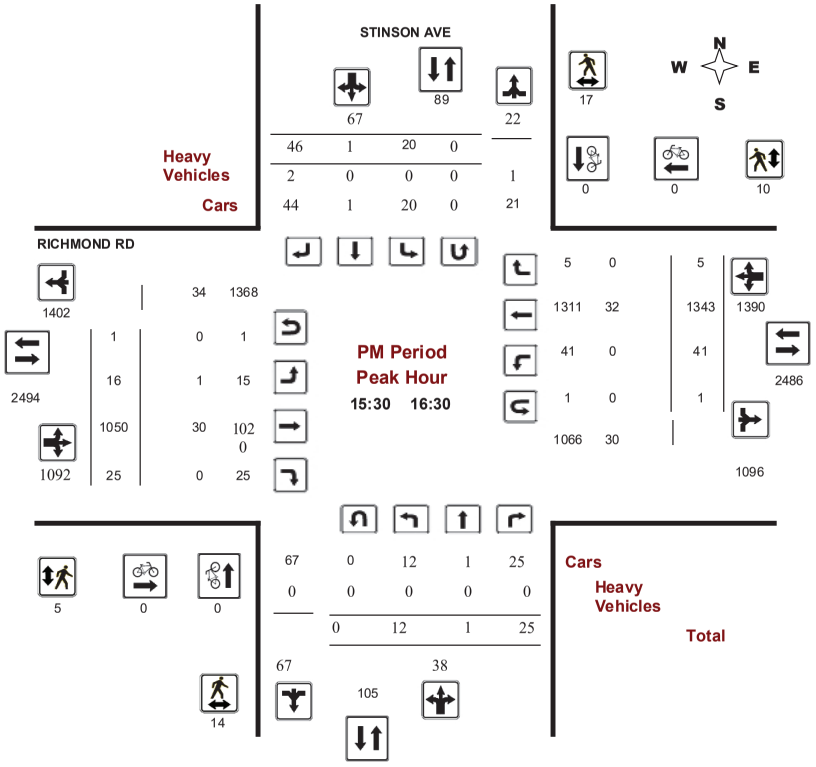
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RICHMOND RD @ STINSON AVE

Survey Date: Wednesday, March 08, 2017 **WO No:** 36747

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



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RICHMOND RD @ STINSON AVE

Survey Date: Wednesday, March 08, 2017 **WO No:** 36747

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

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, March 08, 2017

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 8 Westbound: 4

AADT Factor 1.00

	STINSON AVE									RICHMOND 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	2	34	**44**	3	0	6	**9**	**53**	52	1956	5	**2013**	20	555	17	**592**	**2605**	**2658**
08:00 09:00	6	1	31	**38**	5	0	8	**13**	**51**	55	1532	5	**1592**	16	773	34	**823**	**2415**	**2466**
09:00 10:00	3	0	34	**37**	2	0	14	**16**	**53**	42	1065	10	**1117**	22	785	15	**822**	**1939**	**1992**
11:30 12:30	8	0	16	**24**	11	0	27	**38**	**62**	21	990	18	**1029**	27	921	3	**951**	**1980**	**2042**
12:30 13:30	12	1	26	**39**	6	0	20	**26**	**65**	46	929	13	**988**	32	1009	10	**1051**	**2039**	**2104**
15:00 16:00	10	1	25	**36**	12	0	27	**39**	**75**	22	1034	22	**1078**	39	1227	5	**1271**	**2349**	**2424**
16:00 17:00	12	0	13	**25**	20	2	55	**77**	**102**	9	983	22	**1014**	44	1354	5	**1403**	**2417**	**2519**
17:00 18:00	6	1	28	**35**	16	1	35	**52**	**87**	17	1002	27	**1046**	46	1312	1	**1359**	**2405**	**2492**
Sub Total	65	6	207	**278**	75	3	192	**270**	**548**	264	9491	122	**9877**	246	7936	90	**8272**	**18149**	**18697**
U Turns	0			**0**	0			**0**	**0**	8			**8**	4			**4**	**12**	**12**
Total	65	6	207	**278**	75	3	192	**270**	**548**	272	9491	122	**9885**	250	7936	90	**8276**	**18161**	**18709**
EQ 12Hr	90	8	288	**386**	104	4	267	**375**	**761**	378	13192	170	**13740**	348	11031	125	**11504**	**25244**	**26005**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	90	8	288	**386**	104	4	267	**375**	**761**	378	13192	170	**13740**	348	11031	125	**11504**	**25244**	**26005**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1.00**					
AVG 24Hr	118	10	377	**505**	136	5	350	**491**	**996**	495	17282	223	**18000**	456	14451	164	**15071**	**33071**	**34067**
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

RICHMOND RD @ STINSON AVE

Survey Date: Wednesday, March 08, 2017 **WO No:** 36747

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

Full Study 15 Minute Increments

		STINSON AVE									RICHMOND 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	1	0	9	10	2	0	0	2	**12**	12	430	0	442	3	101	4	108	**550**	**562**
07:15	07:30	4	0	8	12	0	0	3	3	**15**	12	507	3	522	1	127	0	128	**650**	**665**
07:30	07:45	1	0	12	13	0	0	0	0	**13**	18	554	1	573	5	149	6	160	**733**	**746**
07:45	08:00	2	2	5	9	1	0	3	4	**13**	10	465	1	476	11	178	7	196	**672**	**685**
08:00	08:15	2	0	7	9	1	0	5	6	**15**	14	454	1	469	3	169	9	181	**650**	**665**
08:15	08:30	2	1	8	11	1	0	0	1	**12**	14	374	0	388	1	161	10	172	**560**	**572**
08:30	08:45	0	0	8	8	1	0	2	3	**11**	11	366	1	378	6	200	11	217	**595**	**606**
08:45	09:00	2	0	8	10	2	0	1	3	**13**	16	338	3	357	6	243	4	253	**610**	**623**
09:00	09:15	1	0	6	7	0	0	2	2	**9**	12	326	4	342	8	213	6	227	**569**	**578**
09:15	09:30	0	0	9	9	1	0	1	2	**11**	7	259	3	269	6	182	3	191	**460**	**471**
09:30	09:45	0	0	12	12	1	0	5	6	**18**	10	253	3	266	3	191	5	199	**465**	**483**
09:45	10:00	2	0	7	9	0	0	6	6	**15**	14	227	0	241	5	199	1	205	**446**	**461**
11:30	11:45	1	0	7	8	3	0	7	10	**18**	5	257	3	265	5	222	2	229	**494**	**512**
11:45	12:00	3	0	3	6	3	0	7	10	**16**	4	262	2	268	5	253	0	258	**526**	**542**
12:00	12:15	3	0	2	5	5	0	5	10	**15**	4	244	5	253	9	208	0	217	**470**	**485**
12:15	12:30	1	0	4	5	0	0	8	8	**13**	11	227	8	246	9	238	1	248	**494**	**507**
12:30	12:45	2	1	6	9	1	0	8	9	**18**	10	236	4	250	5	258	3	266	**516**	**534**
12:45	13:00	2	0	4	6	1	0	4	5	**11**	11	235	3	249	6	250	3	259	**508**	**519**
13:00	13:15	3	0	8	11	3	0	4	7	**18**	12	220	2	234	8	277	2	287	**521**	**539**
13:15	13:30	5	0	8	13	1	0	4	5	**18**	13	238	4	255	15	224	2	241	**496**	**514**
15:00	15:15	2	0	5	7	2	0	7	9	**16**	5	236	3	244	12	270	0	282	**526**	**542**
15:15	15:30	1	0	2	3	0	0	3	3	**6**	6	270	8	284	6	291	3	300	**584**	**590**
15:30	15:45	4	0	4	8	7	0	9	16	**24**	8	253	6	267	17	333	1	351	**618**	**642**
15:45	16:00	3	1	14	18	3	0	8	11	**29**	4	275	5	284	5	333	1	339	**623**	**652**
16:00	16:15	2	0	3	5	2	1	20	23	**28**	1	274	10	285	14	339	1	354	**639**	**667**
16:15	16:30	3	0	4	7	8	0	9	17	**24**	4	248	4	256	6	338	2	346	**602**	**626**
16:30	16:45	4	0	4	8	7	1	17	25	**33**	2	235	4	241	12	339	1	352	**593**	**626**
16:45	17:00	3	0	2	5	3	0	9	12	**17**	4	226	4	234	12	338	1	351	**585**	**602**
17:00	17:15	0	0	10	10	7	0	8	15	**25**	9	269	9	287	7	367	1	375	**662**	**687**
17:15	17:30	5	1	8	14	4	1	11	16	**30**	4	274	8	286	9	309	0	318	**604**	**634**
17:30	17:45	0	0	3	3	4	0	12	16	**19**	1	230	7	238	12	348	0	360	**598**	**617**
17:45	18:00	1	0	7	8	1	0	4	5	**13**	4	229	3	236	18	288	0	306	**542**	**555**
Total:		65	6	207	278	75	3	192	270	**548**	272	9491	122	9885	250	7936	90	8276	**548**	**18,709**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RICHMOND RD @ STINSON AVE

Survey Date: Wednesday, March 08, 2017 **WO No:** 36747

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

Full Study Cyclist Volume

Time Period		STINSON AVE Northbound	STINSON AVE Southbound	STINSON AVE Street Total	RICHMOND RD Eastbound	RICHMOND RD Westbound	RICHMOND RD Street Total	Grand Total
07:00	07:15	0	0	**0**	1	0	**1**	**1**
07:15	07:30	0	0	**0**	0	0	**0**	**0**
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	0	**0**	**0**
08:15	08:30	0	0	**0**	0	0	**0**	**0**
08:30	08:45	0	0	**0**	0	0	**0**	**0**
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	0	**0**	**0**
09:30	09:45	0	0	**0**	0	0	**0**	**0**
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	0	**0**	**0**
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**	0	0	**0**	**0**
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**	1	0	**1**	**1**
15:15	15:30	0	0	**0**	0	1	**1**	**1**
15:30	15:45	0	0	**0**	0	0	**0**	**0**
15:45	16:00	0	0	**0**	0	0	**0**	**0**
16:00	16:15	0	0	**0**	0	0	**0**	**0**
16:15	16:30	0	0	**0**	0	0	**0**	**0**
16:30	16:45	0	0	**0**	0	0	**0**	**0**
16:45	17:00	0	0	**0**	0	0	**0**	**0**
17:00	17:15	0	0	**0**	0	0	**0**	**0**
17:15	17:30	0	0	**0**	0	0	**0**	**0**
17:30	17:45	0	0	**0**	0	0	**0**	**0**
17:45	18:00	0	0	**0**	0	0	**0**	**0**
Total		0	0	**0**	2	1	**3**	**3**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RICHMOND RD @ STINSON AVE

Survey Date: Wednesday, March 08, 2017 **WO No:** 36747

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

Full Study Pedestrian Volume

Time Period		STINSON AVE NB Approach (E or W Crossing)	STINSON AVE SB Approach (E or W Crossing)	STINSON AVE Total	RICHMOND RD EB Approach (N or S Crossing)	RICHMOND RD WB Approach (N or S Crossing)	RICHMOND RD Total	Grand Total
07:00	07:15	2	0	**2**	1	0	**1**	**3**
07:15	07:30	2	2	**4**	2	0	**2**	**6**
07:30	07:45	0	1	**1**	0	0	**0**	**1**
07:45	08:00	1	5	**6**	2	0	**2**	**8**
08:00	08:15	0	3	**3**	2	0	**2**	**5**
08:15	08:30	3	3	**6**	2	0	**2**	**8**
08:30	08:45	2	0	**2**	1	1	**2**	**4**
08:45	09:00	0	4	**4**	1	2	**3**	**7**
09:00	09:15	4	0	**4**	1	1	**2**	**6**
09:15	09:30	1	3	**4**	1	2	**3**	**7**
09:30	09:45	3	3	**6**	1	1	**2**	**8**
09:45	10:00	0	3	**3**	2	0	**2**	**5**
11:30	11:45	3	2	**5**	0	5	**5**	**10**
11:45	12:00	0	2	**2**	1	0	**1**	**3**
12:00	12:15	6	5	**11**	3	1	**4**	**15**
12:15	12:30	7	3	**10**	3	8	**11**	**21**
12:30	12:45	5	6	**11**	3	2	**5**	**16**
12:45	13:00	6	5	**11**	2	1	**3**	**14**
13:00	13:15	8	9	**17**	5	5	**10**	**27**
13:15	13:30	2	4	**6**	1	0	**1**	**7**
15:00	15:15	0	2	**2**	0	2	**2**	**4**
15:15	15:30	4	1	**5**	0	2	**2**	**7**
15:30	15:45	2	5	**7**	1	2	**3**	**10**
15:45	16:00	4	5	**9**	1	3	**4**	**13**
16:00	16:15	4	1	**5**	0	3	**3**	**8**
16:15	16:30	4	6	**10**	3	2	**5**	**15**
16:30	16:45	2	0	**2**	1	1	**2**	**4**
16:45	17:00	8	5	**13**	3	6	**9**	**22**
17:00	17:15	6	6	**12**	4	2	**6**	**18**
17:15	17:30	2	1	**3**	1	1	**2**	**5**
17:30	17:45	1	4	**5**	1	2	**3**	**8**
17:45	18:00	1	2	**3**	1	1	**2**	**5**
Total	.....	93	101	**194**	50	56	**106**	**300**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RICHMOND RD @ STINSON AVE

Survey Date: Wednesday, March 08, 2017 **WO No:** 36747

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

Full Study Heavy Vehicles

		STINSON AVE									RICHMOND 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	5	0	**5**	0	4	0	**4**	**9**	**9**
07:15	07:30	1	0	0	**1**	0	0	0	**0**	**1**	0	9	1	**10**	0	5	0	**5**	**15**	**16**
07:30	07:45	0	0	0	**0**	0	0	0	**0**	**0**	1	13	0	**14**	1	7	0	**8**	**22**	**22**
07:45	08:00	0	0	0	**0**	0	0	0	**0**	**0**	1	13	0	**14**	1	7	0	**8**	**22**	**22**
08:00	08:15	0	0	1	**1**	0	0	2	**2**	**3**	0	13	0	**13**	0	7	0	**7**	**20**	**23**
08:15	08:30	0	0	0	**0**	0	0	0	**0**	**0**	0	9	0	**9**	0	7	0	**7**	**16**	**16**
08:30	08:45	0	0	0	**0**	0	0	0	**0**	**0**	0	17	0	**17**	1	6	0	**7**	**24**	**24**
08:45	09:00	0	0	0	**0**	0	0	0	**0**	**0**	0	6	0	**6**	1	12	0	**13**	**19**	**19**
09:00	09:15	0	0	0	**0**	0	0	0	**0**	**0**	0	15	1	**16**	0	12	0	**12**	**28**	**28**
09:15	09:30	0	0	1	**1**	0	0	0	**0**	**1**	1	18	0	**19**	1	4	0	**5**	**24**	**25**
09:30	09:45	0	0	0	**0**	0	0	0	**0**	**0**	0	7	0	**7**	0	5	0	**5**	**12**	**12**
09:45	10:00	0	0	0	**0**	0	0	0	**0**	**0**	1	9	0	**10**	0	2	0	**2**	**12**	**12**
11:30	11:45	0	0	0	**0**	0	0	0	**0**	**0**	0	8	0	**8**	0	6	0	**6**	**14**	**14**
11:45	12:00	0	0	0	**0**	0	0	0	**0**	**0**	0	6	0	**6**	1	6	0	**7**	**13**	**13**
12:00	12:15	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**2**	0	5	0	**5**	**7**	**7**
12:15	12:30	0	0	0	**0**	0	0	0	**0**	**0**	0	12	1	**13**	0	7	0	**7**	**20**	**20**
12:30	12:45	0	0	0	**0**	0	0	2	**2**	**2**	0	1	1	**2**	1	2	1	**4**	**6**	**8**
12:45	13:00	0	0	0	**0**	0	0	0	**0**	**0**	0	6	0	**6**	0	2	0	**2**	**8**	**8**
13:00	13:15	0	0	0	**0**	0	0	0	**0**	**0**	0	7	0	**7**	0	10	0	**10**	**17**	**17**
13:15	13:30	0	0	1	**1**	0	0	0	**0**	**1**	0	7	0	**7**	3	5	0	**8**	**15**	**16**
15:00	15:15	0	0	0	**0**	0	0	0	**0**	**0**	0	10	0	**10**	0	7	0	**7**	**17**	**17**
15:15	15:30	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**2**	0	5	0	**5**	**7**	**7**
15:30	15:45	0	0	0	**0**	0	0	0	**0**	**0**	1	7	0	**8**	0	13	0	**13**	**21**	**21**
15:45	16:00	0	0	0	**0**	0	0	1	**1**	**1**	0	11	0	**11**	0	6	0	**6**	**17**	**18**
16:00	16:15	0	0	0	**0**	0	0	0	**0**	**0**	0	4	0	**4**	0	7	0	**7**	**11**	**11**
16:15	16:30	0	0	0	**0**	0	0	1	**1**	**1**	0	8	0	**8**	0	6	0	**6**	**14**	**15**
16:30	16:45	0	0	0	**0**	0	0	0	**0**	**0**	0	0	0	**0**	0	4	0	**4**	**4**	**4**
16:45	17:00	0	0	0	**0**	0	0	0	**0**	**0**	0	3	0	**3**	0	2	0	**2**	**5**	**5**
17:00	17:15	0	0	0	**0**	0	0	0	**0**	**0**	0	7	0	**7**	0	4	0	**4**	**11**	**11**
17:15	17:30	0	0	0	**0**	0	0	0	**0**	**0**	0	5	0	**5**	0	7	0	**7**	**12**	**12**
17:30	17:45	0	0	0	**0**	0	0	0	**0**	**0**	0	6	0	**6**	0	4	0	**4**	**10**	**10**
17:45	18:00	0	0	0	**0**	0	0	0	**0**	**0**	0	4	0	**4**	0	3	0	**3**	**7**	**7**
Total:	None	1	0	3	**4**	0	0	6	**6**	**10**	5	250	4	**259**	10	189	1	**200**	**459**	**469**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RICHMOND RD @ STINSON AVE

Survey Date: Wednesday, March 08, 2017 **WO No:** 36747

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

Full Study 15 Minute U-Turn Total

		STINSON AVE	STINSON AVE	RICHMOND RD	RICHMOND 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	1	0	**1**
09:45	10:00	0	0	0	0	**0**
11:30	11:45	0	0	0	1	**1**
11:45	12:00	0	0	2	0	**2**
12:00	12:15	0	0	0	0	**0**
12:15	12:30	0	0	1	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	1	**1**
13:15	13:30	0	0	0	1	**1**
15:00	15:15	0	0	0	0	**0**
15:15	15:30	0	0	1	0	**1**
15:30	15:45	0	0	0	1	**1**
15:45	16:00	0	0	0	0	**0**
16:00	16:15	0	0	0	0	**0**
16:15	16:30	0	0	1	0	**1**
16:30	16:45	0	0	1	0	**1**
16:45	17:00	0	0	0	0	**0**
17:00	17:15	0	0	1	0	**1**
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	8	4	**12**

Transportation Services - Traffic Services

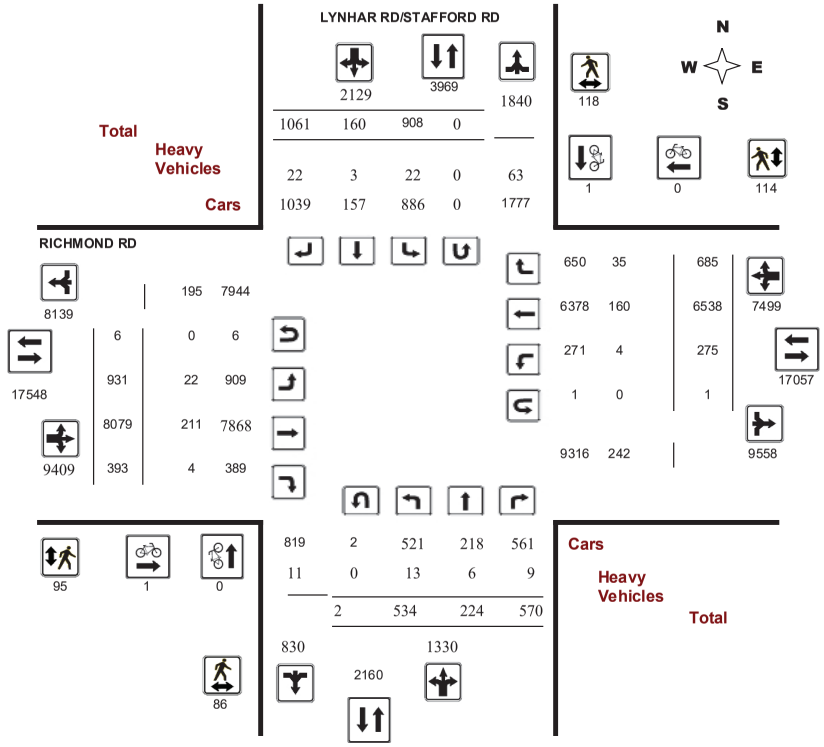
Turning Movement Count - Study Results

RICHMOND RD @ LYNHAR RD/STAFFORD RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36587

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

Full Study Diagram



Transportation Services - Traffic Services

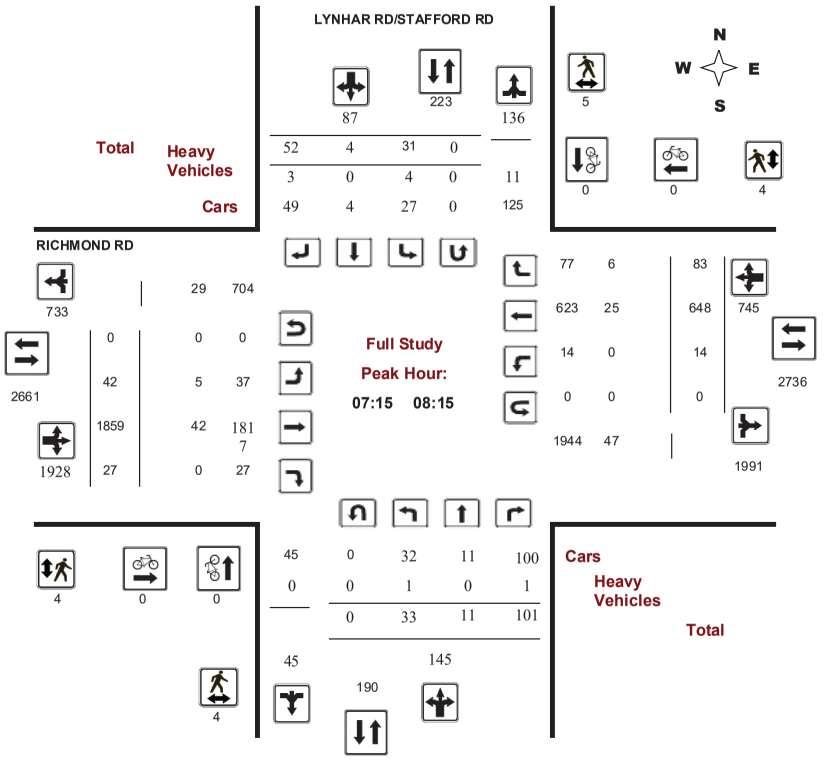
Turning Movement Count - Study Results

RICHMOND RD @ LYNHAR RD/STAFFORD RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36587

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

Full Study Peak Hour Diagram



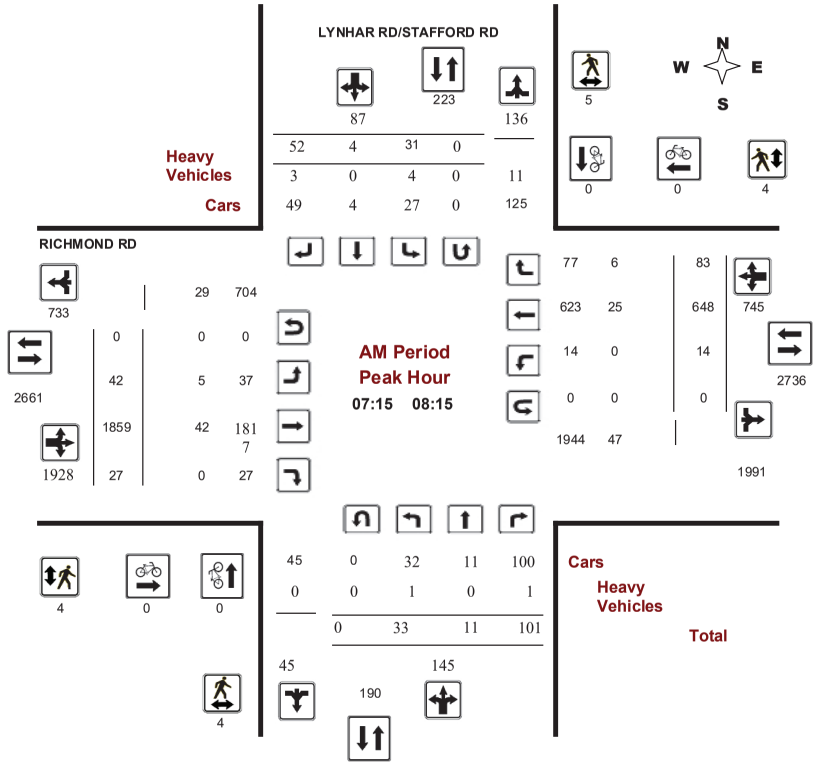
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RICHMOND RD @ LYNHAR RD/STAFFORD RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36587

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



Comments

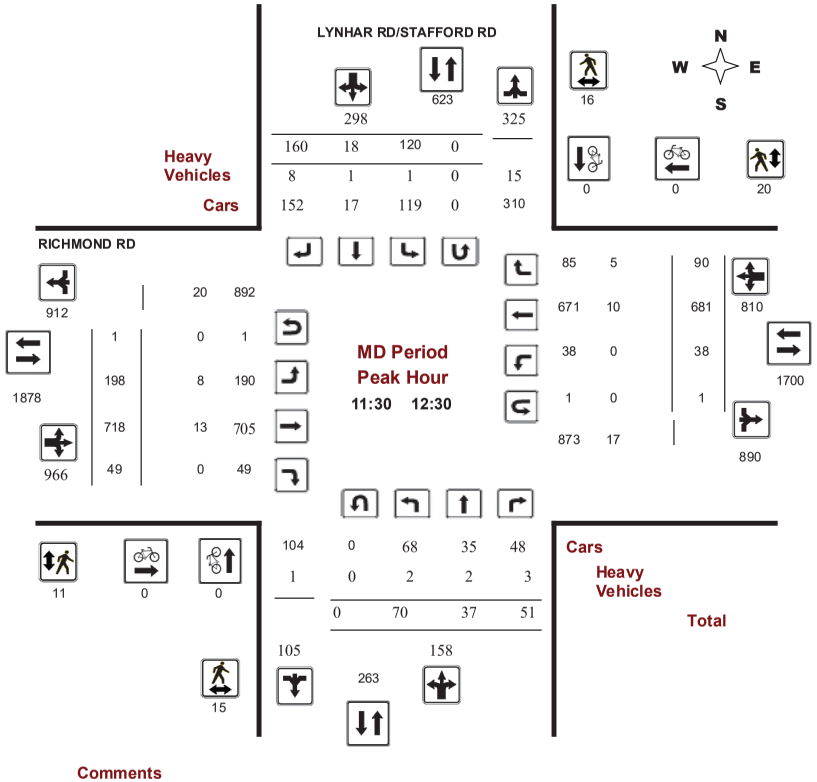
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RICHMOND RD @ LYNHAR RD/STAFFORD RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36587

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



Comments

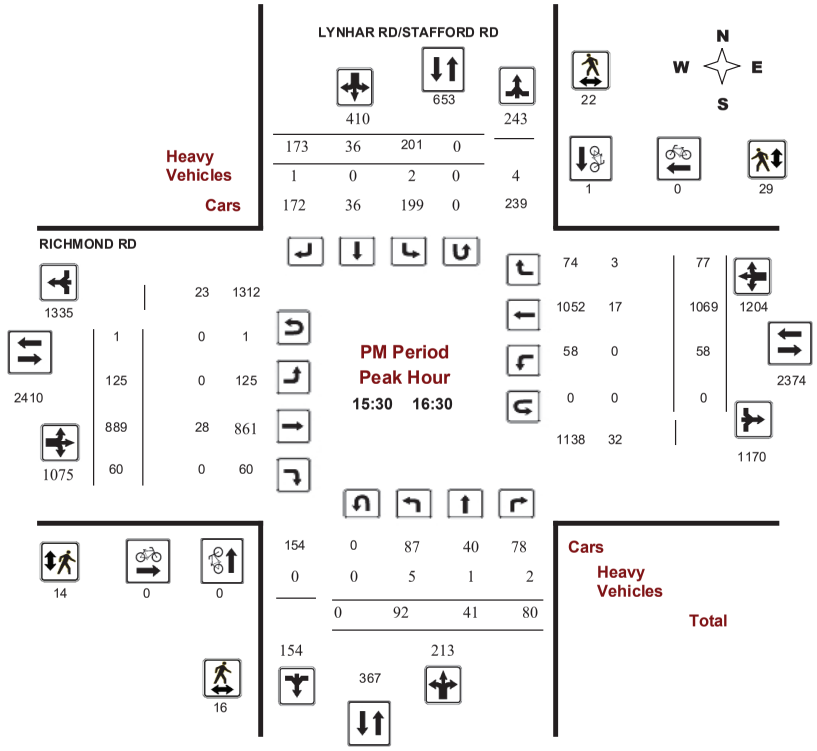
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RICHMOND RD @ LYNHAR RD/STAFFORD RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36587

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



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RICHMOND RD @ LYNHAR RD/STAFFORD RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36587

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

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, March 08, 2017

Total Observed U-Turns

Northbound: 2 Southbound: 0

Eastbound: 6 Westbound: 1

AADT Factor 1.00

	LYNHAR RD/STAFFORD RD								RICHMOND 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	28	10	107	**145**	20	2	38	**60**	**205**	40	1893	21	**1954**	14	599	75	**688**	**2642**	**2847**
08:00 09:00	42	16	75	**133**	38	11	75	**124**	**257**	67	1364	40	**1471**	24	762	83	**869**	**2340**	**2597**
09:00 10:00	45	26	64	**135**	60	12	90	**162**	**297**	111	867	63	**1041**	15	658	98	**771**	**1812**	**2109**
11:30 12:30	70	37	51	**158**	120	18	160	**298**	**456**	198	718	49	**965**	38	681	90	**809**	**1774**	**2230**
12:30 13:30	79	33	52	**164**	97	18	205	**320**	**484**	143	669	49	**861**	37	732	100	**869**	**1730**	**2214**
15:00 16:00	88	33	77	**198**	155	39	151	**345**	**543**	137	842	67	**1046**	43	1006	81	**1130**	**2176**	**2719**
16:00 17:00	93	49	72	**214**	221	28	172	**421**	**635**	117	851	57	**1025**	66	1081	73	**1220**	**2245**	**2880**
17:00 18:00	89	20	72	**181**	197	32	170	**399**	**580**	118	875	47	**1040**	38	1019	85	**1142**	**2182**	**2762**
Sub Total	534	224	570	**1328**	908	160	1061	**2129**	**3457**	931	8079	393	**9403**	275	6538	685	**7498**	**16901**	**20358**
U Turns	2			**2**	0			**0**	**2**	**6**			**6**	1			**1**	**7**	**9**
Total	536	224	570	**1330**	908	160	1061	**2129**	**3459**	937	8079	393	**9409**	276	6538	685	**7499**	**16908**	**20367**
EQ 12Hr	745	311	792	**1848**	1262	222	1475	**2959**	**4807**	1302	11230	546	**13078**	384	9088	952	**10424**	**23502**	**28309**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	745	311	792	**1848**	1262	222	1475	**2959**	**4807**	1302	11230	546	**13078**	384	9088	952	**10424**	**23502**	**28309**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1.00**					
AVG 24Hr	976	407	1038	**2421**	1653	291	1932	**3876**	**6297**	1706	14711	715	**17132**	503	11905	1247	**13655**	**30787**	**37084**
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

RICHMOND RD @ LYNHAR RD/STAFFORD RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36587

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

Full Study 15 Minute Increments

		LYNHAR RD/STAFFORD RD									RICHMOND 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	24	29	0	0	2	2	**31**	11	445	3	459	4	106	6	116	**575**	**606**
07:15	07:30	5	4	33	42	6	0	10	16	**58**	8	470	2	480	2	124	20	146	**626**	**684**
07:30	07:45	10	3	21	34	6	1	10	17	**51**	12	557	9	578	5	159	26	190	**768**	**819**
07:45	08:00	9	2	29	40	8	1	16	25	**65**	9	421	7	437	3	210	23	236	**673**	**738**
08:00	08:15	9	2	18	29	11	2	16	29	**58**	13	411	9	433	4	155	14	173	**606**	**664**
08:15	08:30	9	3	20	32	10	1	12	23	**55**	17	333	3	353	4	176	24	204	**557**	**612**
08:30	08:45	4	2	15	21	9	2	27	38	**59**	19	363	11	393	7	228	20	255	**648**	**707**
08:45	09:00	20	9	22	51	8	6	20	34	**85**	18	257	17	292	9	203	25	237	**529**	**614**
09:00	09:15	11	8	20	39	15	4	25	44	**83**	30	259	15	304	3	193	25	221	**525**	**608**
09:15	09:30	14	8	19	41	14	2	21	37	**78**	24	214	19	257	3	155	21	179	**436**	**514**
09:30	09:45	10	7	13	30	15	4	16	35	**65**	27	209	9	245	4	156	23	183	**428**	**493**
09:45	10:00	10	3	12	25	16	2	28	46	**71**	31	185	20	236	5	154	29	188	**424**	**495**
11:30	11:45	18	10	17	45	40	6	35	81	**126**	58	210	17	285	9	168	20	197	**482**	**608**
11:45	12:00	22	8	14	44	29	2	38	69	**113**	44	175	11	230	12	177	27	216	**446**	**559**
12:00	12:15	19	7	10	36	32	4	45	81	**117**	56	174	11	241	12	165	16	193	**434**	**551**
12:15	12:30	11	12	10	33	19	6	42	67	**100**	41	159	10	210	6	171	27	204	**414**	**514**
12:30	12:45	13	11	13	37	28	8	58	94	**131**	30	138	9	177	4	197	21	222	**399**	**530**
12:45	13:00	28	5	19	52	18	3	49	70	**122**	45	175	11	231	12	181	27	220	**451**	**573**
13:00	13:15	20	3	12	35	33	3	57	93	**128**	32	186	14	232	10	189	32	231	**463**	**591**
13:15	13:30	19	14	8	41	18	4	41	63	**104**	37	170	15	222	11	165	20	196	**418**	**522**
15:00	15:15	15	5	15	35	45	7	26	78	**113**	32	210	19	261	8	230	17	255	**516**	**629**
15:15	15:30	19	13	21	53	26	7	36	69	**122**	37	187	15	239	11	255	22	288	**527**	**649**
15:30	15:45	28	5	19	52	38	11	50	99	**151**	32	230	16	278	15	287	19	321	**599**	**750**
15:45	16:00	26	10	22	58	46	14	39	99	**157**	36	215	17	268	9	234	23	266	**534**	**691**
16:00	16:15	23	10	22	55	58	4	42	104	**159**	35	244	17	296	17	279	21	317	**613**	**772**
16:15	16:30	15	16	17	48	59	7	42	108	**156**	23	200	10	233	17	269	14	300	**533**	**689**
16:30	16:45	27	7	20	54	50	12	40	102	**156**	24	228	14	266	10	291	20	321	**587**	**743**
16:45	17:00	29	16	13	58	54	5	48	107	**165**	36	179	16	231	22	242	18	282	**513**	**678**
17:00	17:15	35	6	25	66	52	9	55	116	**182**	31	265	13	309	11	241	20	272	**581**	**763**
17:15	17:30	16	8	21	45	49	11	30	90	**135**	40	201	12	253	15	280	24	319	**572**	**707**
17:30	17:45	24	2	13	39	50	4	42	96	**135**	21	224	13	258	6	240	21	267	**525**	**660**
17:45	18:00	14	4	13	31	46	8	43	97	**128**	28	185	9	222	6	258	20	284	**506**	**634**
Total:		536	224	570	1330	908	160	1061	2129	**3459**	937	8079	393	9409	276	6538	685	7499	**3459**	**20,367**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RICHMOND RD @ LYNHAR RD/STAFFORD RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36587

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

Full Study Cyclist Volume

		LYNHAR RD/STAFFORD RD			RICHMOND RD			
Time Period		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	**0**	0	0	**0**	**0**
07:15	07:30	0	0	**0**	0	0	**0**	**0**
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	0	**0**	**0**
08:15	08:30	0	0	**0**	0	0	**0**	**0**
08:30	08:45	0	0	**0**	0	0	**0**	**0**
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	0	**0**	**0**
09:30	09:45	0	0	**0**	0	0	**0**	**0**
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	0	**0**	**0**
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**	0	0	**0**	**0**
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**	1	0	**1**	**1**
15:15	15:30	0	0	**0**	0	0	**0**	**0**
15:30	15:45	0	0	**0**	0	0	**0**	**0**
15:45	16:00	0	1	**1**	0	0	**0**	**1**
16:00	16:15	0	0	**0**	0	0	**0**	**0**
16:15	16:30	0	0	**0**	0	0	**0**	**0**
16:30	16:45	0	0	**0**	0	0	**0**	**0**
16:45	17:00	0	0	**0**	0	0	**0**	**0**
17:00	17:15	0	0	**0**	0	0	**0**	**0**
17:15	17:30	0	0	**0**	0	0	**0**	**0**
17:30	17:45	0	0	**0**	0	0	**0**	**0**
17:45	18:00	0	0	**0**	0	0	**0**	**0**
Total		0	1	**1**	1	0	**1**	**2**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RICHMOND RD @ LYNHAR RD/STAFFORD RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36587

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

Full Study Pedestrian Volume

	LYNHAR RD/STAFFORD RD			RICHMOND 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	0	1	**1**	0	0	**0**	**1**
07:15 07:30	2	0	**2**	2	0	**2**	**4**
07:30 07:45	1	2	**3**	0	0	**0**	**3**
07:45 08:00	0	1	**1**	0	1	**1**	**2**
08:00 08:15	1	2	**3**	2	3	**5**	**8**
08:15 08:30	1	1	**2**	2	2	**4**	**6**
08:30 08:45	1	1	**2**	2	2	**4**	**6**
08:45 09:00	1	4	**5**	0	2	**2**	**7**
09:00 09:15	4	1	**5**	1	3	**4**	**9**
09:15 09:30	1	2	**3**	2	4	**6**	**9**
09:30 09:45	6	7	**13**	4	5	**9**	**22**
09:45 10:00	2	2	**4**	1	5	**6**	**10**
11:30 11:45	0	2	**2**	1	3	**4**	**6**
11:45 12:00	4	3	**7**	2	6	**8**	**15**
12:00 12:15	7	10	**17**	5	7	**12**	**29**
12:15 12:30	4	1	**5**	3	4	**7**	**12**
12:30 12:45	5	1	**6**	5	0	**5**	**11**
12:45 13:00	4	12	**16**	12	0	**12**	**28**
13:00 13:15	2	3	**5**	0	0	**0**	**5**
13:15 13:30	4	2	**6**	4	1	**5**	**11**
15:00 15:15	3	2	**5**	4	3	**7**	**12**
15:15 15:30	4	3	**7**	4	2	**6**	**13**
15:30 15:45	9	4	**13**	7	11	**18**	**31**
15:45 16:00	0	8	**8**	3	7	**10**	**18**
16:00 16:15	6	8	**14**	4	6	**10**	**24**
16:15 16:30	1	2	**3**	0	5	**5**	**8**
16:30 16:45	3	3	**6**	3	3	**6**	**12**
16:45 17:00	2	11	**13**	2	11	**13**	**26**
17:00 17:15	3	2	**5**	5	3	**8**	**13**
17:15 17:30	3	8	**11**	5	6	**11**	**22**
17:30 17:45	2	6	**8**	3	2	**5**	**13**
17:45 18:00	0	3	**3**	7	7	**14**	**17**
Total	86	118	**204**	95	114	**209**	**413**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RICHMOND RD @ LYNHAR RD/STAFFORD RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36587

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

Full Study Heavy Vehicles

		LYNHAR RD/STAFFORD RD									RICHMOND 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	1	**1**	**1**	1	7	0	**8**	0	3	0	**3**	**11**	**12**
07:15	07:30	0	0	1	**1**	0	0	1	**1**	**2**	0	8	0	**8**	0	5	1	**6**	**14**	**16**
07:30	07:45	0	0	0	**0**	1	0	0	**1**	**1**	1	14	0	**15**	0	5	1	**6**	**21**	**22**
07:45	08:00	1	0	0	**1**	0	0	1	**1**	**2**	1	11	0	**12**	0	11	1	**12**	**24**	**26**
08:00	08:15	0	0	0	**0**	3	0	1	**4**	**4**	3	9	0	**12**	0	4	3	**7**	**19**	**23**
08:15	08:30	0	0	0	**0**	2	0	0	**2**	**2**	1	6	0	**7**	0	5	1	**6**	**13**	**15**
08:30	08:45	0	0	0	**0**	1	0	1	**2**	**2**	2	15	0	**17**	0	6	2	**8**	**25**	**27**
08:45	09:00	0	0	0	**0**	0	0	2	**2**	**2**	0	6	0	**6**	0	11	1	**12**	**18**	**20**
09:00	09:15	0	0	0	**0**	0	1	1	**2**	**2**	0	19	0	**19**	0	7	3	**10**	**29**	**31**
09:15	09:30	1	0	0	**1**	1	0	0	**1**	**2**	0	14	0	**14**	0	6	0	**6**	**20**	**22**
09:30	09:45	0	0	0	**0**	0	0	1	**1**	**1**	1	7	1	**9**	0	4	3	**7**	**16**	**17**
09:45	10:00	1	0	1	**2**	1	0	1	**2**	**4**	1	5	0	**6**	1	4	1	**6**	**12**	**16**
11:30	11:45	1	0	1	**2**	0	0	1	**1**	**3**	2	3	0	**5**	0	3	2	**5**	**10**	**13**
11:45	12:00	0	1	0	**1**	0	0	5	**5**	**6**	2	2	0	**4**	0	2	0	**2**	**6**	**12**
12:00	12:15	0	0	0	**0**	0	0	2	**2**	**2**	2	2	0	**4**	0	2	1	**3**	**7**	**9**
12:15	12:30	1	1	2	**4**	1	1	0	**2**	**6**	2	6	0	**8**	0	3	2	**5**	**13**	**19**
12:30	12:45	0	0	0	**0**	0	1	0	**1**	**1**	0	1	0	**1**	0	3	0	**3**	**4**	**5**
12:45	13:00	0	0	1	**1**	3	0	0	**3**	**4**	0	8	0	**8**	1	4	2	**7**	**15**	**19**
13:00	13:15	1	0	0	**1**	2	0	0	**2**	**3**	0	1	0	**1**	0	7	1	**8**	**9**	**12**
13:15	13:30	0	1	0	**1**	0	0	1	**1**	**2**	0	7	0	**7**	1	5	2	**8**	**15**	**17**
15:00	15:15	0	0	1	**1**	1	0	0	**1**	**2**	0	6	1	**7**	0	10	0	**10**	**17**	**19**
15:15	15:30	1	0	0	**1**	0	0	0	**0**	**1**	0	3	0	**3**	0	8	2	**10**	**13**	**14**
15:30	15:45	4	0	0	**4**	2	0	0	**2**	**6**	0	12	0	**12**	0	5	2	**7**	**19**	**25**
15:45	16:00	1	1	1	**3**	0	0	1	**1**	**4**	0	4	0	**4**	0	5	1	**6**	**10**	**14**
16:00	16:15	0	0	0	**0**	0	0	0	**0**	**0**	0	4	0	**4**	0	2	0	**2**	**6**	**6**
16:15	16:30	0	0	1	**1**	0	0	0	**0**	**1**	0	8	0	**8**	0	5	0	**5**	**13**	**14**
16:30	16:45	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**2**	0	4	1	**5**	**7**	**7**
16:45	17:00	0	0	0	**0**	1	0	1	**2**	**2**	0	2	1	**3**	0	1	1	**2**	**5**	**7**
17:00	17:15	1	1	0	**2**	0	0	1	**1**	**3**	1	6	0	**7**	0	5	0	**5**	**12**	**15**
17:15	17:30	0	1	0	**1**	2	0	0	**2**	**3**	2	3	1	**6**	0	9	0	**9**	**15**	**18**
17:30	17:45	0	0	0	**0**	1	0	0	**1**	**1**	0	4	0	**4**	0	1	1	**2**	**6**	**7**
17:45	18:00	0	0	0	**0**	0	0	0	**0**	**0**	0	6	0	**6**	1	5	0	**6**	**12**	**12**
Total:	None	13	6	9	**28**	22	3	22	**47**	**75**	22	211	4	**237**	4	160	35	**199**	**436**	**511**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RICHMOND RD @ LYNHAR RD/STAFFORD RD

Survey Date: Wednesday, March 08, 2017 **WO No:** 36587

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

Full Study 15 Minute U-Turn Total

Time Period		LYNHAR RD/STAFFORD RD Northbound U-Turn Total	LYNHAR RD/STAFFORD RD Southbound U-Turn Total	RICHMOND RD Eastbound U-Turn Total	RICHMOND 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	1	0	**1**
11:30	11:45	0	0	0	0	**0**
11:45	12:00	0	0	1	0	**1**
12:00	12:15	0	0	0	1	**1**
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	1	0	**2**
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	1	0	**1**
16:15	16:30	0	0	0	0	**0**
16:30	16:45	1	0	0	0	**1**
16:45	17:00	0	0	0	0	**0**
17:00	17:15	0	0	1	0	**1**
17:15	17:30	0	0	0	0	**0**
17:30	17:45	0	0	0	0	**0**
17:45	18:00	0	0	1	0	**1**
Total		2	0	6	1	**9**

Transportation Services - Traffic Services

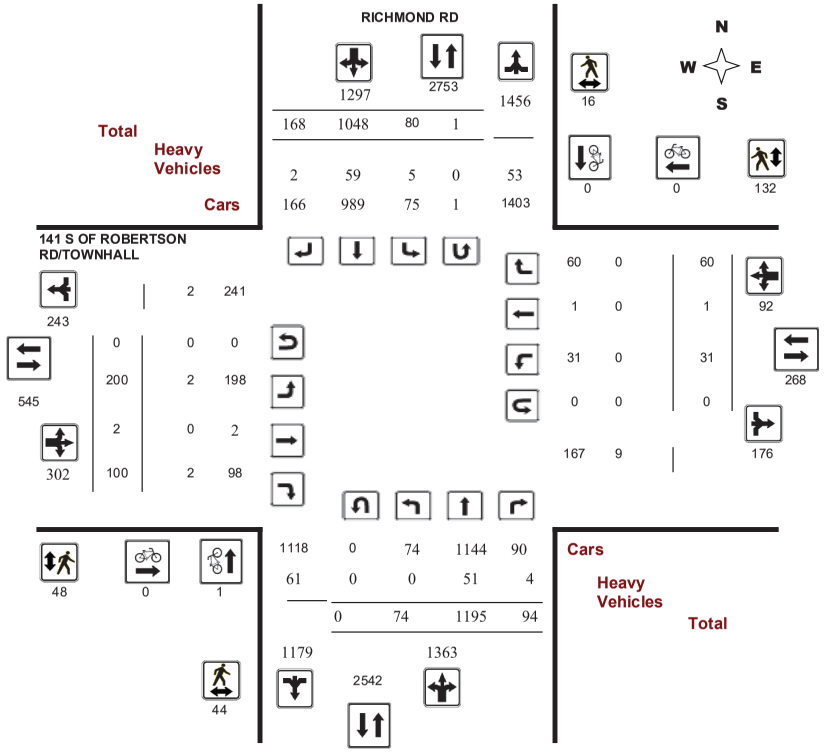
Turning Movement Count - Study Results

RICHMOND RD @ 141 S OF ROBERTSON RD/TOWNHALL

Survey Date: Wednesday, March 08, 2017 **WO No:** 36541

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

Full Study Diagram



Transportation Services - Traffic Services

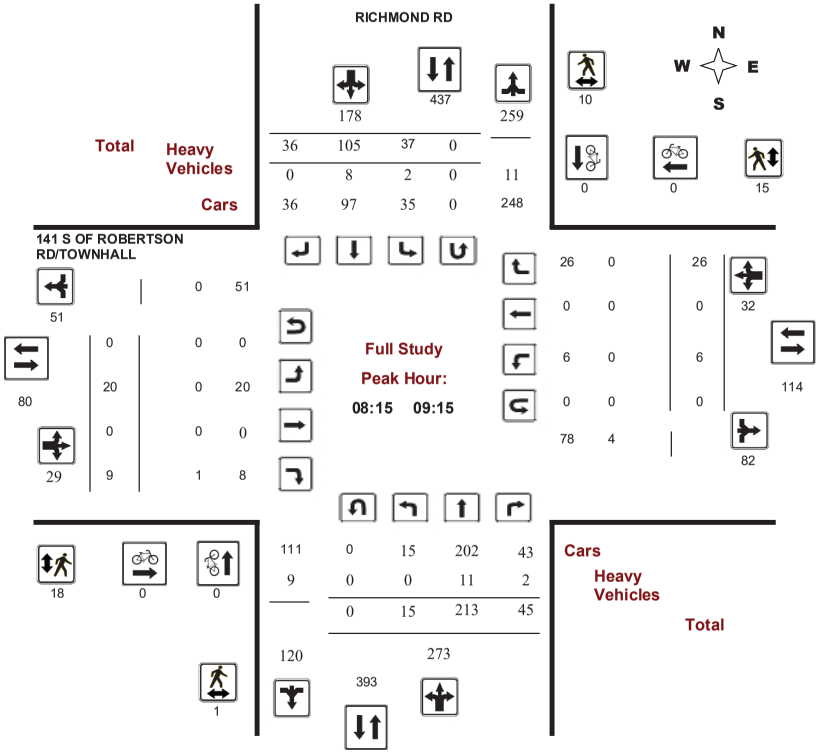
Turning Movement Count - Study Results

RICHMOND RD @ 141 S OF ROBERTSON RD/TOWNHALL

Survey Date: Wednesday, March 08, 2017 **WO No:** 36541

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

Full Study Peak Hour Diagram



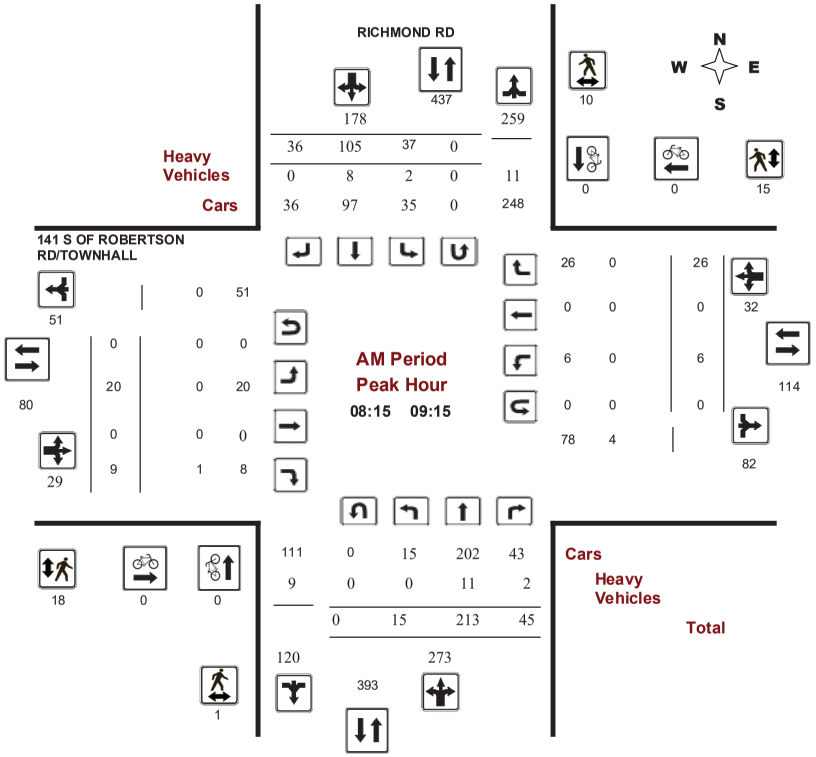
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RICHMOND RD @ 141 S OF ROBERTSON RD/TOWNHALL

Survey Date: Wednesday, March 08, 2017 **WO No:** 36541

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



Comments

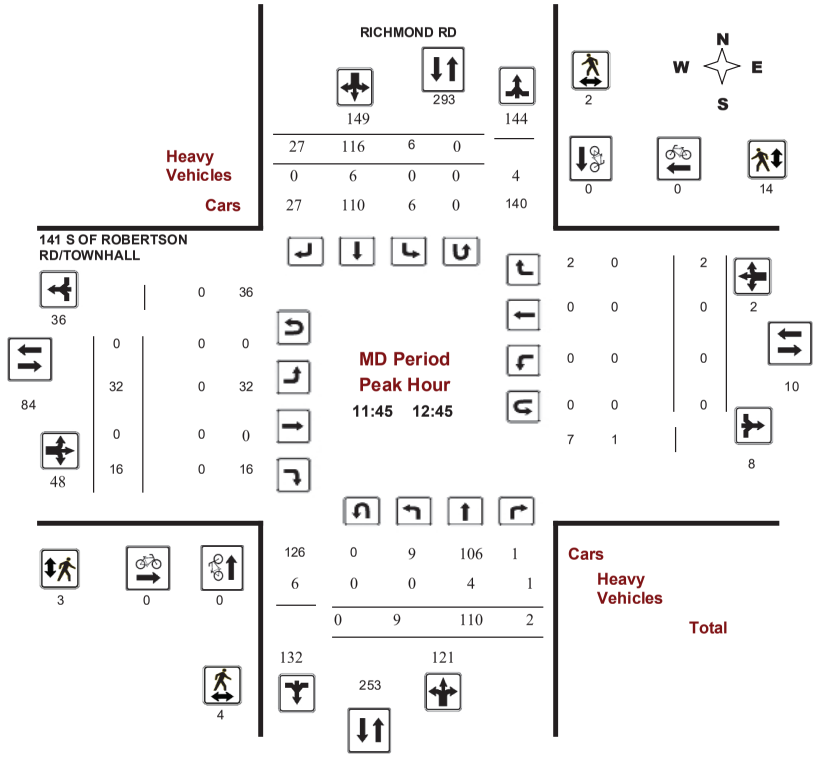
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RICHMOND RD @ 141 S OF ROBERTSON RD/TOWNHALL

Survey Date: Wednesday, March 08, 2017 **WO No:** 36541

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



Comments

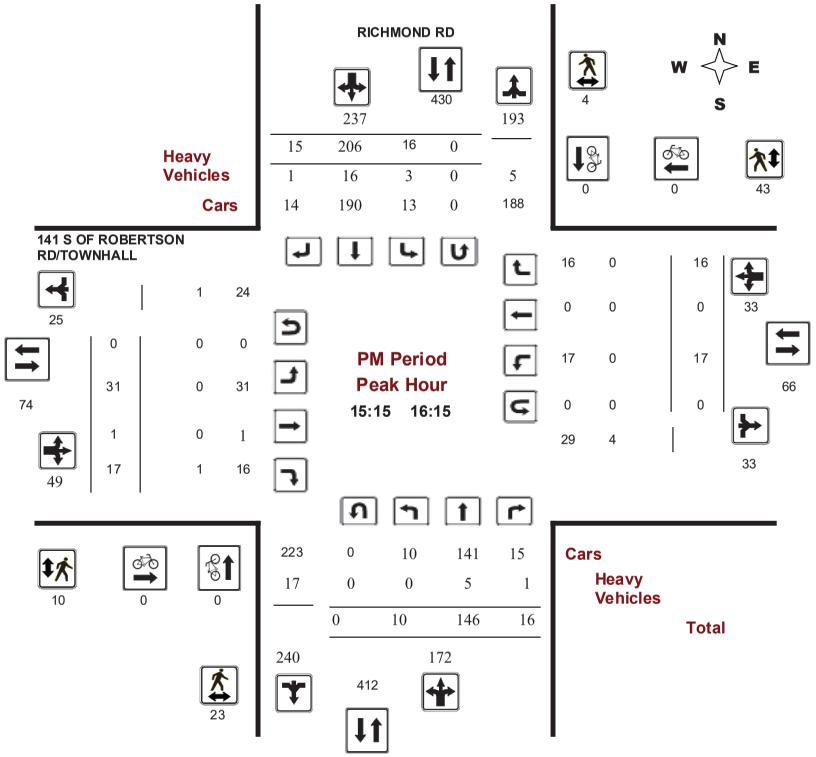
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RICHMOND RD @ 141 S OF ROBERTSON RD/TOWNHALL

Survey Date: Wednesday, March 08, 2017 **WO No:** 36541

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



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RICHMOND RD @ 141 S OF ROBERTSON RD/TOWNHALL

Survey Date: Wednesday, March 08, 2017 **WO No:** 36541

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

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, March 08, 2017

Total Observed U-Turns

Northbound: 0 Southbound: 1

Eastbound: 0 Westbound: 0

AADT Factor 1.00

	RICHMOND RD									141 S OF ROBERTSON RD/TOWNHALL									
	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	9	232	15	**256**	4	55	13	**72**	**328**	3	0	6	**9**	1	0	1	**2**	**11**	**339**
08:00 09:00	12	229	24	**265**	23	97	33	**153**	**418**	23	0	10	**33**	0	0	7	**7**	**40**	**458**
09:00 10:00	15	133	27	**175**	16	87	25	**128**	**303**	24	1	15	**40**	9	1	24	**34**	**74**	**377**
11:30 12:30	11	104	2	**117**	6	93	22	**121**	**238**	33	0	17	**50**	0	0	4	**4**	**54**	**292**
12:30 13:30	5	105	2	**112**	4	114	24	**142**	**254**	34	0	7	**41**	0	0	2	**2**	**43**	**297**
15:00 16:00	7	133	16	**156**	19	189	17	**225**	**381**	29	1	11	**41**	16	0	14	**30**	**71**	**452**
16:00 17:00	5	124	3	**132**	7	199	15	**221**	**353**	30	0	15	**45**	4	0	8	**12**	**57**	**410**
17:00 18:00	10	135	5	**150**	1	214	19	**234**	**384**	24	0	19	**43**	1	0	0	**1**	**44**	**428**
Sub Total	74	1195	94	**1363**	80	1048	168	**1296**	**2659**	200	2	100	**302**	31	1	60	**92**	**394**	**3053**
U Turns	0			**0**	1			**1**	**1**	**0**			**0**	0			**0**	**0**	**1**
Total	74	1195	94	**1363**	81	1048	168	**1297**	**2660**	200	2	100	**302**	31	1	60	**92**	**394**	**3054**
EQ 12Hr	103	1661	131	**1895**	113	1457	234	**1804**	**3699**	278	3	139	**420**	43	1	83	**127**	**547**	**4246**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	103	1661	131	**1895**	113	1457	234	**1804**	**3699**	278	3	139	**420**	43	1	83	**127**	**547**	**4246**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1.00**					
AVG 24Hr	135	2176	172	**2483**	148	1909	307	**2364**	**4847**	364	4	182	**550**	56	1	109	**166**	**716**	**5563**
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

RICHMOND RD @ 141 S OF ROBERTSON RD/TOWNHALL

Survey Date: Wednesday, March 08, 2017 **WO No:** 36541

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

Full Study 15 Minute Increments

		RICHMOND RD									141 S OF ROBERTSON RD/TOWNHALL									
		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	51	3	58	0	11	0	11	**69**	1	0	2	3	0	0	0	0	**3**	**72**
07:15	07:30	0	59	1	60	0	17	3	20	**80**	1	0	0	1	0	0	0	0	**1**	**81**
07:30	07:45	2	55	7	64	1	7	3	11	**75**	1	0	1	2	1	0	0	1	**3**	**78**
07:45	08:00	3	67	4	74	3	20	7	30	**104**	0	0	3	3	0	0	1	1	**4**	**108**
08:00	08:15	3	64	2	69	0	16	3	19	**88**	4	0	5	9	0	0	1	1	**10**	**98**
08:15	08:30	4	52	6	62	7	28	8	43	**105**	7	0	4	11	0	0	0	0	**11**	**116**
08:30	08:45	4	57	2	63	5	24	17	46	**109**	5	0	1	6	0	0	0	0	**6**	**115**
08:45	09:00	1	56	14	71	11	29	5	45	**116**	7	0	0	7	0	0	6	6	**13**	**129**
09:00	09:15	6	48	23	77	14	24	6	44	**121**	1	0	4	5	6	0	20	26	**31**	**152**
09:15	09:30	2	34	1	37	1	26	11	38	**75**	8	1	4	13	3	1	4	8	**21**	**96**
09:30	09:45	3	31	1	35	2	13	4	19	**54**	8	0	2	10	0	0	0	0	**10**	**64**
09:45	10:00	4	20	2	26	0	24	4	28	**54**	7	0	5	12	0	0	0	0	**12**	**66**
11:30	11:45	4	24	0	28	1	17	3	21	**49**	7	0	4	11	0	0	3	3	**14**	**63**
11:45	12:00	1	32	1	34	1	34	12	47	**81**	9	0	3	12	0	0	1	1	**13**	**94**
12:00	12:15	3	26	1	30	4	25	5	34	**64**	15	0	8	23	0	0	0	0	**23**	**87**
12:15	12:30	3	22	0	25	0	17	2	19	**44**	2	0	2	4	0	0	0	0	**4**	**48**
12:30	12:45	2	30	0	32	1	40	8	49	**81**	6	0	3	9	0	0	1	1	**10**	**91**
12:45	13:00	0	33	0	33	1	28	5	34	**67**	8	0	0	8	0	0	0	0	**8**	**75**
13:00	13:15	1	24	0	25	1	21	6	28	**53**	10	0	2	12	0	0	0	0	**12**	**65**
13:15	13:30	2	18	2	22	1	25	5	31	**53**	10	0	2	12	0	0	1	1	**13**	**66**
15:00	15:15	0	20	0	20	4	29	8	41	**61**	6	0	1	7	0	0	1	1	**8**	**69**
15:15	15:30	5	28	5	38	6	45	4	55	**93**	9	0	1	10	0	0	1	1	**11**	**104**
15:30	15:45	2	44	8	54	7	69	3	79	**133**	8	1	5	14	4	0	4	8	**22**	**155**
15:45	16:00	0	41	3	44	2	46	2	50	**94**	6	0	4	10	12	0	8	20	**30**	**124**
16:00	16:15	3	33	0	36	1	46	6	53	**89**	8	0	7	15	1	0	3	4	**19**	**108**
16:15	16:30	1	23	2	26	3	38	5	46	**72**	4	0	2	6	3	0	3	6	**12**	**84**
16:30	16:45	1	33	1	35	0	50	3	53	**88**	5	0	2	7	0	0	0	0	**7**	**95**
16:45	17:00	0	35	0	35	3	65	1	69	**104**	13	0	4	17	0	0	2	2	**19**	**123**
17:00	17:15	3	34	1	38	1	56	6	63	**101**	8	0	7	15	1	0	0	1	**16**	**117**
17:15	17:30	4	27	3	34	0	52	5	57	**91**	6	0	4	10	0	0	0	0	**10**	**101**
17:30	17:45	0	33	0	33	0	54	4	58	**91**	4	0	4	8	0	0	0	0	**8**	**99**
17:45	18:00	3	41	1	45	0	52	4	56	**101**	6	0	4	10	0	0	0	0	**10**	**111**
Total:		74	1195	94	1363	81	1048	168	1297	**2660**	200	2	100	302	31	1	60	92	**2660**	**3,054**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RICHMOND RD @ 141 S OF ROBERTSON RD/TOWNHALL

Survey Date: Wednesday, March 08, 2017 **WO No:** 36541

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

Full Study Cyclist Volume

Time Period		RICHMOND RD			141 S OF ROBERTSON RD/TOWNHALL			Grand Total
		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	
07:00	07:15	0	0	**0**	0	0	**0**	**0**
07:15	07:30	0	0	**0**	0	0	**0**	**0**
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	0	**0**	**0**
08:15	08:30	0	0	**0**	0	0	**0**	**0**
08:30	08:45	0	0	**0**	0	0	**0**	**0**
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	0	**0**	**0**
09:30	09:45	0	0	**0**	0	0	**0**	**0**
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	0	**0**	**0**
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**	0	0	**0**	**0**
12:45	13:00	1	0	**1**	0	0	**0**	**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	0	**0**	0	0	**0**	**0**
15:45	16:00	0	0	**0**	0	0	**0**	**0**
16:00	16:15	0	0	**0**	0	0	**0**	**0**
16:15	16:30	0	0	**0**	0	0	**0**	**0**
16:30	16:45	0	0	**0**	0	0	**0**	**0**
16:45	17:00	0	0	**0**	0	0	**0**	**0**
17:00	17:15	0	0	**0**	0	0	**0**	**0**
17:15	17:30	0	0	**0**	0	0	**0**	**0**
17:30	17:45	0	0	**0**	0	0	**0**	**0**
17:45	18:00	0	0	**0**	0	0	**0**	**0**
Total		1	0	**1**	0	0	**0**	**1**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RICHMOND RD @ 141 S OF ROBERTSON RD/TOWNHALL

Survey Date: Wednesday, March 08, 2017 **WO No:** 36541

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

Full Study Pedestrian Volume

Time Period	RICHMOND RD			141 S OF ROBERTSON RD/TOWNHALL			Grand Total
	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	
07:00 07:15	0	0	**0**	0	0	**0**	**0**
07:15 07:30	0	0	**0**	0	0	**0**	**0**
07:30 07:45	0	0	**0**	1	3	**4**	**4**
07:45 08:00	0	0	**0**	0	3	**3**	**3**
08:00 08:15	0	0	**0**	1	0	**1**	**1**
08:15 08:30	0	0	**0**	0	1	**1**	**1**
08:30 08:45	1	0	**1**	0	0	**0**	**1**
08:45 09:00	0	0	**0**	1	3	**4**	**4**
09:00 09:15	0	10	**10**	17	11	**28**	**38**
09:15 09:30	0	0	**0**	0	3	**3**	**3**
09:30 09:45	3	0	**3**	2	2	**4**	**7**
09:45 10:00	5	0	**5**	0	0	**0**	**5**
11:30 11:45	0	0	**0**	1	2	**3**	**3**
11:45 12:00	0	1	**1**	0	3	**3**	**4**
12:00 12:15	4	0	**4**	2	3	**5**	**9**
12:15 12:30	0	0	**0**	1	3	**4**	**4**
12:30 12:45	0	1	**1**	0	5	**5**	**6**
12:45 13:00	0	0	**0**	0	4	**4**	**4**
13:00 13:15	0	0	**0**	1	4	**5**	**5**
13:15 13:30	0	0	**0**	2	8	**10**	**10**
15:00 15:15	2	0	**2**	2	2	**4**	**6**
15:15 15:30	2	1	**3**	3	4	**7**	**10**
15:30 15:45	8	2	**10**	3	25	**28**	**38**
15:45 16:00	13	1	**14**	4	12	**16**	**30**
16:00 16:15	0	0	**0**	0	2	**2**	**2**
16:15 16:30	1	0	**1**	3	7	**10**	**11**
16:30 16:45	0	0	**0**	1	1	**2**	**2**
16:45 17:00	0	0	**0**	0	3	**3**	**3**
17:00 17:15	3	0	**3**	1	14	**15**	**18**
17:15 17:30	2	0	**2**	1	2	**3**	**5**
17:30 17:45	0	0	**0**	0	1	**1**	**1**
17:45 18:00	0	0	**0**	1	1	**2**	**2**
Total	44	16	**60**	48	132	**180**	**240**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RICHMOND RD @ 141 S OF ROBERTSON RD/TOWNHALL

Survey Date: Wednesday, March 08, 2017 **WO No:** 36541

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

Full Study Heavy Vehicles

Time Period		RICHMOND RD Northbound				RICHMOND RD Southbound					141 S OF ROBERTSON RD/TOWNHALL Eastbound				141 S OF ROBERTSON RD/TOWNHALL Westbound						
		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	3	0	**3**	0	2	0	**2**	**5**	0	0	0	**0**	0	0	0	**0**	**0**	**5**
07:15	07:30	0	3	0	**3**	0	2	0	**2**	**5**	0	0	0	**0**	0	0	0	**0**	**0**	**5**
07:30	07:45	0	4	0	**4**	0	3	0	**3**	**7**	0	0	0	**0**	0	0	0	**0**	**0**	**7**
07:45	08:00	0	3	0	**3**	0	1	0	**1**	**4**	0	0	0	**0**	0	0	0	**0**	**0**	**4**
08:00	08:15	0	3	0	**3**	0	0	0	**0**	**3**	0	0	0	**0**	0	0	0	**0**	**0**	**3**
08:15	08:30	0	1	0	**1**	0	2	0	**2**	**3**	0	0	0	**0**	0	0	0	**0**	**0**	**3**
08:30	08:45	0	6	0	**6**	0	2	0	**2**	**8**	0	0	0	**0**	0	0	0	**0**	**0**	**8**
08:45	09:00	0	2	1	**3**	0	1	0	**1**	**4**	0	0	0	**0**	0	0	0	**0**	**0**	**4**
09:00	09:15	0	2	1	**3**	2	3	0	**5**	**8**	0	0	1	**1**	0	0	0	**0**	**1**	**9**
09:15	09:30	0	2	0	**2**	0	1	0	**1**	**3**	0	0	0	**0**	0	0	0	**0**	**0**	**3**
09:30	09:45	0	2	0	**2**	0	1	0	**1**	**3**	0	0	0	**0**	0	0	0	**0**	**0**	**3**
09:45	10:00	0	1	0	**1**	0	1	0	**1**	**2**	0	0	0	**0**	0	0	0	**0**	**0**	**2**
11:30	11:45	0	0	0	**0**	0	0	0	**0**	**0**	0	0	0	**0**	0	0	0	**0**	**0**	**0**
11:45	12:00	0	1	0	**1**	0	2	0	**2**	**3**	0	0	0	**0**	0	0	0	**0**	**0**	**3**
12:00	12:15	0	0	1	**1**	0	1	0	**1**	**2**	0	0	0	**0**	0	0	0	**0**	**0**	**2**
12:15	12:30	0	1	0	**1**	0	1	0	**1**	**2**	0	0	0	**0**	0	0	0	**0**	**0**	**2**
12:30	12:45	0	2	0	**2**	0	2	0	**2**	**4**	0	0	0	**0**	0	0	0	**0**	**0**	**4**
12:45	13:00	0	1	0	**1**	0	1	0	**1**	**2**	1	0	0	**1**	0	0	0	**0**	**1**	**3**
13:00	13:15	0	0	0	**0**	0	1	0	**1**	**1**	0	0	0	**0**	0	0	0	**0**	**0**	**1**
13:15	13:30	0	2	0	**2**	0	1	0	**1**	**3**	0	0	0	**0**	0	0	0	**0**	**0**	**3**
15:00	15:15	0	0	0	**0**	0	1	0	**1**	**1**	0	0	0	**0**	0	0	0	**0**	**0**	**1**
15:15	15:30	0	1	0	**1**	1	3	0	**4**	**5**	0	0	0	**0**	0	0	0	**0**	**0**	**5**
15:30	15:45	0	2	1	**3**	1	6	0	**7**	**10**	0	0	0	**0**	0	0	0	**0**	**0**	**10**
15:45	16:00	0	2	0	**2**	0	4	0	**4**	**6**	0	0	0	**0**	0	0	0	**0**	**0**	**6**
16:00	16:15	0	0	0	**0**	1	3	1	**5**	**5**	0	0	1	**1**	0	0	0	**0**	**1**	**6**
16:15	16:30	0	1	0	**1**	0	1	1	**2**	**3**	1	0	0	**1**	0	0	0	**0**	**1**	**4**
16:30	16:45	0	1	0	**1**	0	3	0	**3**	**4**	0	0	0	**0**	0	0	0	**0**	**0**	**4**
16:45	17:00	0	0	0	**0**	0	0	0	**0**	**0**	0	0	0	**0**	0	0	0	**0**	**0**	**0**
17:00	17:15	0	3	0	**3**	0	1	0	**1**	**4**	0	0	0	**0**	0	0	0	**0**	**0**	**4**
17:15	17:30	0	1	0	**1**	0	4	0	**4**	**5**	0	0	0	**0**	0	0	0	**0**	**0**	**5**
17:30	17:45	0	0	0	**0**	0	1	0	**1**	**1**	0	0	0	**0**	0	0	0	**0**	**0**	**1**
17:45	18:00	0	1	0	**1**	0	4	0	**4**	**5**	0	0	0	**0**	0	0	0	**0**	**0**	**5**
Total:	None	0	51	4	**55**	5	59	2	**66**	**121**	2	0	2	**4**	0	0	0	**0**	**4**	**125**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RICHMOND RD @ 141 S OF ROBERTSON RD/TOWNHALL

Survey Date: Wednesday, March 08, 2017 **WO No:** 36541

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

Full Study 15 Minute U-Turn Total

Time Period		RICHMOND RD Northbound U-Turn Total	RICHMOND RD Southbound U-Turn Total	141 S OF ROBERTSON RD/TOWNHALL Eastbound U-Turn Total	141 S OF ROBERTSON RD/TOWNHALL 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	1	0	0	**1**
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	1	0	0	**1**

Appendix C

Synchro Intersection Worksheets – Existing Conditions

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	102	174	46	456	786	63
Future Volume (vph)	102	174	46	456	786	63
Lane Group Flow (vph)	113	193	51	507	873	70
Turn Type	Perm	Perm	pm+pt	NA	NA	Perm
Protected Phases			5	2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	28.3	28.3	10.6	15.6	24.6	24.6
Total Split (s)	28.3	28.3	11.0	51.7	40.7	40.7
Total Split (%)	35.4%	35.4%	13.8%	64.6%	50.9%	50.9%
Maximum Green (s)	22.0	22.0	5.4	46.1	35.1	35.1
Yellow Time (s)	4.6	4.6	3.7	3.7	3.7	3.7
All-Red Time (s)	1.7	1.7	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	5.6	5.6	5.6	5.6
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0			14.0	14.0
Flash Dont Walk (s)	15.0	15.0			5.0	5.0
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	11.7	11.7	56.4	56.4	49.0	49.0
Actuated g/C Ratio	0.15	0.15	0.70	0.70	0.61	0.61
v/c Ratio	0.47	0.51	0.12	0.22	0.44	0.08
Control Delay	37.5	10.0	3.4	3.4	10.6	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.5	10.0	3.4	3.4	10.6	3.0
LOS	D	A	A	A	B	A
Approach Delay	20.1			3.4	10.0	
Approach LOS	C			A	B	
Queue Length 50th (m)	16.2	0.0	1.7	8.9	37.7	0.0
Queue Length 95th (m)	29.4	16.0	3.5	10.8	61.1	5.8
Internal Link Dist (m)	1760.7			270.5	415.7	
Turn Bay Length (m)		115.0	125.0			45.0
Base Capacity (vph)	455	542	408	2293	1992	927
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.36	0.13	0.22	0.44	0.08

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 6 (8%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 65

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.51
Intersection Signal Delay: 9.7 — Intersection LOS: A
Intersection Capacity Utilization 50.0% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: Moodie & Timm

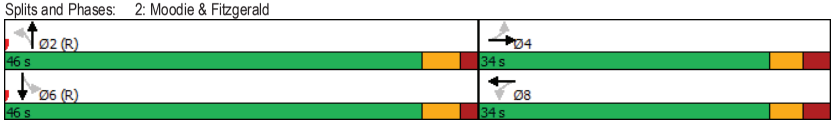
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	74	28	18	6	49	470	116	658
Future Volume (vph)	74	28	18	6	49	470	116	658
Lane Group Flow (vph)	82	59	20	16	54	593	129	938
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	34.0	34.0	34.0	34.0	30.7	30.7	30.7	30.7
Total Split (s)	34.0	34.0	34.0	34.0	46.0	46.0	46.0	46.0
Total Split (%)	42.5%	42.5%	42.5%	42.5%	57.5%	57.5%	57.5%	57.5%
Maximum Green (s)	28.0	28.0	28.0	28.0	40.3	40.3	40.3	40.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	2.7	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	5.7	5.7	5.7	5.7
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	3	3	3	3	6	6	3	3
Act Effct Green (s)	14.2	14.2	14.2	14.2	58.5	58.5	58.5	58.5
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.73	0.73	0.73	0.73
v/c Ratio	0.36	0.21	0.09	0.06	0.15	0.25	0.24	0.41
Control Delay	31.3	16.7	24.7	16.1	8.4	5.9	11.6	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.3	16.7	24.7	16.1	8.4	5.9	11.6	9.2
LOS	C	B	C	B	A	A	B	A
Approach Delay		25.2		20.9		6.1		9.5
Approach LOS		C		C		A		A
Queue Length 50th (m)	11.8	4.3	2.7	1.0	2.1	12.3	5.3	21.7
Queue Length 95th (m)	18.2	10.7	6.4	4.5	11.5	36.6	26.1	66.7
Internal Link Dist (m)		192.7		115.6		159.6		270.5
Turn Bay Length (m)	35.0		25.0		75.0		45.0	
Base Capacity (vph)	450	538	438	499	365	2358	543	2313
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.11	0.05	0.03	0.15	0.25	0.24	0.41

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 68 (85%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 65

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.41
Intersection Signal Delay: 9.7 — Intersection LOS: A
Intersection Capacity Utilization 60.5% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 2: Moodie & Fitzgerald



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	16	18	567	15	22	676
Future Volume (vph)	16	18	567	15	22	676
Lane Group Flow (vph)	18	20	630	17	24	751
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	32.6	32.6	28.9	28.9	23.9	23.9
Total Split (s)	33.0	33.0	67.0	67.0	67.0	67.0
Total Split (%)	33.0%	33.0%	67.0%	67.0%	67.0%	67.0%
Maximum Green (s)	27.4	27.4	61.1	61.1	61.1	61.1
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.3	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.9	5.9	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	20.0	20.0	16.0	16.0		
Pedestrian Calls (#/hr)	0	0	0	0		
Act Effct Green (s)	10.0	10.0	87.1	87.1	87.1	87.1
Actuated g/C Ratio	0.10	0.10	0.87	0.87	0.87	0.87
v/c Ratio	0.13	0.12	0.22	0.01	0.04	0.27
Control Delay	43.4	18.8	2.2	1.1	2.5	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.4	18.8	2.2	1.1	2.5	2.4
LOS	D	B	A	A	A	A
Approach Delay	30.5		2.2			2.4
Approach LOS	C		A			A
Queue Length 50th (m)	3.2	0.0	13.4	0.0	0.8	16.7
Queue Length 95th (m)	10.0	6.9	17.9	1.2	2.4	22.1
Internal Link Dist (m)	125.7		176.3			159.6
Turn Bay Length (m)		10.0		45.0	60.0	
Base Capacity (vph)	389	420	2832	1293	543	2832
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.05	0.22	0.01	0.04	0.27

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 58 (58%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 65

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.27
Intersection Signal Delay: 3.0 — Intersection LOS: A
Intersection Capacity Utilization 37.6% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Moodie & Loblaws Access

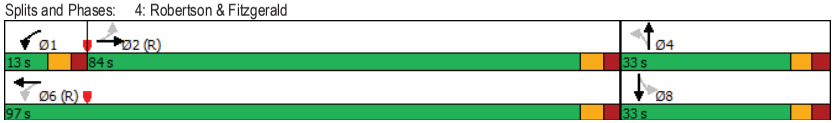
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	182	1328	24	445	4	3	62	8
Future Volume (vph)	182	1328	24	445	4	3	62	8
Lane Group Flow (vph)	202	1482	27	641	4	13	69	78
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		2	1	6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	2	2	1	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	28.4	28.4	11.2	28.4	32.3	32.3	32.3	32.3
Total Split (s)	84.0	84.0	13.0	97.0	33.0	33.0	33.0	33.0
Total Split (%)	64.6%	64.6%	10.0%	74.6%	25.4%	25.4%	25.4%	25.4%
Maximum Green (s)	77.6	77.6	6.8	90.6	26.7	26.7	26.7	26.7
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7	2.5	2.7	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.2	6.4	6.3	6.3	6.3	6.3
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	15.0	15.0		15.0	19.0	19.0	19.0	19.0
Pedestrian Calls (#/hr)	14	14		16	18	18	11	11
Act Effct Green (s)	92.9	92.9	100.6	100.4	16.9	16.9	16.9	16.9
Actuated g/C Ratio	0.71	0.71	0.77	0.77	0.13	0.13	0.13	0.13
v/c Ratio	0.41	0.63	0.12	0.27	0.03	0.07	0.42	0.32
Control Delay	13.6	13.6	5.2	5.1	43.8	25.0	57.3	16.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.6	13.6	5.2	5.1	43.8	25.0	57.3	16.0
LOS	B	B	A	A	D	C	E	B
Approach Delay		13.6		5.1		29.4		35.4
Approach LOS		B		A		C		D
Queue Length 50th (m)	18.8	93.0	0.2	1.1	1.0	0.7	17.2	2.1
Queue Length 95th (m)	48.8	164.1	m6.1	44.4	4.0	6.4	29.2	15.2
Internal Link Dist (m)		422.4		92.3		38.8		177.2
Turn Bay Length (m)	40.0		50.0		30.0		45.0	
Base Capacity (vph)	498	2365	240	2346	249	296	261	347
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.63	0.11	0.27	0.02	0.04	0.26	0.22

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 97 (75%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 12.7 — Intersection LOS: B
Intersection Capacity Utilization 73.2% — ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Robertson & Fitzgerald



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	1211	112	81	307	152	225	361	309	356	176	107
Future Volume (vph)	71	1211	112	81	307	152	225	361	309	356	176	107
Lane Group Flow (vph)	79	1346	124	90	341	169	250	401	343	396	196	119
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
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)	11.4	34.4	34.4	11.4	34.4	34.4	11.5	37.7	37.7	11.5	37.7	37.7
Total Split (s)	15.0	54.0	54.0	15.0	54.0	54.0	23.0	38.0	38.0	23.0	38.0	38.0
Total Split (%)	11.5%	41.5%	41.5%	11.5%	41.5%	41.5%	17.7%	29.2%	29.2%	17.7%	29.2%	29.2%
Maximum Green (s)	8.6	47.6	47.6	8.6	47.6	47.6	16.5	31.3	31.3	16.5	31.3	31.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.8	3.0	3.0	2.8	3.0	3.0
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)	6.4	6.4	6.4	6.4	6.4	6.4	6.5	6.7	6.7	6.5	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		21.0	21.0		21.0	21.0		24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		4	4		6	6		4	4		6	6
Act Effct Green (s)	9.7	52.1	52.1	10.2	52.6	52.6	14.6	25.2	25.2	16.5	27.1	27.1
Actuated g/C Ratio	0.07	0.40	0.40	0.08	0.40	0.40	0.11	0.19	0.19	0.13	0.21	0.21
v/c Ratio	0.67	1.01	0.19	0.69	0.27	0.25	0.69	0.64	0.87	0.97	0.30	0.30
Control Delay	95.8	57.2	2.3	89.5	27.3	9.1	65.8	52.2	52.2	94.1	43.8	6.3
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	95.8	57.2	2.3	89.5	27.3	9.1	65.8	52.2	52.2	94.1	43.8	6.3
LOS	F	E	A	F	C	A	E	D	D	F	D	A
Approach Delay		54.8			31.5			55.6			65.6	
Approach LOS		D			C			E			E	
Queue Length 50th (m)	18.8	~208.2	2.8	15.7	41.7	15.7	32.0	49.5	53.2	52.8	22.3	0.0
Queue Length 95th (m)	m#40.8	#246.1	5.9	#54.8	21.7	15.7	45.6	63.3	87.2	#84.1	32.2	11.2
Internal Link Dist (m)		105.2			158.4			620.1			176.3	
Turn Bay Length (m)	75.0			70.0			83.0		60.0	80.0		75.0
Base Capacity (vph)	120	1328	650	130	1279	689	408	782	455	408	761	441
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	0.66	1.01	0.19	0.69	0.27	0.25	0.61	0.51	0.75	0.97	0.26	0.27

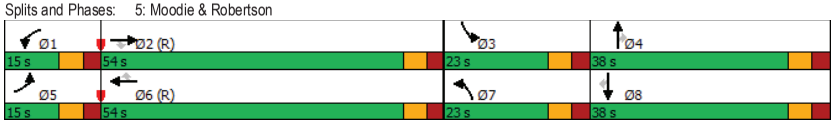
Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 119 (92%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 135

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 53.4 — Intersection LOS: D
Intersection Capacity Utilization 84.9% — 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: 5: Moodie & Robertson



Lane Group	EBL	EBT	WBL	WBT	SBL	SBT	Ø4
Lane Configurations							
Traffic Volume (vph)	9	1913	1	535	19	0	
Future Volume (vph)	9	1913	1	535	19	0	
Lane Group Flow (vph)	10	2126	1	606	0	34	
Turn Type	Perm	NA	Perm	NA	Perm	NA	
Protected Phases		2		6		9	4
Permitted Phases	2		6		9		
Detector Phase	2	2	6	6	9	9	
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.4	22.4	22.4	22.4	33.7	33.7	16.7
Total Split (s)	79.6	79.6	79.6	79.6	33.7	33.7	16.7
Total Split (%)	61.2%	61.2%	61.2%	61.2%	25.9%	25.9%	13%
Maximum Green (s)	73.2	73.2	73.2	73.2	27.0	27.0	10.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0	3.0
All-Red Time (s)	2.7	2.7	2.7	2.7	3.7	3.7	3.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.4	6.4	6.4	6.4		6.7	
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	11.0	11.0	
Flash Dont Walk (s)	9.0	9.0	9.0	9.0	16.0	16.0	
Pedestrian Calls (#/hr)	6	6	4	4	3	3	
Act Effct Green (s)	112.7	112.7	112.7	112.7		13.4	
Actuated g/C Ratio	0.87	0.87	0.87	0.87		0.10	
v/c Ratio	0.02	0.74	0.02	0.22		0.15	
Control Delay	5.3	13.4	8.0	5.0		1.4	
Queue Delay	0.0	7.3	0.0	0.0		0.0	
Total Delay	5.3	20.7	8.0	5.0		1.4	
LOS	A	C	A	A		A	
Approach Delay		20.6		5.0		1.4	
Approach LOS		C		A		A	
Queue Length 50th (m)	0.4	151.4	0.1	36.2		0.0	
Queue Length 95th (m)	m0.9	m159.8	m0.6	62.0		0.0	
Internal Link Dist (m)		89.6		196.4		53.8	
Turn Bay Length (m)	30.0		25.0				
Base Capacity (vph)	636	2875	50	2781		379	
Starvation Cap Reductn	0	0	0	0		0	
Spillback Cap Reductn	0	719	0	0		0	
Storage Cap Reductn	0	0	0	0		0	
Reduced v/c Ratio	0.02	0.99	0.02	0.22		0.09	

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 112 (86%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 150

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 17.0 — Intersection LOS: B
Intersection Capacity Utilization 76.4% — ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Robertson & Vanier

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	1907	45	504	38	218
Future Volume (vph)	1907	45	504	38	218
Lane Group Flow (vph)	2157	50	560	42	242
Turn Type	NA	pm+pt	NA	Perm	Perm
Protected Phases	2	1	6		
Permitted Phases		6		4	4
Detector Phase	2	1	6	4	4
Switch Phase					
Minimum Initial (s)	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	33.1	11.1	33.1	31.1	31.1
Total Split (s)	86.0	12.0	98.0	32.0	32.0
Total Split (%)	66.2%	9.2%	75.4%	24.6%	24.6%
Maximum Green (s)	79.9	5.9	91.9	25.9	25.9
Yellow Time (s)	3.7	3.7	3.7	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	3.1	3.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	None	C-Max	None	None
Walk Time (s)	7.0		7.0	10.0	10.0
Flash Dont Walk (s)	20.0		20.0	15.0	15.0
Pedestrian Calls (#/hr)	5		0	3	3
Act Effct Green (s)	88.4	98.4	98.4	19.4	19.4
Actuated g/C Ratio	0.68	0.76	0.76	0.15	0.15
v/c Ratio	0.96	0.39	0.23	0.18	0.85
Control Delay	32.9	31.6	5.1	47.4	59.3
Queue Delay	43.6	0.0	0.0	0.0	0.1
Total Delay	76.5	31.6	5.1	47.4	59.4
LOS	E	C	A	D	E
Approach Delay	76.5		7.2	57.6	
Approach LOS	E		A	E	
Queue Length 50th (m)	~292.0	4.1	18.7	9.5	40.3
Queue Length 95th (m)	#372.4	17.9	28.2	19.3	67.7
Internal Link Dist (m)	196.4		308.7	117.3	
Turn Bay Length (m)		60.0		20.0	
Base Capacity (vph)	2241	130	2414	310	354
Starvation Cap Reductn	598	0	0	0	0
Spillback Cap Reductn	89	0	0	0	2
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.31	0.38	0.23	0.14	0.69

Intersection Summary

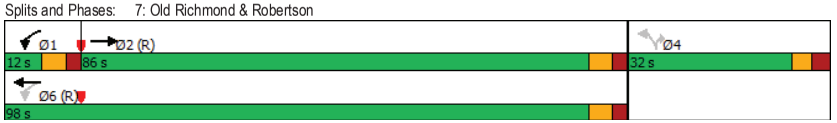
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 17 (13%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 140

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 60.9 — Intersection LOS: E
Intersection Capacity Utilization 81.2% — 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: 7: Old Richmond & Robertson



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	54	1980	20	623	9	2	2	0
Future Volume (vph)	54	1980	20	623	9	2	2	0
Lane Group Flow (vph)	60	2207	22	716	0	48	0	14
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.8	26.8	26.8	26.8	31.6	31.6	31.6	31.6
Total Split (s)	98.0	98.0	98.0	98.0	32.0	32.0	32.0	32.0
Total Split (%)	75.4%	75.4%	75.4%	75.4%	24.6%	24.6%	24.6%	24.6%
Maximum Green (s)	92.2	92.2	92.2	92.2	25.4	25.4	25.4	25.4
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0
All-Red Time (s)	2.1	2.1	2.1	2.1	3.6	3.6	3.6	3.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	5.8	5.8	5.8	5.8		6.6		6.6
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0	14.0	14.0	14.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	3	3	11	11	0	0	6	6
Act Effct Green (s)	92.2	92.2	92.2	92.2		25.4		25.4
Actuated g/C Ratio	0.71	0.71	0.71	0.71		0.20		0.20
v/c Ratio	0.14	0.94	0.45	0.31		0.16		0.05
Control Delay	2.5	11.0	37.1	2.8		33.1		9.3
Queue Delay	0.0	6.0	0.0	0.0		0.0		0.0
Total Delay	2.5	17.0	37.1	2.8		33.1		9.3
LOS	A	B	D	A		C		A
Approach Delay		16.6		3.8		33.1		9.3
Approach LOS		B		A		C		A
Queue Length 50th (m)	1.2	24.4	0.4	6.8		6.8		0.0
Queue Length 95th (m)	m1.5	m28.2	#17.2	10.0		17.9		3.8
Internal Link Dist (m)		308.7		283.3		126.0		117.1
Turn Bay Length (m)	75.0		50.0					
Base Capacity (vph)	434	2350	49	2293		296		272
Starvation Cap Reductn	0	130	0	0		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.14	0.99	0.45	0.31		0.16		0.05

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 129 (99%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 110

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 13.8 — Intersection LOS: B
Intersection Capacity Utilization 89.1% — 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: 8: Stinson & Robertson

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	42	1859	27	14	648	33	11	101	31	4	52
Future Volume (vph)	42	1859	27	14	648	33	11	101	31	4	52
Lane Group Flow (vph)	47	2066	30	16	812	37	12	112	34	4	58
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		4			8	
Permitted Phases			2			4		4	8		8
Detector Phase	5	2	2	1	6	4	4	4	8	8	8
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.1	24.3	24.3	11.1	24.3	24.7	24.7	24.7	24.7	24.7	24.7
Total Split (s)	16.0	75.0	75.0	16.0	75.0	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	12.3%	57.7%	57.7%	12.3%	57.7%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Maximum Green (s)	9.9	68.7	68.7	9.9	68.7	32.3	32.3	32.3	32.3	32.3	32.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.4	2.6	2.6	2.4	2.6	3.7	3.7	3.7	3.7	3.7	3.7
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
Total Lost Time (s)	6.1	6.3	6.3	6.1	6.3	6.7	6.7	6.7	6.7	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		4	4		5	4	4	4	4	4	4
Act Effct Green (s)	9.4	99.5	99.5	6.8	92.0	11.8	11.8	11.8	11.8	11.8	11.8
Actuated g/C Ratio	0.07	0.77	0.77	0.05	0.71	0.09	0.09	0.09	0.09	0.09	0.09
v/c Ratio	0.43	0.81	0.03	0.18	0.36	0.32	0.08	0.48	0.32	0.03	0.29
Control Delay	46.4	12.9	0.4	63.1	8.9	61.5	53.3	16.3	62.4	51.8	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.4	12.9	0.4	63.1	8.9	61.5	53.3	16.3	62.4	51.8	8.8
LOS	D	B	A	E	A	E	D	B	E	D	A
Approach Delay		13.4			9.9		29.4			29.6	
Approach LOS		B			A		C			C	
Queue Length 50th (m)	11.2	109.2	0.0	4.0	38.5	9.2	2.9	0.0	8.4	1.0	0.0
Queue Length 95th (m)	m12.8	m#312.3	m0.0	11.5	66.0	19.3	8.7	17.0	18.2	4.3	7.6
Internal Link Dist (m)		283.3			201.3		115.2			173.5	
Turn Bay Length (m)	85.0		50.0	100.0		30.0		30.0	35.0		75.0
Base Capacity (vph)	125	2539	1116	126	2251	321	433	445	290	433	406
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.81	0.03	0.13	0.36	0.12	0.03	0.25	0.12	0.01	0.14

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 36 (28%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 13.8 Intersection LOS: B
Intersection Capacity Utilization 88.2% 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: 9: Lynhar/Stafford & Robertson

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	20	0	6	0	15	213	37	105
Future Volume (vph)	20	0	6	0	15	213	37	105
Lane Group Flow (vph)	0	32	0	36	0	304	0	198
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.4	40.4	40.4	40.4	45.4	45.4	45.4	45.4
Total Split (s)	60.0	60.0	60.0	60.0	80.0	80.0	80.0	80.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	57.1%	57.1%	57.1%	57.1%
Maximum Green (s)	54.6	54.6	54.6	54.6	74.6	74.6	74.6	74.6
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.4		5.4		5.4		5.4
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min
Walk Time (s)	7.0	7.0	7.0	7.0	15.0	15.0	15.0	15.0
Flash Dont Walk (s)	7.0	7.0	7.0	7.0	5.0	5.0	5.0	5.0
Pedestrian Calls (#/hr)	1	1	10	10	15	15	18	18
Act Effct Green (s)		10.8		10.8		12.2		12.2
Actuated g/C Ratio		0.32		0.32		0.36		0.36
v/c Ratio		0.08		0.08		0.52		0.39
Control Delay		7.1		6.0		11.9		10.0
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		7.1		6.0		11.9		10.0
LOS		A		A		B		B
Approach Delay		7.1		6.0		11.9		10.0
Approach LOS		A		A		B		B
Queue Length 50th (m)		0.4		0.2		11.2		6.7
Queue Length 95th (m)		4.8		4.6		28.5		18.7
Internal Link Dist (m)		44.5		37.9		236.7		117.3
Turn Bay Length (m)								
Base Capacity (vph)		1287		1395		1599		1393
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		0.02		0.03		0.19		0.14

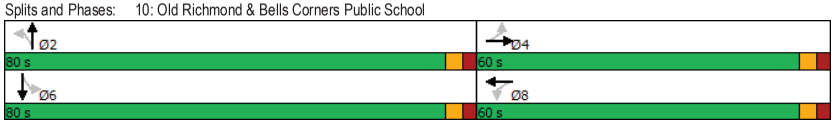
Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 34.1
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.52

Intersection Signal Delay: 10.6	Intersection LOS: B
Intersection Capacity Utilization 41.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 10: Old Richmond & Bells Corners Public School



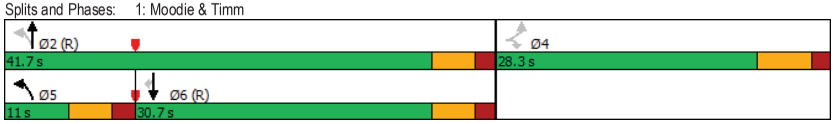
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	54	59	148	734	773	149
Future Volume (vph)	54	59	148	734	773	149
Lane Group Flow (vph)	60	66	164	816	859	166
Turn Type	Perm	Perm	pm+pt	NA	NA	Perm
Protected Phases			5	2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	28.3	28.3	10.6	15.6	24.6	24.6
Total Split (s)	28.3	28.3	11.0	41.7	30.7	30.7
Total Split (%)	40.4%	40.4%	15.7%	59.6%	43.9%	43.9%
Maximum Green (s)	22.0	22.0	5.4	36.1	25.1	25.1
Yellow Time (s)	4.6	4.6	3.7	3.7	3.7	3.7
All-Red Time (s)	1.7	1.7	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	5.6	5.6	5.6	5.6
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0			14.0	14.0
Flash Dont Walk (s)	15.0	15.0			5.0	5.0
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	10.2	10.2	51.2	52.3	37.5	37.5
Actuated g/C Ratio	0.15	0.15	0.73	0.75	0.54	0.54
v/c Ratio	0.25	0.24	0.37	0.33	0.49	0.19
Control Delay	29.4	10.4	8.6	7.4	13.0	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.4	10.4	8.6	7.4	13.0	2.7
LOS	C	B	A	A	B	A
Approach Delay	19.5			7.6	11.3	
Approach LOS	B			A	B	
Queue Length 50th (m)	7.1	0.0	10.0	27.7	38.4	0.0
Queue Length 95th (m)	16.7	9.5	22.8	51.8	58.4	8.9
Internal Link Dist (m)	1760.7			270.5	415.7	
Turn Bay Length (m)		115.0	125.0			45.0
Base Capacity (vph)	521	511	449	2478	1759	872
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.13	0.37	0.33	0.49	0.19

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 55 (79%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 65

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.49
Intersection Signal Delay: 10.1 — Intersection LOS: B
Intersection Capacity Utilization 54.1% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: Moodie & Timm



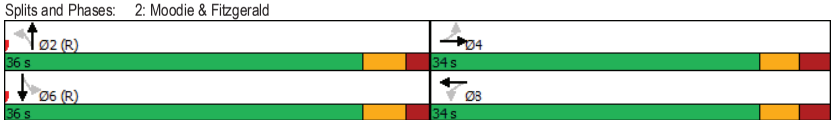
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	190	6	91	20	31	603	30	716
Future Volume (vph)	190	6	91	20	31	603	30	716
Lane Group Flow (vph)	211	81	101	83	34	721	33	873
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	34.0	34.0	34.0	34.0	30.7	30.7	30.7	30.7
Total Split (s)	34.0	34.0	34.0	34.0	36.0	36.0	36.0	36.0
Total Split (%)	48.6%	48.6%	48.6%	48.6%	51.4%	51.4%	51.4%	51.4%
Maximum Green (s)	28.0	28.0	28.0	28.0	30.3	30.3	30.3	30.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	2.7	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	5.7	5.7	5.7	5.7
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	4	4	1	1	8	8	2	2
Act Effct Green (s)	18.1	18.1	18.1	18.1	40.2	40.2	40.2	40.2
Actuated g/C Ratio	0.26	0.26	0.26	0.26	0.57	0.57	0.57	0.57
v/c Ratio	0.67	0.19	0.32	0.19	0.14	0.38	0.09	0.47
Control Delay	32.5	6.1	21.4	7.9	11.7	10.0	1.9	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.5	6.1	21.4	7.9	11.7	10.0	1.9	2.8
LOS	C	A	C	A	B	B	A	A
Approach Delay		25.2		15.3		10.1		2.8
Approach LOS		C		B		B		A
Queue Length 50th (m)	25.1	0.7	10.8	2.2	1.8	23.3	0.1	1.1
Queue Length 95th (m)	36.4	7.6	18.0	9.0	8.4	48.1	m0.5	4.0
Internal Link Dist (m)		192.7		115.6		159.6		270.5
Turn Bay Length (m)	35.0		25.0		75.0		45.0	
Base Capacity (vph)	490	633	490	652	248	1883	352	1877
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.13	0.21	0.13	0.14	0.38	0.09	0.47

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: 65

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 9.5 Intersection LOS: A
Intersection Capacity Utilization 55.4% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Moodie & Fitzgerald



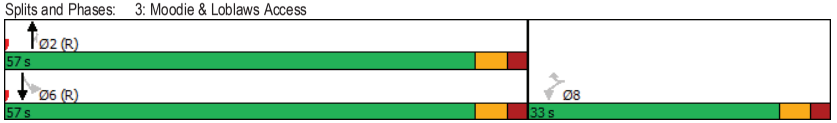
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	107	51	615	52	75	800
Future Volume (vph)	107	51	615	52	75	800
Lane Group Flow (vph)	119	57	683	58	83	889
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	32.6	32.6	28.9	28.9	23.9	23.9
Total Split (s)	33.0	33.0	57.0	57.0	57.0	57.0
Total Split (%)	36.7%	36.7%	63.3%	63.3%	63.3%	63.3%
Maximum Green (s)	27.4	27.4	51.1	51.1	51.1	51.1
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.3	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.9	5.9	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	20.0	20.0	16.0	16.0		
Pedestrian Calls (#/hr)	10	10	2	2		
Act Effct Green (s)	14.5	14.5	68.3	68.3	68.3	68.3
Actuated g/C Ratio	0.16	0.16	0.76	0.76	0.76	0.76
v/c Ratio	0.45	0.21	0.27	0.05	0.16	0.36
Control Delay	37.8	9.4	5.6	2.2	6.9	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.8	9.4	5.6	2.2	6.9	6.1
LOS	D	A	A	A	A	A
Approach Delay	28.6		5.3			6.2
Approach LOS	C		A			A
Queue Length 50th (m)	19.5	0.0	16.6	0.0	3.5	23.4
Queue Length 95th (m)	28.8	8.2	42.1	4.7	14.4	58.1
Internal Link Dist (m)	125.7		176.3			159.6
Turn Bay Length (m)		10.0		45.0	60.0	
Base Capacity (vph)	504	472	2491	1112	516	2491
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.12	0.27	0.05	0.16	0.36

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 9 (10%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 65

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.45
Intersection Signal Delay: 7.9 — Intersection LOS: A
Intersection Capacity Utilization 54.3% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Moodie & Loblaws Access



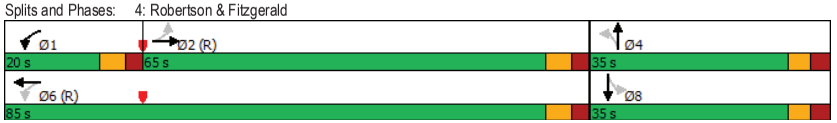
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	31	635	172	1148	60	24	108	39
Future Volume (vph)	31	635	172	1148	60	24	108	39
Lane Group Flow (vph)	34	739	191	1324	67	191	120	206
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		2	1	6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	2	2	1	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	28.4	28.4	11.2	28.4	32.3	32.3	32.3	32.3
Total Split (s)	65.0	65.0	20.0	85.0	35.0	35.0	35.0	35.0
Total Split (%)	54.2%	54.2%	16.7%	70.8%	29.2%	29.2%	29.2%	29.2%
Maximum Green (s)	58.6	58.6	13.8	78.6	28.7	28.7	28.7	28.7
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7	2.5	2.7	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.2	6.4	6.3	6.3	6.3	6.3
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	15.0	15.0		15.0	19.0	19.0	19.0	19.0
Pedestrian Calls (#/hr)	23	23		22	40	40	18	18
Act Effct Green (s)	67.1	67.1	83.9	83.7	23.6	23.6	23.6	23.6
Actuated g/C Ratio	0.56	0.56	0.70	0.70	0.20	0.20	0.20	0.20
v/c Ratio	0.18	0.40	0.42	0.58	0.43	0.46	0.74	0.59
Control Delay	19.0	17.0	9.2	6.9	49.5	12.5	69.9	33.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.0	17.0	9.2	6.9	49.5	12.5	69.9	33.6
LOS	B	B	A	A	D	B	E	C
Approach Delay		17.1		7.2		22.1		47.0
Approach LOS		B		A		C		D
Queue Length 50th (m)	3.9	52.0	7.8	30.4	13.6	5.1	26.0	27.4
Queue Length 95th (m)	11.8	74.2	m12.8	43.3	27.2	24.4	46.4	50.3
Internal Link Dist (m)		422.4		92.3		38.8		177.2
Turn Bay Length (m)	40.0		50.0		30.0		45.0	
Base Capacity (vph)	192	1836	490	2297	190	467	199	413
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.40	0.39	0.58	0.35	0.41	0.60	0.50

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 105 (88%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 75

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 15.7 — Intersection LOS: B
Intersection Capacity Utilization 92.5% — ICU Level of Service F
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Robertson & Fitzgerald



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	536	269	225	901	325	226	225	148	287	433	194
Future Volume (vph)	121	536	269	225	901	325	226	225	148	287	433	194
Lane Group Flow (vph)	134	596	299	250	1001	361	251	250	164	319	481	216
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
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)	11.4	34.4	34.4	11.4	34.4	34.4	11.5	37.7	37.7	11.5	37.7	37.7
Total Split (s)	20.0	39.0	39.0	25.0	44.0	44.0	18.0	38.0	38.0	18.0	38.0	38.0
Total Split (%)	16.7%	32.5%	32.5%	20.8%	36.7%	36.7%	15.0%	31.7%	31.7%	15.0%	31.7%	31.7%
Maximum Green (s)	13.6	32.6	32.6	18.6	37.6	37.6	11.5	31.3	31.3	11.5	31.3	31.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.8	3.0	3.0	2.8	3.0	3.0
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)	6.4	6.4	6.4	6.4	6.4	6.4	6.5	6.7	6.7	6.5	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		21.0	21.0		21.0	21.0		24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		15	15		5	5		21	21		12	12
Act Effct Green (s)	13.2	35.8	35.8	22.1	44.7	44.7	11.4	24.6	24.6	11.5	24.7	24.7
Actuated g/C Ratio	0.11	0.30	0.30	0.18	0.37	0.37	0.10	0.20	0.20	0.10	0.21	0.21
v/c Ratio	0.74	0.60	0.47	0.82	0.81	0.48	0.82	0.38	0.39	1.04	0.71	0.46
Control Delay	72.5	42.8	12.5	67.2	42.5	8.6	74.9	41.7	8.1	113.6	49.9	8.0
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	72.5	42.8	12.5	67.2	42.5	8.6	74.9	41.7	8.1	113.6	49.9	8.0
LOS	E	D	B	E	D	A	E	D	A	F	D	A
Approach Delay		37.9			38.8			45.9			61.0	
Approach LOS		D			D			D			E	
Queue Length 50th (m)	30.0	52.5	1.4	58.2	108.2	23.5	30.3	27.2	0.0	~41.6	56.5	0.0
Queue Length 95th (m)	#58.4	84.5	36.8	#107.6	#160.6	22.4	#50.7	36.5	16.2	#70.2	69.2	18.3
Internal Link Dist (m)		105.2			158.4			620.1			176.3	
Turn Bay Length (m)	75.0			70.0			83.0		60.0	80.0		75.0
Base Capacity (vph)	194	989	638	304	1234	748	308	840	494	308	856	536
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	0.69	0.60	0.47	0.82	0.81	0.48	0.81	0.30	0.33	1.04	0.56	0.40

Intersection Summary

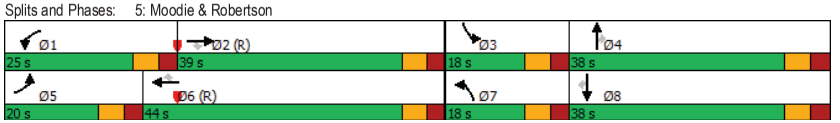
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 115

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 44.9 — Intersection LOS: D
Intersection Capacity Utilization 83.9% — 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.

Splits and Phases: 5: Moodie & Robertson



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	19	1008	5	1397	6	0	27	0
Future Volume (vph)	19	1008	5	1397	6	0	27	0
Lane Group Flow (vph)	21	1124	6	1595	0	15	0	54
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		4		9
Permitted Phases	2		6		4		9	
Detector Phase	2	2	6	6	4	4	9	9
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.4	22.4	22.4	22.4	16.7	16.7	33.7	33.7
Total Split (s)	69.6	69.6	69.6	69.6	16.7	16.7	33.7	33.7
Total Split (%)	58.0%	58.0%	58.0%	58.0%	13.9%	13.9%	28.1%	28.1%
Maximum Green (s)	63.2	63.2	63.2	63.2	10.0	10.0	27.0	27.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0
All-Red Time (s)	2.7	2.7	2.7	2.7	3.7	3.7	3.7	3.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4		6.7		6.7
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0			11.0	11.0
Flash Dont Walk (s)	9.0	9.0	9.0	9.0			16.0	16.0
Pedestrian Calls (#/hr)	17	17	6	6			7	7
Act Effct Green (s)	91.4	91.4	91.4	91.4		10.0		13.4
Actuated g/C Ratio	0.76	0.76	0.76	0.76		0.08		0.11
v/c Ratio	0.14	0.45	0.02	0.63		0.08		0.24
Control Delay	28.7	23.6	7.4	9.3		0.9		4.3
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	28.7	23.6	7.4	9.3		0.9		4.3
LOS	C	C	A	A		A		A
Approach Delay		23.7		9.3		0.9		4.3
Approach LOS		C		A		A		A
Queue Length 50th (m)	2.2	132.6	0.2	37.8		0.0		0.0
Queue Length 95th (m)	m8.2	m157.9	m0.7	#40.2		0.0		3.0
Internal Link Dist (m)		89.6		196.4		37.8		53.8
Turn Bay Length (m)	30.0		25.0					
Base Capacity (vph)	148	2521	294	2514		188		367
Starvation Cap Reductn	0	0	0	25		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.14	0.45	0.02	0.64		0.08		0.15

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 63 (53%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 110

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 15.0 — Intersection LOS: B
Intersection Capacity Utilization 64.3% — 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: 6: Robertson & Vanier

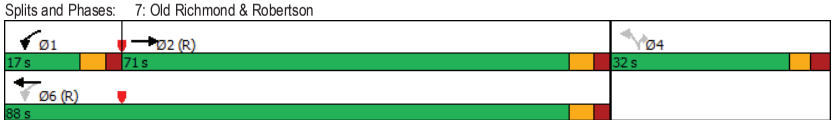
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	917	151	1411	76	89
Future Volume (vph)	917	151	1411	76	89
Lane Group Flow (vph)	1106	168	1568	84	99
Turn Type	NA	pm+pt	NA	Perm	Perm
Protected Phases	2	1	6		
Permitted Phases		6		4	4
Detector Phase	2	1	6	4	4
Switch Phase					
Minimum Initial (s)	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	33.1	11.1	33.1	31.1	31.1
Total Split (s)	71.0	17.0	88.0	32.0	32.0
Total Split (%)	59.2%	14.2%	73.3%	26.7%	26.7%
Maximum Green (s)	64.9	10.9	81.9	25.9	25.9
Yellow Time (s)	3.7	3.7	3.7	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	3.1	3.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	None	C-Max	None	None
Walk Time (s)	7.0		7.0	10.0	10.0
Flash Dont Walk (s)	20.0		20.0	15.0	15.0
Pedestrian Calls (#/hr)	10		0	16	16
Act Effct Green (s)	76.5	91.5	91.5	16.3	16.3
Actuated g/C Ratio	0.64	0.76	0.76	0.14	0.14
v/c Ratio	0.53	0.48	0.62	0.38	0.36
Control Delay	5.6	15.4	9.5	49.8	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	5.6	15.4	9.5	49.8	11.5
LOS	A	B	A	D	B
Approach Delay	5.6		10.1	29.1	
Approach LOS	A		B	C	
Queue Length 50th (m)	6.0	12.0	61.1	19.2	0.0
Queue Length 95th (m)	17.3	m32.6	98.5	31.0	14.1
Internal Link Dist (m)	196.4		308.7	117.3	
Turn Bay Length (m)		60.0		20.0	
Base Capacity (vph)	2084	371	2529	357	380
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.53	0.45	0.62	0.24	0.26

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 56 (47%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 80

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 9.6 — Intersection LOS: A
Intersection Capacity Utilization 67.0% — ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Old Richmond & Robertson



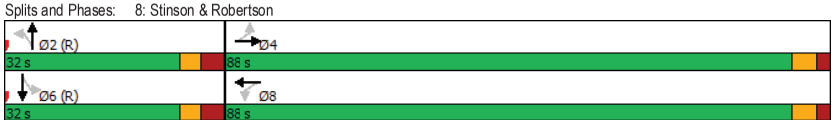
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	17	1050	42	1343	12	1	20	1
Future Volume (vph)	17	1050	42	1343	12	1	20	1
Lane Group Flow (vph)	19	1195	47	1498	0	42	0	74
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.8	26.8	26.8	26.8	31.6	31.6	31.6	31.6
Total Split (s)	88.0	88.0	88.0	88.0	32.0	32.0	32.0	32.0
Total Split (%)	73.3%	73.3%	73.3%	73.3%	26.7%	26.7%	26.7%	26.7%
Maximum Green (s)	82.2	82.2	82.2	82.2	25.4	25.4	25.4	25.4
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0
All-Red Time (s)	2.1	2.1	2.1	2.1	3.6	3.6	3.6	3.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	5.8	5.8	5.8	5.8		6.6		6.6
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0	14.0	14.0	14.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	14	14	17	17	10	10	5	5
Act Effct Green (s)	73.9	73.9	73.9	73.9		33.7		33.7
Actuated g/C Ratio	0.62	0.62	0.62	0.62		0.28		0.28
v/c Ratio	0.18	0.59	0.25	0.73		0.10		0.17
Control Delay	5.2	6.4	24.8	39.1		19.2		16.6
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	5.2	6.4	24.8	39.1		19.2		16.6
LOS	A	A	C	D		B		B
Approach Delay		6.4		38.7		19.2		16.6
Approach LOS		A		D		B		B
Queue Length 50th (m)	0.4	15.6	10.0	191.4		2.5		4.1
Queue Length 95th (m)	m0.7	13.0	m12.8	207.2		12.1		17.1
Internal Link Dist (m)		308.7		283.3		126.0		117.1
Turn Bay Length (m)	75.0		50.0					
Base Capacity (vph)	118	2239	208	2268		423		432
Starvation Cap Reductn	0	0	0	0		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.16	0.53	0.23	0.66		0.10		0.17

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 31 (26%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 75

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 24.2 — Intersection LOS: C
Intersection Capacity Utilization 70.5% — ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Stinson & Robertson



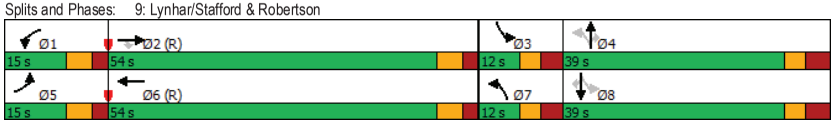
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	126	889	60	58	1069	92	41	80	201	36	173
Future Volume (vph)	126	889	60	58	1069	92	41	80	201	36	173
Lane Group Flow (vph)	140	988	67	64	1274	102	46	89	223	40	192
Turn Type	Prot	NA	Perm	Prot	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6	7	4		3	8	
Permitted Phases			2			4		4	8		8
Detector Phase	5	2	2	1	6	7	4	4	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.1	24.3	24.3	11.1	24.3	11.2	24.7	24.7	11.2	24.7	24.7
Total Split (s)	15.0	54.0	54.0	15.0	54.0	12.0	39.0	39.0	12.0	39.0	39.0
Total Split (%)	12.5%	45.0%	45.0%	12.5%	45.0%	10.0%	32.5%	32.5%	10.0%	32.5%	32.5%
Maximum Green (s)	8.9	47.7	47.7	8.9	47.7	5.8	32.3	32.3	5.8	32.3	32.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.4	2.6	2.6	2.4	2.6	3.2	3.7	3.7	3.2	3.7	3.7
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
Total Lost Time (s)	6.1	6.3	6.3	6.1	6.3	6.2	6.7	6.7	6.2	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		16	16		14		29	29		22	22
Act Effct Green (s)	19.8	66.6	66.6	10.0	54.3	21.1	14.8	14.8	21.1	14.8	14.8
Actuated g/C Ratio	0.16	0.56	0.56	0.08	0.45	0.18	0.12	0.12	0.18	0.12	0.12
v/c Ratio	0.51	0.54	0.08	0.47	0.86	0.44	0.21	0.30	0.96	0.19	0.56
Control Delay	49.3	17.1	1.1	62.6	37.4	45.1	48.2	4.0	94.8	47.6	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.3	17.1	1.1	62.6	37.4	45.1	48.2	4.0	94.8	47.6	13.1
LOS	D	B	A	E	D	D	D	A	F	D	B
Approach Delay		20.0			38.6		30.3			56.2	
Approach LOS		B			D		C			E	
Queue Length 50th (m)	20.5	123.6	1.9	14.6	143.3	19.2	9.6	0.0	45.5	8.3	0.0
Queue Length 95th (m)	52.0	84.6	m0.0	27.8	#194.5	34.4	20.6	3.1	#87.1	18.6	20.5
Internal Link Dist (m)		283.3			201.3		115.2			173.5	
Turn Bay Length (m)	85.0		50.0	100.0		30.0		30.0	35.0		75.0
Base Capacity (vph)	273	1821	827	147	1478	231	469	471	233	469	523
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.54	0.08	0.44	0.86	0.44	0.10	0.19	0.96	0.09	0.37

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 7 (6%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 33.5 — Intersection LOS: C
Intersection Capacity Utilization 75.6% — 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: 9: Lynhar/Stafford & Robertson



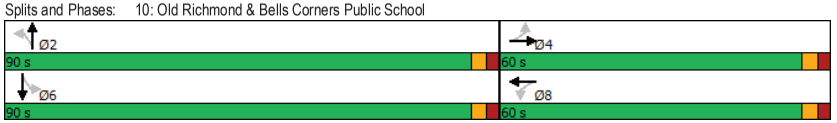
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	31	1	17	0	10	146	16	206
Future Volume (vph)	31	1	17	0	10	146	16	206
Lane Group Flow (vph)	0	54	0	37	0	191	0	264
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.4	40.4	40.4	40.4	70.4	70.4	70.4	70.4
Total Split (s)	60.0	60.0	60.0	60.0	90.0	90.0	90.0	90.0
Total Split (%)	40.0%	40.0%	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%
Maximum Green (s)	54.6	54.6	54.6	54.6	84.6	84.6	84.6	84.6
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.4		5.4		5.4		5.4
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min
Walk Time (s)	7.0	7.0	7.0	7.0	15.0	15.0	15.0	15.0
Flash Dont Walk (s)	7.0	7.0	7.0	7.0	5.0	5.0	5.0	5.0
Pedestrian Calls (#/hr)	23	23	4	4	43	43	10	10
Act Effct Green (s)		10.8		10.8		12.2		12.2
Actuated g/C Ratio		0.32		0.32		0.36		0.36
v/c Ratio		0.13		0.09		0.33		0.47
Control Delay		8.2		7.5		9.3		11.4
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		8.2		7.5		9.3		11.5
LOS		A		A		A		B
Approach Delay		8.2		7.5		9.3		11.5
Approach LOS		A		A		A		B
Queue Length 50th (m)		1.1		0.6		6.6		9.8
Queue Length 95th (m)		7.4		5.4		17.7		25.2
Internal Link Dist (m)		44.5		37.9		236.7		117.3
Turn Bay Length (m)								
Base Capacity (vph)		1261		1289		1625		1555
Starvation Cap Reductn		0		0		0		175
Spillback Cap Reductn		0		0		0		0
Storage Cap Reductn		0		0		0		0
Reduced v/c Ratio		0.04		0.03		0.12		0.19

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 34
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.47

Intersection Signal Delay: 10.1	Intersection LOS: B
Intersection Capacity Utilization 36.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 10: Old Richmond & Bells Corners Public School



Appendix D

Collision Data

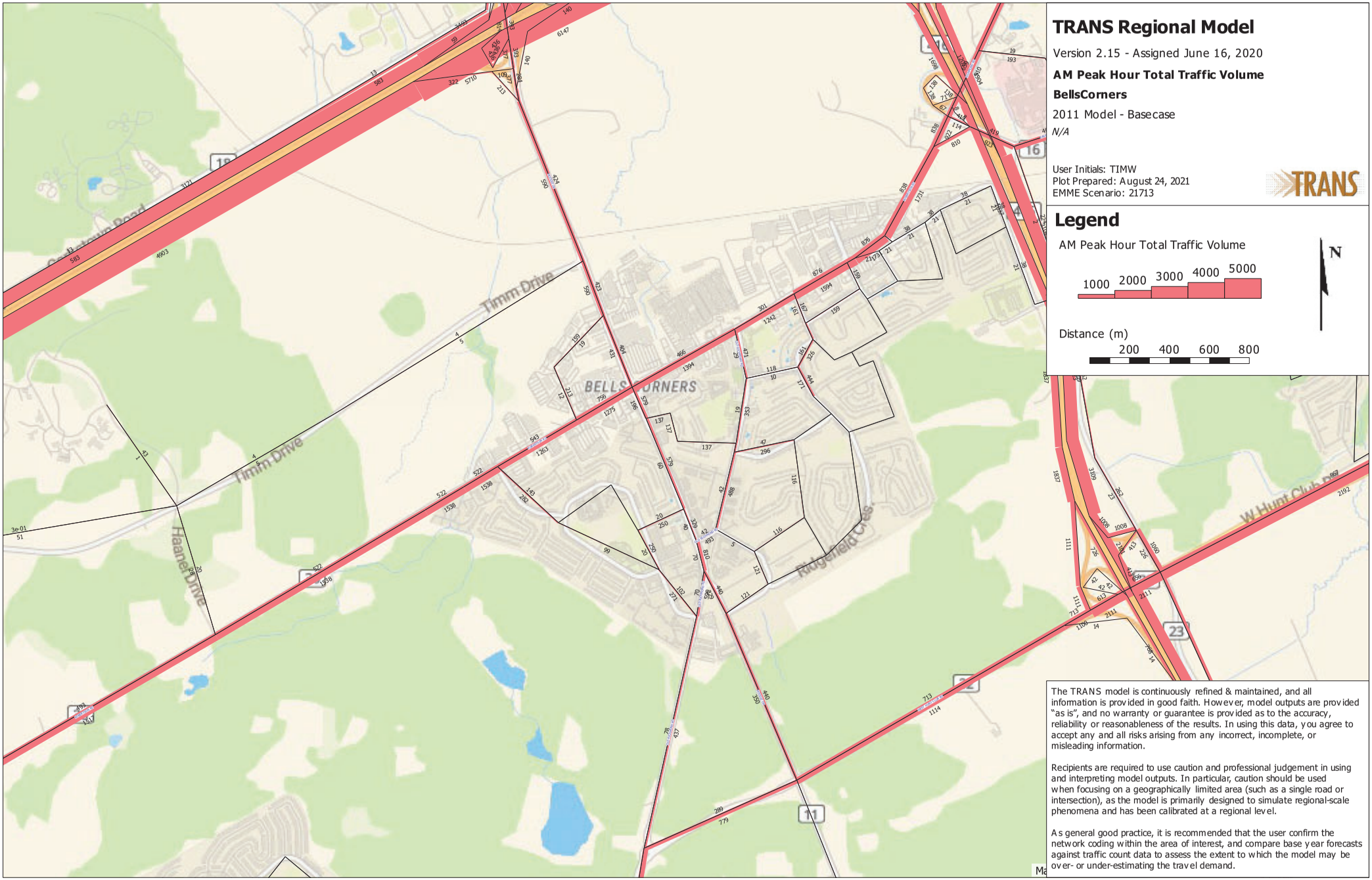
Accident Date	Accident Year	Accident Time	Location	Environment Condition	Light	Traffic Control	Traffic Control Condition	Classification Of Accident	Initial Impact Type	Road Surface Condition
2019-01-31	2019	8:20	FITZGERALD RD/MENTEN PL @ MOODIE DR (0009818)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	06 - Ice
2019-06-08	2019	12:21	FITZGERALD RD/MENTEN PL @ MOODIE DR (0009818)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	02 - Angle	01 - Dry
2015-06-24	2015	12:20	MOODIE DR @ 200 N OF ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2016-01-21	2016	20:09	MOODIE DR @ 200 N OF ROBERTSON RD	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2017-03-15	2017	17:34	MOODIE DR @ 200 N OF ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	01 - Dry
2018-08-09	2018	15:34	MOODIE DR @ 200 N OF ROBERTSON RD (0010382)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2019-12-19	2019	13:08	MOODIE DR @ 200 N OF ROBERTSON RD (0010382)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	02 - Angle	01 - Dry
2015-01-27	2015	16:49	MOODIE DR @ FITZGERALD RD/STAFFORD RD	01 - Clear	05 - Dusk	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2015-11-03	2015	7:15	MOODIE DR @ FITZGERALD RD/STAFFORD RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	02 - Angle	02 - Wet
2016-08-08	2016	12:03	MOODIE DR @ FITZGERALD RD/STAFFORD RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2016-09-09	2016	9:15	MOODIE DR @ FITZGERALD RD/STAFFORD RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2016-11-01	2016	13:02	MOODIE DR @ FITZGERALD RD/STAFFORD RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2016-12-08	2016	10:52	MOODIE DR @ FITZGERALD RD/STAFFORD RD	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	01 - Dry
2017-01-20	2017	13:15	MOODIE DR @ FITZGERALD RD/STAFFORD RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	02 - Wet
2018-05-30	2018	18:20	MOODIE DR @ FITZGERALD RD/STAFFORD RD (0009818)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2015-01-03	2015	14:53	MOODIE DR @ ROBERTSON RD	03 - Snow	01 - Daylight	01 - Traffic signal		03 - P.D. only	02 - Angle	03 - Loose snow
2015-02-09	2015	9:23	MOODIE DR @ ROBERTSON RD	03 - Snow	01 - Daylight	01 - Traffic signal		03 - P.D. only	07 - SMV other	03 - Loose snow
2015-03-29	2015	15:10	MOODIE DR @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	02 - Angle	01 - Dry
2015-06-24	2015	15:17	MOODIE DR @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2015-09-25	2015	10:05	MOODIE DR @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	01 - Dry
2015-09-30	2015	8:00	MOODIE DR @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2015-10-09	2015	11:34	MOODIE DR @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2015-11-03	2015	13:15	MOODIE DR @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	05 - Turning movement	01 - Dry
2015-11-22	2015	14:25	MOODIE DR @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	02 - Angle	01 - Dry
2015-12-31	2015	20:34	MOODIE DR @ ROBERTSON RD	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	02 - Wet
2016-01-12	2016	22:03	MOODIE DR @ ROBERTSON RD	03 - Snow	07 - Dark	01 - Traffic signal		03 - P.D. only	03 - Rear end	03 - Loose snow
2016-05-22	2016	12:48	MOODIE DR @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	02 - Angle	01 - Dry
2016-06-17	2016	17:00	MOODIE DR @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	02 - Angle	01 - Dry
2016-06-23	2016	16:09	MOODIE DR @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2016-06-23	2016	17:52	MOODIE DR @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2016-08-27	2016	11:24	MOODIE DR @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2016-09-04	2016	14:01	MOODIE DR @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2016-09-23	2016	10:45	MOODIE DR @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2016-10-10	2016	15:30	MOODIE DR @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2016-10-18	2016	7:49	MOODIE DR @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	02 - Angle	02 - Wet
2016-10-20	2016	12:35	MOODIE DR @ ROBERTSON RD	02 - Rain	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	02 - Wet
2016-11-20	2016	17:20	MOODIE DR @ ROBERTSON RD	03 - Snow	07 - Dark	01 - Traffic signal		03 - P.D. only	07 - SMV other	05 - Packed snow
2016-12-22	2016	10:21	MOODIE DR @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	04 - Slush
2017-01-07	2017	13:26	MOODIE DR @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2017-01-18	2017	6:45	MOODIE DR @ ROBERTSON RD	04 - Freezing Rain	07 - Dark	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	05 - Packed snow
2017-01-18	2017	8:18	MOODIE DR @ ROBERTSON RD	02 - Rain	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	02 - Wet
2017-01-31	2017	9:15	MOODIE DR @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	06 - Ice
2017-02-13	2017	8:40	MOODIE DR @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	04 - Slush
2017-06-13	2017	14:45	MOODIE DR @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2017-07-23	2017	17:42	MOODIE DR @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	02 - Angle	01 - Dry
2017-08-02	2017	11:56	MOODIE DR @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	02 - Angle	01 - Dry
2017-10-31	2017	16:20	MOODIE DR @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2017-11-09	2017	17:43	MOODIE DR @ ROBERTSON RD	02 - Rain	07 - Dark	01 - Traffic signal		03 - P.D. only	03 - Rear end	02 - Wet
2017-11-11	2017	9:31	MOODIE DR @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	01 - Dry
2018-01-16	2018	9:03	MOODIE DR @ ROBERTSON RD (0010545)	03 - Snow	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	05 - Packed snow
2018-03-18	2018	18:38	MOODIE DR @ ROBERTSON RD (0010545)	01 - Clear	05 - Dusk	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2018-03-28	2018	15:49	MOODIE DR @ ROBERTSON RD (0010545)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	01 - Dry
2018-04-12	2018	16:02	MOODIE DR @ ROBERTSON RD (0010545)	02 - Rain	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	02 - Angle	02 - Wet
2018-04-21	2018	13:45	MOODIE DR @ ROBERTSON RD (0010545)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	01 - Dry
2018-05-01	2018	9:59	MOODIE DR @ ROBERTSON RD (0010545)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	01 - Dry
2018-05-08	2018	12:37	MOODIE DR @ ROBERTSON RD (0010545)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2018-09-12	2018	14:40	MOODIE DR @ ROBERTSON RD (0010545)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	01 - Dry
2019-01-04	2019	21:45	MOODIE DR @ ROBERTSON RD (0010545)	01 - Clear	07 - Dark	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	01 - Dry
2019-01-07	2019	7:20	MOODIE DR @ ROBERTSON RD (0010545)	01 - Clear	03 - Dawn	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	01 - Dry
2019-01-16	2019	22:31	MOODIE DR @ ROBERTSON RD (0010545)	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2019-01-17	2019	16:20	MOODIE DR @ ROBERTSON RD (0010545)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2019-01-29	2019	13:48	MOODIE DR @ ROBERTSON RD (0010545)	03 - Snow	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	04 - Slush
2019-04-15	2019	8:04	MOODIE DR @ ROBERTSON RD (0010545)	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	02 - Angle	02 - Wet
2019-05-14	2019	14:49	MOODIE DR @ ROBERTSON RD (0010545)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2019-07-09	2019	10:30	MOODIE DR @ ROBERTSON RD (0010545)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2019-07-24	2019	9:15	MOODIE DR @ ROBERTSON RD (0010545)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2019-07-28	2019	20:55	MOODIE DR @ ROBERTSON RD (0010545)	01 - Clear	05 - Dusk	01 - Traffic signal		02 - Non-fatal injury	07 - SMV other	01 - Dry
2019-08-24	2019	19:16	MOODIE DR @ ROBERTSON RD (0010545)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	07 - SMV other	01 - Dry
2019-08-25	2019	15:36	MOODIE DR @ ROBERTSON RD (0010545)	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	01 - Dry
2019-08-26	2019	13:01	MOODIE DR @ ROBERTSON RD (0010545)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2019-09-15	2019	3:15	MOODIE DR @ ROBERTSON RD (0010545)	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2019-11-01	2019	19:26	MOODIE DR @ ROBERTSON RD (0010545)	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	01 - Dry
2019-11-18	2019	16:15	MOODIE DR @ ROBERTSON RD (0010545)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2019-11-21	2019	17:59	MOODIE DR @ ROBERTSON RD (0010545)	01 - Clear	07 - Dark	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	01 - Dry
2019-11-25	2019	10:50	MOODIE DR @ ROBERTSON RD (0010545)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2019-12-20	2019	14:45	MOODIE DR @ ROBERTSON RD (0010545)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2019-12-20	2019	21:38	MOODIE DR @ ROBERTSON RD (0010545)	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	02 - Angle	01 - Dry
2019-12-28	2019	12:30	MOODIE DR @ ROBERTSON RD (0010545)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	02 - Angle	01 - Dry
2016-12-29	2016	13:00	MOODIE DR @ TIMM DR	03 - Snow	01 - Daylight	02 - Stop sign		03 - P.D. only	02 - Angle	04 - Slush
2017-02-24	2017	8:54	MOODIE DR @ TIMM DR	01 - Clear	01 - Daylight	02 - Stop sign		03 - P.D. only	03 - Rear end	01 - Dry
2017-11-29	2017	17:38	MOODIE DR @ TIMM DR	01 - Clear	07 - Dark	02 - Stop sign		03 - P.D. only	05 - Turning movement	01 - Dry
2018-01-31	2018	7:46	MOODIE DR @ TIMM DR (0001106)	01 - Clear	03 - Dawn	02 - Stop sign		02 - Non-fatal injury	03 - Rear end	01 - Dry
2018-05-01	2018	21:00	MOODIE DR @ TIMM DR (0001106)	01 - Clear	07 - Dark	02 - Stop sign		03 - P.D. only	07 - SMV other	01 - Dry
2019-01-15	2019	7:10	MOODIE DR @ TIMM DR (0001106)	03 - Snow	03 - Dawn	02 - Stop sign		03 - P.D. only	03 - Rear end	02 - Wet
2019-04-19	2019	7:54	MOODIE DR @ TIMM DR (0001106)	01 - Clear	01 - Daylight	02 - Stop sign		02 - Non-fatal injury	07 - SMV other	02 - Wet
2019-10-09	2019	16:45	MOODIE DR @ TIMM DR (0001106)	01 - Clear	01 - Daylight	02 - Stop sign		03 - P.D. only	02 - Angle	01 - Dry
2019-11-24	2019	13:25	MOODIE DR @ TIMM DR (0001106)	01 - Clear	01 - Daylight	02 - Stop sign		03 - P.D. only	05 - Turning movement	01 - Dry
2019-12-14	2019	17:53	MOODIE DR @ TIMM DR (0001106)	02 - Rain	07 - Dark	02 - Stop sign		02 - Non-fatal injury	05 - Turning movement	02 - Wet
2019-05-15	2019	19:41	MOODIE DR btwn 200 N OF ROBERTSON RD & ROBERTSON RD (__3ZA414B)	01 - Clear	01 - Daylight	10 - No control		03 - P.D. only	04 - Sideswipe	01 - Dry
2016-02-24	2016	15:10	MOODIE DR btwn HWY417 IC134 RAMP53 & TIMM DR	02 - Rain	01 - Daylight	10 - No control		03 - P.D. only	04 - Sideswipe	03 - Loose snow
2019-06-24	2019	15:11	MOODIE DR btwn HWY417 IC134 RAMP53 & TIMM DR (__3ZA4ZX)	01 - Clear	01 - Daylight	10 - No control		02 - Non-fatal injury	05 - Turning movement	01 - Dry
2019-12-30	2019	15:03	MOODIE DR btwn HWY417 IC134 RAMP53 & TIMM DR (__3ZA4ZX)	04 - Freezing Rain	01 - Daylight	10 - No control		03 - P.D. only	04 - Sideswipe	04 - Slush
2019-06-26	2019	8:36	MOODIE DR btwn TIMM DR & FITZGERALD RD (__3ZA416)	01 - Clear	01 - Daylight	10 - No control		03 - P.D. only	07 - SMV other	02 - Wet
2015-02-13	2015	7:46	RICHMOND RD @ LYNHAR RD/STAFFORD RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2015-05-11	2015	15:18	RICHMOND RD @ LYNHAR RD/STAFFORD RD	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	07 - SMV other	01 - Dry

2015-05-19	2015	13:24	RICHMOND RD @ LYNHAR RD/STAFFORD RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2015-06-19	2015	17:00	RICHMOND RD @ LYNHAR RD/STAFFORD RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2015-07-16	2015	9:29	RICHMOND RD @ LYNHAR RD/STAFFORD RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2015-07-30	2015	18:26	RICHMOND RD @ LYNHAR RD/STAFFORD RD	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry
2015-08-14	2015	12:25	RICHMOND RD @ LYNHAR RD/STAFFORD RD	02 - Rain	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2015-08-29	2015	13:00	RICHMOND RD @ LYNHAR RD/STAFFORD RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2015-11-23	2015	9:16	RICHMOND RD @ LYNHAR RD/STAFFORD RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2015-11-25	2015	8:53	RICHMOND RD @ LYNHAR RD/STAFFORD RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	99 - Other	01 - Dry
2015-11-28	2015	10:03	RICHMOND RD @ LYNHAR RD/STAFFORD RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2015-12-17	2015	15:03	RICHMOND RD @ LYNHAR RD/STAFFORD RD	02 - Rain	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2015-12-18	2015	17:36	RICHMOND RD @ LYNHAR RD/STAFFORD RD	01 - Clear	07 - Dark	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2016-02-22	2016	9:33	RICHMOND RD @ LYNHAR RD/STAFFORD RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	02 - Angle	01 - Dry
2016-02-24	2016	12:47	RICHMOND RD @ LYNHAR RD/STAFFORD RD	03 - Snow	01 - Daylight	01 - Traffic signal	03 - P.D. only	02 - Angle	03 - Loose snow
2016-04-07	2016	19:27	RICHMOND RD @ LYNHAR RD/STAFFORD RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2016-04-20	2016	14:26	RICHMOND RD @ LYNHAR RD/STAFFORD RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2016-05-11	2016	14:36	RICHMOND RD @ LYNHAR RD/STAFFORD RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2016-06-04	2016	18:04	RICHMOND RD @ LYNHAR RD/STAFFORD RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2016-06-22	2016	15:29	RICHMOND RD @ LYNHAR RD/STAFFORD RD	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry
2016-08-11	2016	17:54	RICHMOND RD @ LYNHAR RD/STAFFORD RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2016-12-28	2016	12:01	RICHMOND RD @ LYNHAR RD/STAFFORD RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2016-12-29	2016	14:41	RICHMOND RD @ LYNHAR RD/STAFFORD RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	05 - Packed snow
2017-05-19	2017	9:40	RICHMOND RD @ LYNHAR RD/STAFFORD RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	02 - Angle	01 - Dry
2017-11-08	2017	16:43	RICHMOND RD @ LYNHAR RD/STAFFORD RD	01 - Clear	05 - Dusk	01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2017-11-18	2017	1:30	RICHMOND RD @ LYNHAR RD/STAFFORD RD	04 - Freezing Rain	07 - Dark	01 - Traffic signal	03 - P.D. only	07 - SMV other	06 - Ice
2017-11-19	2017	1:14	RICHMOND RD @ LYNHAR RD/STAFFORD RD	04 - Freezing Rain	07 - Dark	01 - Traffic signal	03 - P.D. only	07 - SMV other	06 - Ice
2017-12-13	2017	13:03	RICHMOND RD @ LYNHAR RD/STAFFORD RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2017-12-19	2017	6:48	RICHMOND RD @ LYNHAR RD/STAFFORD RD	03 - Snow	07 - Dark	01 - Traffic signal	03 - P.D. only	07 - SMV other	03 - Loose snow
2018-01-16	2018	8:38	RICHMOND RD @ LYNHAR RD/STAFFORD RD (0000155)	03 - Snow	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	03 - Loose snow
2018-02-26	2018	14:43	RICHMOND RD @ LYNHAR RD/STAFFORD RD (0000155)	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	05 - Turning movement	01 - Dry
2018-03-19	2018	10:37	RICHMOND RD @ LYNHAR RD/STAFFORD RD (0000155)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2018-05-09	2018	5:27	RICHMOND RD @ LYNHAR RD/STAFFORD RD (0000155)	01 - Clear	03 - Dawn	01 - Traffic signal	03 - P.D. only	07 - SMV other	01 - Dry
2018-06-16	2018	14:51	RICHMOND RD @ LYNHAR RD/STAFFORD RD (0000155)	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry
2018-06-27	2018	7:25	RICHMOND RD @ LYNHAR RD/STAFFORD RD (0000155)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2018-07-16	2018	10:15	RICHMOND RD @ LYNHAR RD/STAFFORD RD (0000155)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2018-09-01	2018	15:24	RICHMOND RD @ LYNHAR RD/STAFFORD RD (0000155)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2018-10-01	2018	14:48	RICHMOND RD @ LYNHAR RD/STAFFORD RD (0000155)	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry
2018-11-13	2018	14:04	RICHMOND RD @ LYNHAR RD/STAFFORD RD (0000155)	03 - Snow	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2019-01-16	2019	16:41	RICHMOND RD @ LYNHAR RD/STAFFORD RD (0000155)	01 - Clear	05 - Dusk	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2019-02-01	2019	11:30	RICHMOND RD @ LYNHAR RD/STAFFORD RD (0000155)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	02 - Angle	01 - Dry
2019-02-09	2019	13:56	RICHMOND RD @ LYNHAR RD/STAFFORD RD (0000155)	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	02 - Angle	01 - Dry
2019-02-26	2019	21:45	RICHMOND RD @ LYNHAR RD/STAFFORD RD (0000155)	01 - Clear	07 - Dark	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2019-04-24	2019	20:45	RICHMOND RD @ LYNHAR RD/STAFFORD RD (0000155)	01 - Clear	07 - Dark	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2019-05-23	2019	9:40	RICHMOND RD @ LYNHAR RD/STAFFORD RD (0000155)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2019-06-28	2019	17:00	RICHMOND RD @ LYNHAR RD/STAFFORD RD (0000155)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	02 - Wet
2019-07-17	2019	9:50	RICHMOND RD @ LYNHAR RD/STAFFORD RD (0000155)	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	05 - Turning movement	01 - Dry
2019-08-01	2019	7:37	RICHMOND RD @ LYNHAR RD/STAFFORD RD (0000155)	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	04 - Sideswipe	01 - Dry
2019-10-19	2019	18:06	RICHMOND RD @ LYNHAR RD/STAFFORD RD (0000155)	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry
2019-11-10	2019	14:34	RICHMOND RD @ LYNHAR RD/STAFFORD RD (0000155)	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry
2019-12-19	2019	15:23	RICHMOND RD @ LYNHAR RD/STAFFORD RD (0000155)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	06 - Ice
2015-04-17	2015	17:15	RICHMOND RD @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry
2015-11-18	2015	15:57	RICHMOND RD @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	04 - Sideswipe	01 - Dry
2016-04-12	2016	17:09	RICHMOND RD @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	07 - SMV other	01 - Dry
2016-10-03	2016	17:04	RICHMOND RD @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry
2016-10-29	2016	17:48	RICHMOND RD @ ROBERTSON RD	02 - Rain	07 - Dark	01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2016-11-24	2016	9:43	RICHMOND RD @ ROBERTSON RD	03 - Snow	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	04 - Slush
2016-11-28	2016	13:55	RICHMOND RD @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	02 - Angle	01 - Dry
2017-01-01	2017	7:17	RICHMOND RD @ ROBERTSON RD	05 - Drifting Snow	03 - Dawn	01 - Traffic signal	03 - P.D. only	07 - SMV other	01 - Dry
2017-02-03	2017	18:09	RICHMOND RD @ ROBERTSON RD	01 - Clear	07 - Dark	01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry
2017-03-31	2017	23:49	RICHMOND RD @ ROBERTSON RD	03 - Snow	07 - Dark	01 - Traffic signal	02 - Non-fatal injury	07 - SMV other	04 - Slush
2017-07-06	2017	11:10	RICHMOND RD @ ROBERTSON RD	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	02 - Angle	01 - Dry
2017-12-12	2017	15:04	RICHMOND RD @ ROBERTSON RD	03 - Snow	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	03 - Loose snow
2018-03-07	2018	20:10	RICHMOND RD @ ROBERTSON RD (0000639)	01 - Clear	07 - Dark	01 - Traffic signal	03 - P.D. only	07 - SMV other	02 - Wet
2019-02-23	2019	15:26	RICHMOND RD @ ROBERTSON RD (0000639)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2019-05-28	2019	6:00	RICHMOND RD @ ROBERTSON RD (0000639)	02 - Rain	03 - Dawn	01 - Traffic signal	03 - P.D. only	05 - Turning movement	02 - Wet
2019-06-29	2019	16:46	RICHMOND RD @ ROBERTSON RD (0000639)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2019-07-02	2019	5:50	RICHMOND RD @ ROBERTSON RD (0000639)	01 - Clear	03 - Dawn	01 - Traffic signal	03 - P.D. only	99 - Other	01 - Dry
2015-01-14	2015	9:34	RICHMOND RD @ STINSON AVE	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	07 - SMV other	02 - Wet
2015-01-30	2015	17:00	RICHMOND RD @ STINSON AVE	01 - Clear	05 - Dusk	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2015-08-27	2015	19:56	RICHMOND RD @ STINSON AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2016-08-13	2016	23:44	RICHMOND RD @ STINSON AVE	02 - Rain	07 - Dark	01 - Traffic signal	03 - P.D. only	07 - SMV other	02 - Wet
2017-04-27	2017	22:23	RICHMOND RD @ STINSON AVE	01 - Clear	07 - Dark	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2018-01-08	2018	11:04	RICHMOND RD @ STINSON AVE (0001130)	03 - Snow	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	03 - Loose snow
2018-05-24	2018	11:55	RICHMOND RD @ STINSON AVE (0001130)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2019-07-11	2019	10:20	RICHMOND RD @ STINSON AVE (0001130)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2019-10-15	2019	12:33	RICHMOND RD @ STINSON AVE (0001130)	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	05 - Turning movement	01 - Dry
2015-02-23	2015	18:43	RICHMOND RD btwn ROBERTSON RD & STINSON AVE	01 - Clear	07 - Dark	10 - No control	03 - P.D. only	02 - Angle	02 - Wet
2015-11-16	2015	18:26	RICHMOND RD btwn ROBERTSON RD & STINSON AVE	01 - Clear	07 - Dark	10 - No control	03 - P.D. only	03 - Rear end	01 - Dry
2015-12-13	2015	16:53	RICHMOND RD btwn ROBERTSON RD & STINSON AVE	01 - Clear	05 - Dusk	10 - No control	03 - P.D. only	04 - Sideswipe	01 - Dry
2016-03-01	2016	6:57	RICHMOND RD btwn ROBERTSON RD & STINSON AVE	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	01 - Dry
2016-12-12	2016	7:30	RICHMOND RD btwn ROBERTSON RD & STINSON AVE	03 - Snow	03 - Dawn	10 - No control	03 - P.D. only	02 - Angle	03 - Loose snow
2017-06-02	2017	21:28	RICHMOND RD btwn ROBERTSON RD & STINSON AVE	01 - Clear	07 - Dark	10 - No control	03 - P.D. only	03 - Rear end	01 - Dry
2017-11-08	2017	18:03	RICHMOND RD btwn ROBERTSON RD & STINSON AVE	01 - Clear	07 - Dark	10 - No control	02 - Non-fatal injury	02 - Angle	01 - Dry
2017-12-18	2017	19:45	RICHMOND RD btwn ROBERTSON RD & STINSON AVE	03 - Snow	07 - Dark	10 - No control	03 - P.D. only	05 - Turning movement	05 - Packed snow
2018-08-02	2018	16:20	RICHMOND RD btwn ROBERTSON RD & STINSON AVE (__3ZA4YR)	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	05 - Turning movement	01 - Dry
2018-08-04	2018	10:19	RICHMOND RD btwn ROBERTSON RD & STINSON AVE (__3ZA4YR)	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	01 - Dry
2018-08-19	2018	16:37	RICHMOND RD btwn ROBERTSON RD & STINSON AVE (__3ZA4YR)	01 - Clear	01 - Daylight	10 - No control	02 - Non-fatal injury	07 - SMV other	01 - Dry
2019-01-22	2019	13:15	RICHMOND RD btwn ROBERTSON RD & STINSON AVE (__3ZA4YR)	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	04 - Slush
2019-10-24	2019	12:49	RICHMOND RD btwn ROBERTSON RD & STINSON AVE (__3ZA4YR)	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	01 - Dry
2015-01-09	2015	18:16	RICHMOND RD btwn STINSON AVE & STAFFORD RD	01 - Clear	07 - Dark	10 - No control	03 - P.D. only	03 - Rear end	02 - Wet
2015-03-03	2015	16:45	RICHMOND RD btwn STINSON AVE & STAFFORD RD	03 - Snow	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	03 - Loose snow
2015-04-17	2015	7:16	RICHMOND RD btwn STINSON AVE & STAFFORD RD	01 - Clear	01 - Daylight	10 - No control	02 - Non-fatal injury	02 - Angle	01 - Dry
2015-05-02	2015	7:19	RICHMOND RD btwn STINSON AVE & STAFFORD RD	01 - Clear	01 - Daylight	10 - No control	02 - Non-fatal injury	05 - Turning movement	01 - Dry
2015-08-01	2015	14:41	RICHMOND RD btwn STINSON AVE & STAFFORD RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	01 - Dry
2015-10-08	2015	12:27	RICHMOND RD btwn STINSON AVE & STAFFORD RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	04 - Sideswipe	01 - Dry
2015-10-13	2015	7:23	RICHMOND RD btwn STINSON AVE & STAFFORD RD	02 - Rain	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	02 - Wet
2016-05-15	2016	22:29	RICHMOND RD btwn STINSON AVE & STAFFORD RD	01 - Clear	07 - Dark	10 - No control	02 - Non-fatal injury	03 - Rear end	01 - Dry

2016-05-26	2016	17:43	RICHMOND RD btwn STINSON AVE & STAFFORD RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	01 - Dry
2016-08-24	2016	12:32	RICHMOND RD btwn STINSON AVE & STAFFORD RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	01 - Dry
2016-11-21	2016	18:21	RICHMOND RD btwn STINSON AVE & STAFFORD RD	03 - Snow	07 - Dark	10 - No control	03 - P.D. only	03 - Rear end	02 - Wet
2017-01-28	2017	17:21	RICHMOND RD btwn STINSON AVE & STAFFORD RD	01 - Clear	05 - Dusk	10 - No control	03 - P.D. only	04 - Sideswipe	01 - Dry
2017-02-14	2017	7:10	RICHMOND RD btwn STINSON AVE & STAFFORD RD	01 - Clear	03 - Dawn	10 - No control	03 - P.D. only	02 - Angle	01 - Dry
2017-03-12	2017	10:15	RICHMOND RD btwn STINSON AVE & STAFFORD RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	07 - SMV other	01 - Dry
2018-03-22	2018	15:30	RICHMOND RD btwn STINSON AVE & STAFFORD RD (__3ZBOCU)	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	01 - Dry
2018-05-19	2018	8:48	RICHMOND RD btwn STINSON AVE & STAFFORD RD (__3ZBOCU)	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	01 - Dry
2018-07-17	2018	9:29	RICHMOND RD btwn STINSON AVE & STAFFORD RD (__3ZBOCU)	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	05 - Turning movement	01 - Dry
2018-10-22	2018	19:02	RICHMOND RD btwn STINSON AVE & STAFFORD RD (__3ZBOCU)	01 - Clear	05 - Dusk	10 - No control	03 - P.D. only	05 - Turning movement	01 - Dry
2019-01-03	2019	16:38	RICHMOND RD btwn STINSON AVE & STAFFORD RD (__3ZBOCU)	01 - Clear	01 - Daylight	10 - No control	02 - Non-fatal injury	05 - Turning movement	02 - Wet
2019-02-22	2019	10:22	RICHMOND RD btwn STINSON AVE & STAFFORD RD (__3ZBOCU)	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	02 - Wet
2019-03-08	2019	15:00	RICHMOND RD btwn STINSON AVE & STAFFORD RD (__3ZBOCU)	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	01 - Dry
2019-03-15	2019	8:55	RICHMOND RD btwn STINSON AVE & STAFFORD RD (__3ZBOCU)	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	02 - Wet
2019-07-15	2019	15:09	RICHMOND RD btwn STINSON AVE & STAFFORD RD (__3ZBOCU)	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	01 - Dry
2019-08-01	2019	18:14	RICHMOND RD btwn STINSON AVE & STAFFORD RD (__3ZBOCU)	01 - Clear	01 - Daylight	10 - No control	02 - Non-fatal injury	03 - Rear end	01 - Dry
2019-08-08	2019	15:55	RICHMOND RD btwn STINSON AVE & STAFFORD RD (__3ZBOCU)	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	01 - Dry
2019-08-19	2019	8:50	RICHMOND RD btwn STINSON AVE & STAFFORD RD (__3ZBOCU)	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	01 - Dry
2019-10-24	2019	12:31	RICHMOND RD btwn STINSON AVE & STAFFORD RD (__3ZBOCU)	01 - Clear	01 - Daylight	10 - No control	02 - Non-fatal injury	03 - Rear end	01 - Dry
2019-11-01	2019	15:10	RICHMOND RD btwn STINSON AVE & STAFFORD RD (__3ZBOCU)	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	01 - Dry
2015-08-05	2015	15:33	ROBERTSON RD @ VANIER RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	02 - Angle	01 - Dry
2016-02-17	2016	8:40	ROBERTSON RD @ VANIER RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	05 - Packed snow
2016-05-21	2016	12:33	ROBERTSON RD @ VANIER RD	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry
2016-10-06	2016	7:30	ROBERTSON RD @ VANIER RD	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry
2017-06-28	2017	13:35	ROBERTSON RD @ VANIER RD	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry
2018-08-09	2018	15:51	ROBERTSON RD @ VANIER RD (0000640)	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	07 - SMV other	01 - Dry
2019-02-14	2019	12:57	ROBERTSON RD @ VANIER RD (0000640)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2019-05-01	2019	11:17	ROBERTSON RD @ VANIER RD (0000640)	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	07 - SMV other	01 - Dry
2019-05-22	2019	7:20	ROBERTSON RD @ VANIER RD (0000640)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2019-06-29	2019	16:33	ROBERTSON RD @ VANIER RD (0000640)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	07 - SMV other	01 - Dry
2015-01-07	2015	18:00	ROBERTSON RD btwn MOODIE DR & VANIER RD	03 - Snow	07 - Dark	10 - No control	03 - P.D. only	04 - Sideswipe	02 - Wet
2015-02-06	2015	16:06	ROBERTSON RD btwn MOODIE DR & VANIER RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	02 - Wet
2015-03-23	2015	18:32	ROBERTSON RD btwn MOODIE DR & VANIER RD	01 - Clear	07 - Dark	10 - No control	03 - P.D. only	02 - Angle	01 - Dry
2015-09-04	2015	10:00	ROBERTSON RD btwn MOODIE DR & VANIER RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	01 - Dry
2015-09-26	2015	17:48	ROBERTSON RD btwn MOODIE DR & VANIER RD	01 - Clear	01 - Daylight	10 - No control	02 - Non-fatal injury	02 - Angle	01 - Dry
2016-02-24	2016	15:09	ROBERTSON RD btwn MOODIE DR & VANIER RD	03 - Snow	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	03 - Loose snow
2016-03-06	2016	14:45	ROBERTSON RD btwn MOODIE DR & VANIER RD	01 - Clear	01 - Daylight	10 - No control	02 - Non-fatal injury	03 - Rear end	01 - Dry
2016-06-17	2016	16:56	ROBERTSON RD btwn MOODIE DR & VANIER RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	05 - Turning movement	01 - Dry
2016-06-18	2016	12:46	ROBERTSON RD btwn MOODIE DR & VANIER RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	04 - Sideswipe	01 - Dry
2016-07-14	2016	8:15	ROBERTSON RD btwn MOODIE DR & VANIER RD	01 - Clear	01 - Daylight	10 - No control	02 - Non-fatal injury	03 - Rear end	01 - Dry
2016-09-26	2016	7:37	ROBERTSON RD btwn MOODIE DR & VANIER RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	04 - Sideswipe	01 - Dry
2016-11-15	2016	10:57	ROBERTSON RD btwn MOODIE DR & VANIER RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	01 - Approaching	01 - Dry
2017-01-06	2017	15:43	ROBERTSON RD btwn MOODIE DR & VANIER RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	01 - Dry
2017-05-09	2017	8:46	ROBERTSON RD btwn MOODIE DR & VANIER RD	01 - Clear	01 - Daylight	10 - No control	02 - Non-fatal injury	03 - Rear end	01 - Dry
2017-05-13	2017	21:10	ROBERTSON RD btwn MOODIE DR & VANIER RD	02 - Rain	07 - Dark	10 - No control	03 - P.D. only	04 - Sideswipe	02 - Wet
2017-05-19	2017	12:51	ROBERTSON RD btwn MOODIE DR & VANIER RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	01 - Dry
2017-06-09	2017	12:17	ROBERTSON RD btwn MOODIE DR & VANIER RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	04 - Sideswipe	01 - Dry
2017-11-23	2017	15:02	ROBERTSON RD btwn MOODIE DR & VANIER RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	05 - Turning movement	01 - Dry
2018-01-06	2018	7:55	ROBERTSON RD btwn MOODIE DR & VANIER RD (__3ZBOCN)	99 - Other	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	06 - Ice
2018-08-21	2018	12:41	ROBERTSON RD btwn MOODIE DR & VANIER RD (__3ZBOCN)	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	01 - Dry
2018-08-22	2018	15:42	ROBERTSON RD btwn MOODIE DR & VANIER RD (__3ZBOCN)	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	01 - Dry
2018-08-27	2018	17:16	ROBERTSON RD btwn MOODIE DR & VANIER RD (__3ZBOCN)	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	01 - Dry
2018-11-01	2018	7:35	ROBERTSON RD btwn MOODIE DR & VANIER RD (__3ZBOCN)	02 - Rain	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	02 - Wet
2018-11-12	2018	13:22	ROBERTSON RD btwn MOODIE DR & VANIER RD (__3ZBOCN)	01 - Clear	01 - Daylight	10 - No control	02 - Non-fatal injury	02 - Angle	01 - Dry
2019-05-23	2019	16:18	ROBERTSON RD btwn MOODIE DR & VANIER RD (__3ZBOCN)	02 - Rain	01 - Daylight	10 - No control	03 - P.D. only	05 - Turning movement	02 - Wet
2019-06-16	2019	13:00	ROBERTSON RD btwn MOODIE DR & VANIER RD (__3ZBOCN)	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	04 - Sideswipe	01 - Dry
2019-10-28	2019	17:15	ROBERTSON RD btwn MOODIE DR & VANIER RD (__3ZBOCN)	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	05 - Turning movement	01 - Dry
2015-06-20	2015	15:22	ROBERTSON RD btwn VANIER RD & RICHMOND RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	01 - Dry
2016-02-07	2016	16:30	ROBERTSON RD btwn VANIER RD & RICHMOND RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	04 - Sideswipe	01 - Dry
2016-03-02	2016	12:39	ROBERTSON RD btwn VANIER RD & RICHMOND RD	03 - Snow	01 - Daylight	10 - No control	03 - P.D. only	04 - Sideswipe	03 - Loose snow
2016-03-08	2016	16:06	ROBERTSON RD btwn VANIER RD & RICHMOND RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	01 - Dry
2016-06-15	2016	23:22	ROBERTSON RD btwn VANIER RD & RICHMOND RD	01 - Clear	07 - Dark	10 - No control	03 - P.D. only	07 - SMV other	01 - Dry
2017-11-23	2017	19:10	ROBERTSON RD btwn VANIER RD & RICHMOND RD	01 - Clear	07 - Dark	10 - No control	03 - P.D. only	03 - Rear end	01 - Dry
2018-02-04	2018	21:28	ROBERTSON RD btwn VANIER RD & RICHMOND RD (__3ZA4YQ)	03 - Snow	07 - Dark	10 - No control	03 - P.D. only	07 - SMV other	03 - Loose snow

Appendix E

TRANS Model Plots



TRANS Regional Model

Version 2.15 - Assigned June 16, 2020

AM Peak Hour Total Traffic Volume

BellsCorners

2011 Model - Basecase

N/A

User Initials: TIMW
Plot Prepared: August 24, 2021
EMME Scenario: 21713

TRANS

Legend

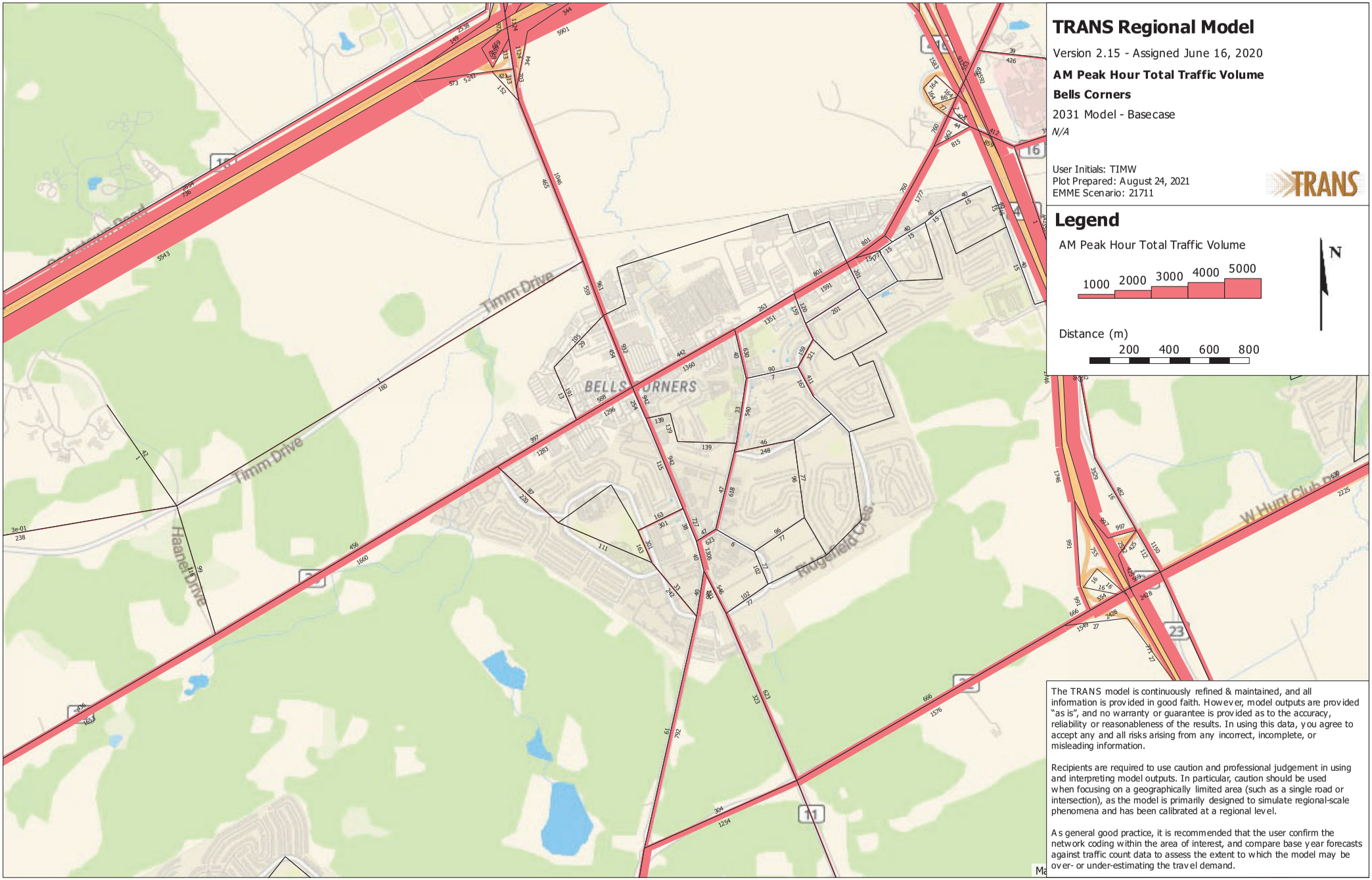
AM Peak Hour Total Traffic Volume

1000 2000 3000 4000 5000

N

Distance (m)

200 400 600 800



TRANS Regional Model

Version 2.15 - Assigned June 16, 2020

AM Peak Hour Total Traffic Volume

Bells Corners

2031 Model - Basecase

N/A

User Initials: TIMW
Plot Prepared: August 24, 2021
EMME Scenario: 21711

TRANS

Legend

AM Peak Hour Total Traffic Volume

1000 2000 3000 4000 5000

N

Distance (m)

200 400 600 800

Appendix F

Background Development Volumes

Figure 4: Existing Site-Generated Traffic Volumes

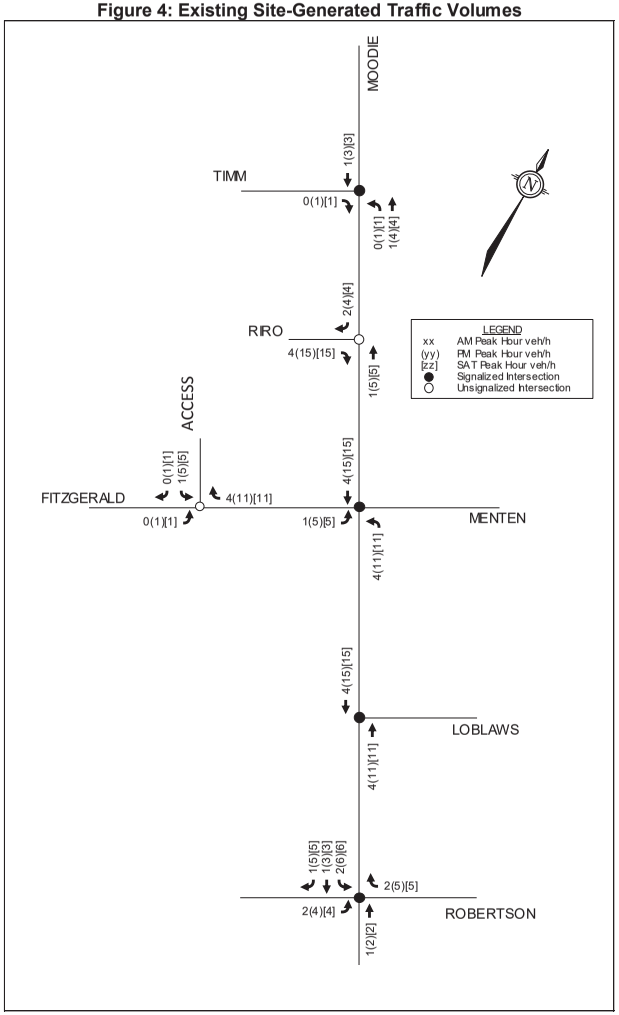


Figure 5: Proposed Redevelopment Traffic

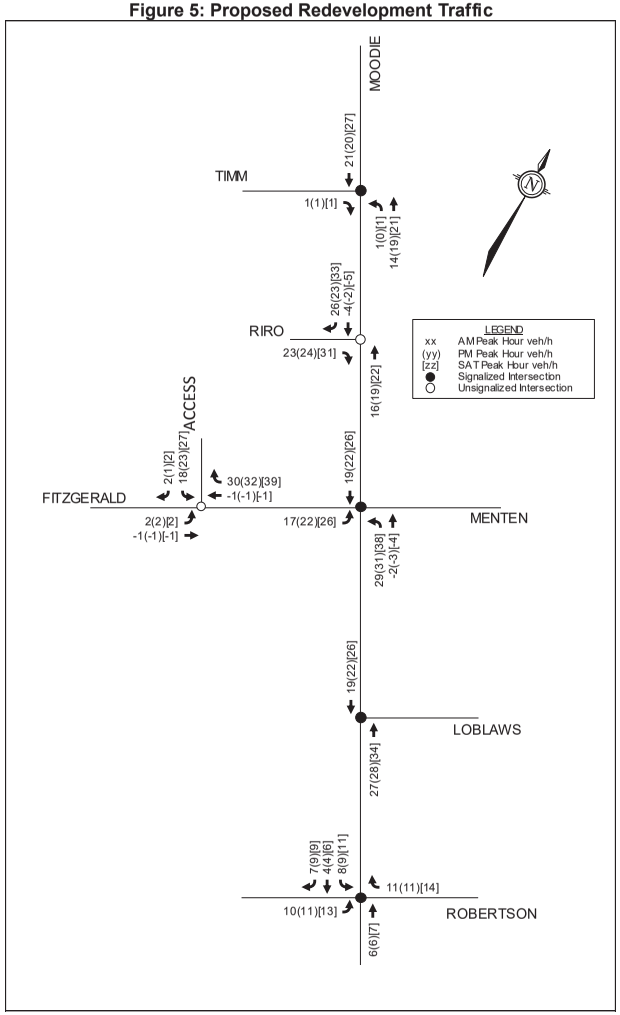
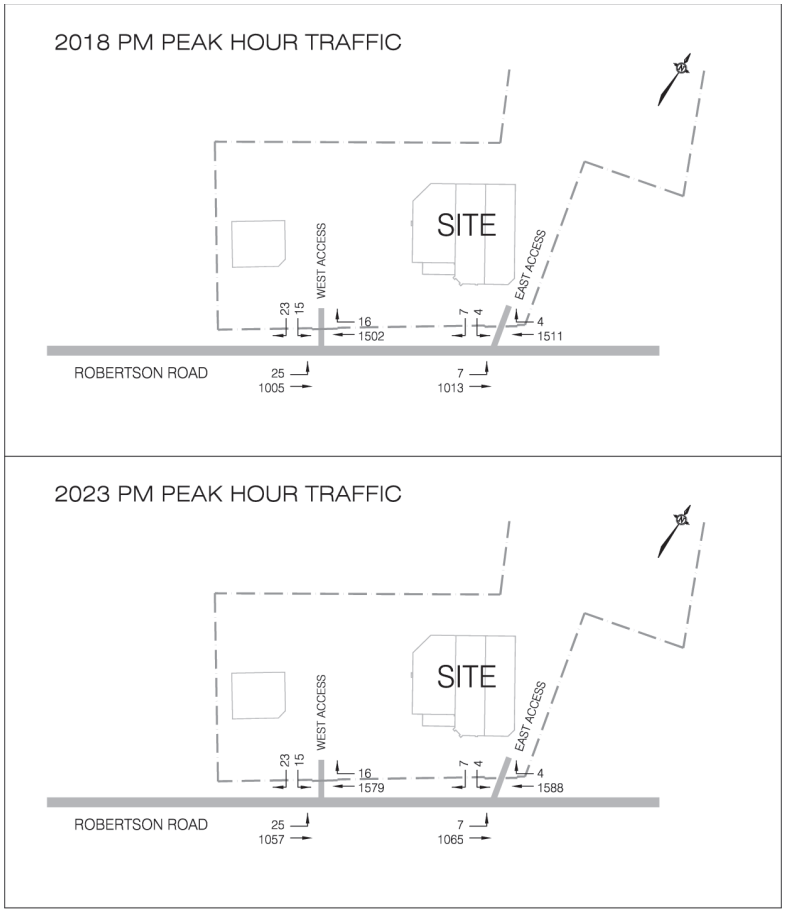
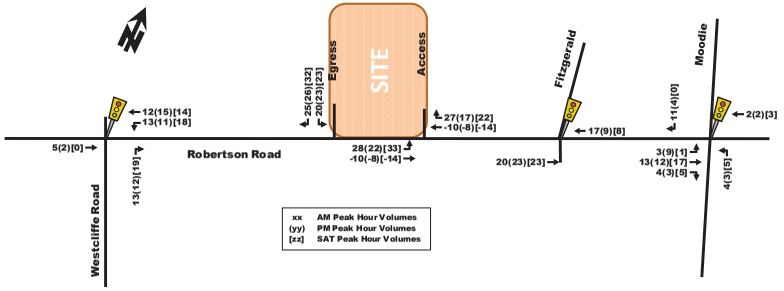


FIGURE 4.1
WEEKDAY PEAK PM HOUR TOTAL TRAFFIC



NOT TO SCALE

PARSONS



Appendix G

Synchro Intersection Worksheets – 2029 Future Background Conditions

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	102	177	47	472	1149	63
Future Volume (vph)	102	177	47	472	1149	63
Lane Group Flow (vph)	102	177	47	472	1149	63
Turn Type	Perm	Perm	pm+pt	NA	NA	Perm
Protected Phases			5	2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	28.3	28.3	10.6	15.6	24.6	24.6
Total Split (s)	28.3	28.3	11.0	51.7	40.7	40.7
Total Split (%)	35.4%	35.4%	13.8%	64.6%	50.9%	50.9%
Maximum Green (s)	22.0	22.0	5.4	46.1	35.1	35.1
Yellow Time (s)	4.6	4.6	3.7	3.7	3.7	3.7
All-Red Time (s)	1.7	1.7	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	5.6	5.6	5.6	5.6
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0			14.0	14.0
Flash Dont Walk (s)	15.0	15.0			5.0	5.0
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	11.3	11.3	56.8	56.8	49.5	49.5
Actuated g/C Ratio	0.14	0.14	0.71	0.71	0.62	0.62
v/c Ratio	0.44	0.50	0.15	0.20	0.57	0.07
Control Delay	37.1	10.7	4.3	3.5	12.0	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.1	10.7	4.3	3.5	12.0	3.4
LOS	D	B	A	A	B	A
Approach Delay	20.4			3.5	11.6	
Approach LOS	C			A	B	
Queue Length 50th (m)	14.6	0.6	1.7	9.1	54.8	0.3
Queue Length 95th (m)	27.3	16.3	3.6	11.2	87.2	5.8
Internal Link Dist (m)	1760.7			270.5	415.7	
Turn Bay Length (m)		115.0	125.0			45.0
Base Capacity (vph)	455	528	315	2307	2010	930
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.34	0.15	0.20	0.57	0.07

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 6 (8%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 75

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.57
Intersection Signal Delay: 10.7 — Intersection LOS: B
Intersection Capacity Utilization 59.5% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: Moodie & Timm

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	90	28	18	6	74	471	116	963
Future Volume (vph)	90	28	18	6	74	471	116	963
Lane Group Flow (vph)	90	53	18	14	74	535	116	1149
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	34.0	34.0	34.0	34.0	30.7	30.7	30.7	30.7
Total Split (s)	34.0	34.0	34.0	34.0	46.0	46.0	46.0	46.0
Total Split (%)	42.5%	42.5%	42.5%	42.5%	57.5%	57.5%	57.5%	57.5%
Maximum Green (s)	28.0	28.0	28.0	28.0	40.3	40.3	40.3	40.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	2.7	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	5.7	5.7	5.7	5.7
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	3	3	3	3	6	6	3	3
Act Effct Green (s)	14.4	14.4	14.4	14.4	58.3	58.3	58.3	58.3
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.73	0.73	0.73	0.73
v/c Ratio	0.39	0.18	0.08	0.05	0.27	0.23	0.20	0.50
Control Delay	31.8	16.4	24.2	16.1	11.5	5.9	12.7	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.8	16.4	24.2	16.1	11.5	5.9	12.7	11.6
LOS	C	B	C	B	B	A	B	B
Approach Delay		26.1		20.7		6.5		11.7
Approach LOS		C		C		A		B
Queue Length 50th (m)	12.9	3.8	2.5	0.8	3.2	11.1	6.0	40.2
Queue Length 95th (m)	19.8	9.9	6.0	4.2	18.1	32.6	m24.5	86.5
Internal Link Dist (m)		192.7		115.6		159.6		270.5
Turn Bay Length (m)	35.0		25.0		75.0		45.0	
Base Capacity (vph)	451	536	439	497	276	2350	573	2320
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.10	0.04	0.03	0.27	0.23	0.20	0.50

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 68 (85%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 70

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.50
Intersection Signal Delay: 11.3 Intersection LOS: B
Intersection Capacity Utilization 70.3% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Moodie & Fitzgerald

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	16	18	594	15	22	990
Future Volume (vph)	16	18	594	15	22	990
Lane Group Flow (vph)	16	18	594	15	22	990
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	32.6	32.6	28.9	28.9	23.9	23.9
Total Split (s)	33.0	33.0	67.0	67.0	67.0	67.0
Total Split (%)	33.0%	33.0%	67.0%	67.0%	67.0%	67.0%
Maximum Green (s)	27.4	27.4	61.1	61.1	61.1	61.1
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.3	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.9	5.9	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	20.0	20.0	16.0	16.0		
Pedestrian Calls (#/hr)	0	0	0	0		
Act Effct Green (s)	10.0	10.0	87.1	87.1	87.1	87.1
Actuated g/C Ratio	0.10	0.10	0.87	0.87	0.87	0.87
v/c Ratio	0.11	0.11	0.21	0.01	0.04	0.35
Control Delay	43.1	19.4	2.2	1.1	2.5	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.1	19.4	2.2	1.1	2.5	2.7
LOS	D	B	A	A	A	A
Approach Delay	30.6		2.2			2.7
Approach LOS	C		A			A
Queue Length 50th (m)	2.9	0.0	12.5	0.0	0.8	24.5
Queue Length 95th (m)	9.2	6.5	16.8	1.1	2.2	31.5
Internal Link Dist (m)	125.7		176.3			159.6
Turn Bay Length (m)		10.0		45.0	60.0	
Base Capacity (vph)	389	419	2832	1293	563	2832
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	0.04	0.04	0.21	0.01	0.04	0.35

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 58 (58%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 65

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.35
Intersection Signal Delay: 3.1 — Intersection LOS: A
Intersection Capacity Utilization 46.8% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Moodie & Loblaws Access

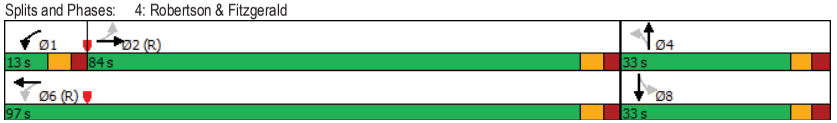
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	181	1360	24	468	4	3	62	8
Future Volume (vph)	181	1360	24	468	4	3	62	8
Lane Group Flow (vph)	181	1365	24	602	4	12	62	70
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		2	1	6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	2	2	1	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	28.4	28.4	11.2	28.4	32.3	32.3	32.3	32.3
Total Split (s)	84.0	84.0	13.0	97.0	33.0	33.0	33.0	33.0
Total Split (%)	64.6%	64.6%	10.0%	74.6%	25.4%	25.4%	25.4%	25.4%
Maximum Green (s)	77.6	77.6	6.8	90.6	26.7	26.7	26.7	26.7
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7	2.5	2.7	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.2	6.4	6.3	6.3	6.3	6.3
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	15.0	15.0		15.0	19.0	19.0	19.0	19.0
Pedestrian Calls (#/hr)	14	14		16	18	18	11	11
Act Effct Green (s)	93.0	93.0	100.8	100.6	16.7	16.7	16.7	16.7
Actuated g/C Ratio	0.72	0.72	0.78	0.77	0.13	0.13	0.13	0.13
v/c Ratio	0.35	0.58	0.09	0.26	0.03	0.06	0.38	0.30
Control Delay	12.3	12.5	5.2	5.3	44.0	26.1	55.9	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.3	12.5	5.2	5.3	44.0	26.1	55.9	16.1
LOS	B	B	A	A	D	C	E	B
Approach Delay		12.5		5.3		30.6		34.8
Approach LOS		B		A		C		C
Queue Length 50th (m)	15.5	78.4	0.4	3.7	1.0	0.7	15.5	1.9
Queue Length 95th (m)	40.8	142.1	m5.6	40.6	4.0	6.1	26.7	14.3
Internal Link Dist (m)		422.4		92.3		38.8		177.2
Turn Bay Length (m)	40.0		50.0		30.0		45.0	
Base Capacity (vph)	518	2370	269	2352	250	296	261	342
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.58	0.09	0.26	0.02	0.04	0.24	0.20

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 97 (75%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.58
Intersection Signal Delay: 11.9 Intersection LOS: B
Intersection Capacity Utilization 74.1% ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Robertson & Fitzgerald



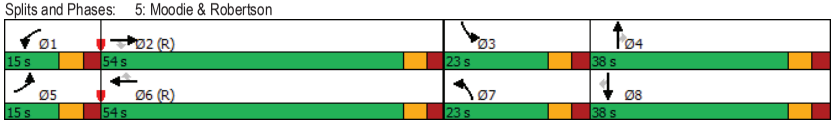
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	1226	116	81	311	162	229	366	310	362	254	124
Future Volume (vph)	82	1226	116	81	311	162	229	366	310	362	254	124
Lane Group Flow (vph)	82	1226	116	81	311	162	229	366	310	362	254	124
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
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)	11.4	34.4	34.4	11.4	34.4	34.4	11.5	37.7	37.7	11.5	37.7	37.7
Total Split (s)	15.0	54.0	54.0	15.0	54.0	54.0	23.0	38.0	38.0	23.0	38.0	38.0
Total Split (%)	11.5%	41.5%	41.5%	11.5%	41.5%	41.5%	17.7%	29.2%	29.2%	17.7%	29.2%	29.2%
Maximum Green (s)	8.6	47.6	47.6	8.6	47.6	47.6	16.5	31.3	31.3	16.5	31.3	31.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.8	3.0	3.0	2.8	3.0	3.0
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)	6.4	6.4	6.4	6.4	6.4	6.4	6.5	6.7	6.7	6.5	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		21.0	21.0		21.0	21.0		24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		4	4		6	6		4	4		6	6
Act Effct Green (s)	10.7	54.6	54.6	10.3	54.3	54.3	14.1	22.7	22.7	16.4	24.9	24.9
Actuated g/C Ratio	0.08	0.42	0.42	0.08	0.42	0.42	0.11	0.17	0.17	0.13	0.19	0.19
v/c Ratio	0.63	0.88	0.17	0.62	0.24	0.23	0.66	0.65	0.84	0.89	0.42	0.33
Control Delay	92.2	34.4	1.1	87.5	24.2	8.3	64.7	54.5	46.9	80.7	47.6	7.4
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	92.2	34.4	1.1	87.5	24.2	8.3	64.7	54.5	46.9	80.7	47.6	7.4
LOS	F	C	A	F	C	A	E	D	D	F	D	A
Approach Delay		35.0			28.8			54.5			57.0	
Approach LOS		D			C			D			E	
Queue Length 50th (m)	20.6	155.0	1.5	18.9	33.4	14.4	29.3	46.7	43.9	47.7	30.6	0.0
Queue Length 95th (m)	m#49.0	#210.8	2.3	#48.4	20.3	15.1	42.1	57.8	72.8	#74.0	41.0	12.5
Internal Link Dist (m)		105.2			158.4			620.1			176.3	
Turn Bay Length (m)	75.0			70.0			83.0		60.0	80.0		75.0
Base Capacity (vph)	132	1392	675	133	1319	700	408	782	458	408	761	441
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	0.62	0.88	0.17	0.61	0.24	0.23	0.56	0.47	0.68	0.89	0.33	0.28

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 119 (92%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 125

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 43.4 — Intersection LOS: D
Intersection Capacity Utilization 85.6% — 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: 5: Moodie & Robertson



Lane Group	EBL	EBT	WBL	WBT	SBL	SBT	Ø4
Lane Configurations							
Traffic Volume (vph)	9	1935	1	549	19	0	
Future Volume (vph)	9	1935	1	549	19	0	
Lane Group Flow (vph)	9	1935	1	560	0	31	
Turn Type	Perm	NA	Perm	NA	Perm	NA	
Protected Phases		2		6		9	4
Permitted Phases	2		6		9		
Detector Phase	2	2	6	6	9	9	
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.4	22.4	22.4	22.4	33.7	33.7	16.7
Total Split (s)	79.6	79.6	79.6	79.6	33.7	33.7	16.7
Total Split (%)	61.2%	61.2%	61.2%	61.2%	25.9%	25.9%	13%
Maximum Green (s)	73.2	73.2	73.2	73.2	27.0	27.0	10.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0	3.0
All-Red Time (s)	2.7	2.7	2.7	2.7	3.7	3.7	3.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.4	6.4	6.4	6.4		6.7	
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	11.0	11.0	
Flash Dont Walk (s)	9.0	9.0	9.0	9.0	16.0	16.0	
Pedestrian Calls (#/hr)	6	6	4	4	3	3	
Act Effct Green (s)	112.7	112.7	112.7	112.7		13.4	
Actuated g/C Ratio	0.87	0.87	0.87	0.87		0.10	
v/c Ratio	0.01	0.67	0.01	0.20		0.13	
Control Delay	5.3	10.2	8.0	5.0		1.2	
Queue Delay	0.0	0.6	0.0	0.0		0.0	
Total Delay	5.3	10.8	8.0	5.0		1.2	
LOS	A	B	A	A		A	
Approach Delay		10.8		5.1		1.2	
Approach LOS		B		A		A	
Queue Length 50th (m)	0.2	81.4	0.1	32.8		0.0	
Queue Length 95th (m)	m0.9	150.2	m0.6	56.6		0.0	
Internal Link Dist (m)		89.6		196.4		53.8	
Turn Bay Length (m)	30.0		25.0				
Base Capacity (vph)	664	2875	67	2781		379	
Starvation Cap Reductn	0	0	0	0		0	
Spillback Cap Reductn	0	496	0	0		0	
Storage Cap Reductn	0	0	0	0		0	
Reduced v/c Ratio	0.01	0.81	0.01	0.20		0.08	

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 112 (86%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 130

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 9.4 — Intersection LOS: A
Intersection Capacity Utilization 77.1% — ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Robertson & Vanier

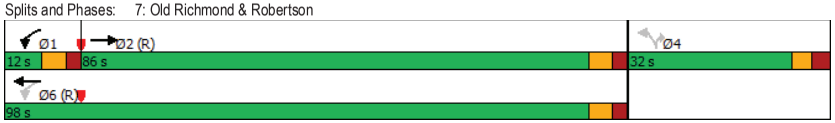
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	1928	45	517	39	218
Future Volume (vph)	1928	45	517	39	218
Lane Group Flow (vph)	1962	45	517	39	218
Turn Type	NA	pm+pt	NA	Perm	Perm
Protected Phases	2	1	6		
Permitted Phases		6		4	4
Detector Phase	2	1	6	4	4
Switch Phase					
Minimum Initial (s)	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	33.1	11.1	33.1	31.1	31.1
Total Split (s)	86.0	12.0	98.0	32.0	32.0
Total Split (%)	66.2%	9.2%	75.4%	24.6%	24.6%
Maximum Green (s)	79.9	5.9	91.9	25.9	25.9
Yellow Time (s)	3.7	3.7	3.7	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	3.1	3.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	None	C-Max	None	None
Walk Time (s)	7.0		7.0	10.0	10.0
Flash Dont Walk (s)	20.0		20.0	15.0	15.0
Pedestrian Calls (#/hr)	5		0	3	3
Act Effct Green (s)	90.2	100.0	100.0	17.8	17.8
Actuated g/C Ratio	0.69	0.77	0.77	0.14	0.14
v/c Ratio	0.86	0.34	0.21	0.18	0.80
Control Delay	23.2	27.2	4.6	48.8	51.9
Queue Delay	46.9	0.0	0.0	0.0	0.0
Total Delay	70.1	27.2	4.6	48.8	52.0
LOS	E	C	A	D	D
Approach Delay	70.1		6.4	51.5	
Approach LOS	E		A	D	
Queue Length 50th (m)	263.1	2.7	15.4	9.0	32.8
Queue Length 95th (m)	#316.9	15.7	26.2	18.4	57.2
Internal Link Dist (m)	196.4		308.7	117.3	
Turn Bay Length (m)		60.0		20.0	
Base Capacity (vph)	2287	132	2455	310	358
Starvation Cap Reductn	599	0	0	0	0
Spillback Cap Reductn	29	0	0	0	1
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.16	0.34	0.21	0.13	0.61

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 17 (13%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 120

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 55.5 Intersection LOS: E
Intersection Capacity Utilization 81.8% 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: 7: Old Richmond & Robertson



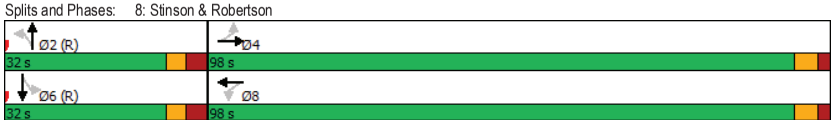
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	54	2001	20	636	9	2	2	0
Future Volume (vph)	54	2001	20	636	9	2	2	0
Lane Group Flow (vph)	54	2007	20	658	0	43	0	13
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.8	26.8	26.8	26.8	31.6	31.6	31.6	31.6
Total Split (s)	98.0	98.0	98.0	98.0	32.0	32.0	32.0	32.0
Total Split (%)	75.4%	75.4%	75.4%	75.4%	24.6%	24.6%	24.6%	24.6%
Maximum Green (s)	92.2	92.2	92.2	92.2	25.4	25.4	25.4	25.4
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0
All-Red Time (s)	2.1	2.1	2.1	2.1	3.6	3.6	3.6	3.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	5.8	5.8	5.8	5.8		6.6		6.6
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0	14.0	14.0	14.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	3	3	11	11	0	0	6	6
Act Effct Green (s)	92.2	92.2	92.2	92.2		25.4		25.4
Actuated g/C Ratio	0.71	0.71	0.71	0.71		0.20		0.20
v/c Ratio	0.12	0.85	0.35	0.29		0.14		0.05
Control Delay	2.5	8.2	21.9	2.7		26.0		8.2
Queue Delay	0.0	0.9	0.0	0.0		0.0		0.0
Total Delay	2.5	9.1	21.9	2.7		26.0		8.2
LOS	A	A	C	A		C		A
Approach Delay		8.9		3.3		26.0		8.2
Approach LOS		A		A		C		A
Queue Length 50th (m)	1.0	105.2	0.3	6.3		4.2		0.0
Queue Length 95th (m)	m1.4	25.3	7.6	8.7		14.6		3.6
Internal Link Dist (m)		308.7		283.3		126.0		117.1
Turn Bay Length (m)	75.0		50.0					
Base Capacity (vph)	465	2350	57	2293		303		273
Starvation Cap Reductn	0	130	0	0		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.12	0.90	0.35	0.29		0.14		0.05

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 129 (99%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 7.8 — Intersection LOS: A
Intersection Capacity Utilization 89.8% — ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Stinson & Robertson



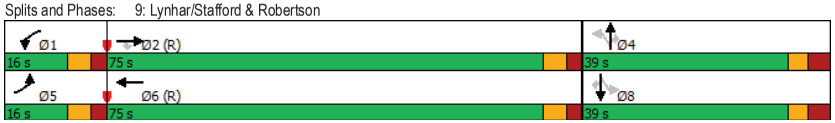
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	42	1880	27	14	660	33	11	101	31	4	53
Future Volume (vph)	42	1880	27	14	660	33	11	101	31	4	53
Lane Group Flow (vph)	42	1880	27	14	743	33	11	101	31	4	53
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		4			8	
Permitted Phases			2			4		4	8		8
Detector Phase	5	2	2	1	6	4	4	4	8	8	8
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.1	24.3	24.3	11.1	24.3	24.7	24.7	24.7	24.7	24.7	24.7
Total Split (s)	16.0	75.0	75.0	16.0	75.0	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	12.3%	57.7%	57.7%	12.3%	57.7%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Maximum Green (s)	9.9	68.7	68.7	9.9	68.7	32.3	32.3	32.3	32.3	32.3	32.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.4	2.6	2.6	2.4	2.6	3.7	3.7	3.7	3.7	3.7	3.7
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
Total Lost Time (s)	6.1	6.3	6.3	6.1	6.3	6.7	6.7	6.7	6.7	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		4	4		5	4	4	4	4	4	4
Act Effct Green (s)	9.0	99.7	99.7	6.7	92.5	11.7	11.7	11.7	11.7	11.7	11.7
Actuated g/C Ratio	0.07	0.77	0.77	0.05	0.71	0.09	0.09	0.09	0.09	0.09	0.09
v/c Ratio	0.40	0.74	0.02	0.16	0.33	0.28	0.07	0.45	0.30	0.03	0.27
Control Delay	48.9	10.4	0.2	62.7	8.4	60.5	53.3	16.5	61.5	52.0	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.9	10.4	0.2	62.7	8.4	60.5	53.3	16.5	61.5	52.0	7.6
LOS	D	B	A	E	A	E	D	B	E	D	A
Approach Delay		11.0			9.4		29.3			28.6	
Approach LOS		B			A		C			C	
Queue Length 50th (m)	10.7	80.3	0.0	3.5	33.7	8.2	2.7	0.0	7.7	1.0	0.0
Queue Length 95th (m)	m12.4	116.6	m0.0	10.3	58.1	17.8	8.2	16.0	16.9	4.3	5.7
Internal Link Dist (m)		283.3			201.3		115.2			173.5	
Turn Bay Length (m)	85.0		50.0	100.0		30.0		30.0	35.0		75.0
Base Capacity (vph)	122	2543	1118	126	2261	321	433	436	290	433	406
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.74	0.02	0.11	0.33	0.10	0.03	0.23	0.11	0.01	0.13

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 36 (28%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 12.0 — Intersection LOS: B
Intersection Capacity Utilization 88.8% — ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Lynhar/Stafford & Robertson



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	20	0	6	0	15	214	37	105
Future Volume (vph)	20	0	6	0	15	214	37	105
Lane Group Flow (vph)	0	29	0	32	0	274	0	178
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.4	40.4	40.4	40.4	45.4	45.4	45.4	45.4
Total Split (s)	60.0	60.0	60.0	60.0	80.0	80.0	80.0	80.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	57.1%	57.1%	57.1%	57.1%
Maximum Green (s)	54.6	54.6	54.6	54.6	74.6	74.6	74.6	74.6
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.4		5.4		5.4		5.4
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min
Walk Time (s)	7.0	7.0	7.0	7.0	15.0	15.0	15.0	15.0
Flash Dont Walk (s)	7.0	7.0	7.0	7.0	5.0	5.0	5.0	5.0
Pedestrian Calls (#/hr)	1	1	10	10	15	15	18	18
Act Effct Green (s)		10.8		10.8		11.9		11.9
Actuated g/C Ratio		0.32		0.32		0.35		0.35
v/c Ratio		0.07		0.07		0.48		0.35
Control Delay		6.8		5.9		11.3		9.6
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		6.8		5.9		11.3		9.6
LOS		A		A		B		A
Approach Delay		6.8		5.9		11.3		9.6
Approach LOS		A		A		B		A
Queue Length 50th (m)		0.3		0.3		9.9		5.8
Queue Length 95th (m)		4.4		4.3		25.3		16.7
Internal Link Dist (m)		44.5		37.9		236.7		117.3
Turn Bay Length (m)								
Base Capacity (vph)		1294		1397		1600		1405
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		0.02		0.02		0.17		0.13

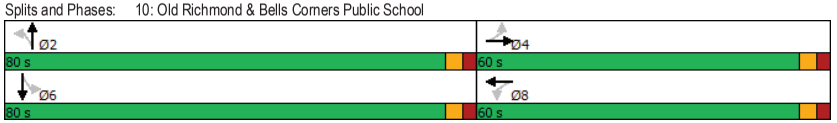
Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 33.8
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.48

Intersection Signal Delay: 10.1	Intersection LOS: B
Intersection Capacity Utilization 41.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 10: Old Richmond & Bells Corners Public School



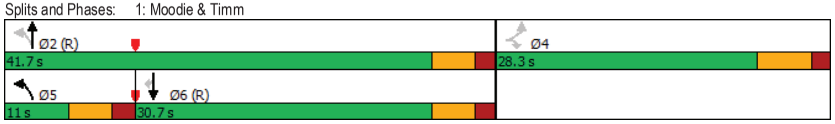
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	54	59	149	1073	794	149
Future Volume (vph)	54	59	149	1073	794	149
Lane Group Flow (vph)	54	59	149	1073	794	149
Turn Type	Perm	Perm	pm+pt	NA	NA	Perm
Protected Phases			5	2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	28.3	28.3	10.6	15.6	24.6	24.6
Total Split (s)	28.3	28.3	11.0	41.7	30.7	30.7
Total Split (%)	40.4%	40.4%	15.7%	59.6%	43.9%	43.9%
Maximum Green (s)	22.0	22.0	5.4	36.1	25.1	25.1
Yellow Time (s)	4.6	4.6	3.7	3.7	3.7	3.7
All-Red Time (s)	1.7	1.7	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	5.6	5.6	5.6	5.6
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0			14.0	14.0
Flash Dont Walk (s)	15.0	15.0			5.0	5.0
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	10.1	10.1	51.3	52.4	41.4	41.4
Actuated g/C Ratio	0.14	0.14	0.73	0.75	0.59	0.59
v/c Ratio	0.23	0.22	0.31	0.43	0.41	0.16
Control Delay	29.2	10.6	7.7	8.9	11.6	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.2	10.6	7.7	8.9	11.6	2.6
LOS	C	B	A	A	B	A
Approach Delay	19.5			8.7	10.2	
Approach LOS	B			A	B	
Queue Length 50th (m)	6.4	0.0	9.2	44.2	33.8	0.0
Queue Length 95th (m)	15.6	9.1	15.6	77.2	51.3	8.3
Internal Link Dist (m)	1760.7			270.5	415.7	
Turn Bay Length (m)		115.0	125.0			45.0
Base Capacity (vph)	521	506	476	2482	1942	938
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.12	0.31	0.43	0.41	0.16

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 55 (79%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 65

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.43
Intersection Signal Delay: 9.9 — Intersection LOS: A
Intersection Capacity Utilization 54.8% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: Moodie & Timm



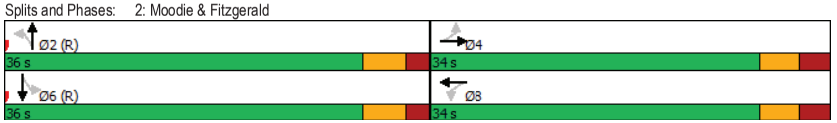
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	207	6	91	20	51	870	30	727
Future Volume (vph)	207	6	91	20	51	870	30	727
Lane Group Flow (vph)	207	73	91	75	51	917	30	796
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	34.0	34.0	34.0	34.0	30.7	30.7	30.7	30.7
Total Split (s)	34.0	34.0	34.0	34.0	36.0	36.0	36.0	36.0
Total Split (%)	48.6%	48.6%	48.6%	48.6%	51.4%	51.4%	51.4%	51.4%
Maximum Green (s)	28.0	28.0	28.0	28.0	30.3	30.3	30.3	30.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	2.7	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	5.7	5.7	5.7	5.7
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	4	4	1	1	8	8	2	2
Act Effct Green (s)	17.9	17.9	17.9	17.9	40.4	40.4	40.4	40.4
Actuated g/C Ratio	0.26	0.26	0.26	0.26	0.58	0.58	0.58	0.58
v/c Ratio	0.66	0.17	0.29	0.17	0.18	0.48	0.11	0.42
Control Delay	32.2	6.1	20.9	8.1	12.1	11.1	2.6	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.2	6.1	20.9	8.1	12.1	11.1	2.6	2.9
LOS	C	A	C	A	B	B	A	A
Approach Delay		25.4		15.1		11.1		2.9
Approach LOS		C		B		B		A
Queue Length 50th (m)	24.6	0.6	9.7	2.0	2.8	31.8	0.1	0.9
Queue Length 95th (m)	35.5	7.3	16.5	8.5	11.6	65.3	m0.6	3.5
Internal Link Dist (m)		192.7		115.6		159.6		270.5
Turn Bay Length (m)	35.0		25.0		75.0		45.0	
Base Capacity (vph)	494	628	493	648	277	1899	271	1888
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.12	0.18	0.12	0.18	0.48	0.11	0.42

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: 65

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 10.2 Intersection LOS: B
Intersection Capacity Utilization 69.2% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Moodie & Fitzgerald



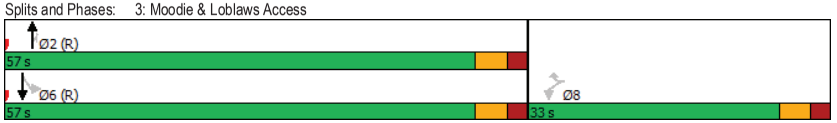
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	107	51	909	54	75	812
Future Volume (vph)	107	51	909	54	75	812
Lane Group Flow (vph)	107	51	909	54	75	812
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	32.6	32.6	28.9	28.9	23.9	23.9
Total Split (s)	33.0	33.0	57.0	57.0	57.0	57.0
Total Split (%)	36.7%	36.7%	63.3%	63.3%	63.3%	63.3%
Maximum Green (s)	27.4	27.4	51.1	51.1	51.1	51.1
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.3	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.9	5.9	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	20.0	20.0	16.0	16.0		
Pedestrian Calls (#/hr)	10	10	2	2		
Act Effct Green (s)	14.2	14.2	68.6	68.6	68.6	68.6
Actuated g/C Ratio	0.16	0.16	0.76	0.76	0.76	0.76
v/c Ratio	0.41	0.19	0.36	0.05	0.19	0.32
Control Delay	37.1	9.7	6.1	2.2	7.6	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.1	9.7	6.1	2.2	7.6	5.8
LOS	D	A	A	A	A	A
Approach Delay	28.2		5.9			6.0
Approach LOS	C		A			A
Queue Length 50th (m)	17.6	0.0	23.2	0.0	3.1	20.0
Queue Length 95th (m)	26.5	7.8	59.8	4.5	14.3	51.6
Internal Link Dist (m)	125.7		176.3			159.6
Turn Bay Length (m)		10.0		45.0	60.0	
Base Capacity (vph)	504	468	2501	1116	400	2501
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.11	0.36	0.05	0.19	0.32

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 9 (10%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 65

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.41
Intersection Signal Delay: 7.7 — Intersection LOS: A
Intersection Capacity Utilization 61.7% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 3: Moodie & Loblaws Access



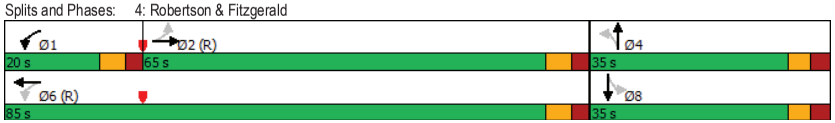
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	32	688	176	1182	60	24	108	39
Future Volume (vph)	32	688	176	1182	60	24	108	39
Lane Group Flow (vph)	32	718	176	1226	60	179	108	188
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		2	1	6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	2	2	1	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	28.4	28.4	11.2	28.4	32.3	32.3	32.3	32.3
Total Split (s)	65.0	65.0	20.0	85.0	35.0	35.0	35.0	35.0
Total Split (%)	54.2%	54.2%	16.7%	70.8%	29.2%	29.2%	29.2%	29.2%
Maximum Green (s)	58.6	58.6	13.8	78.6	28.7	28.7	28.7	28.7
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7	2.5	2.7	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.2	6.4	6.3	6.3	6.3	6.3
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	15.0	15.0		15.0	19.0	19.0	19.0	19.0
Pedestrian Calls (#/hr)	23	23		22	40	40	18	18
Act Effct Green (s)	67.9	67.9	84.3	84.1	23.2	23.2	23.2	23.2
Actuated g/C Ratio	0.57	0.57	0.70	0.70	0.19	0.19	0.19	0.19
v/c Ratio	0.15	0.39	0.38	0.53	0.36	0.45	0.64	0.52
Control Delay	17.6	16.4	7.5	6.3	46.3	12.4	60.9	26.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.6	16.4	7.5	6.3	46.3	12.4	60.9	26.0
LOS	B	B	A	A	D	B	E	C
Approach Delay		16.4		6.5		20.9		38.7
Approach LOS		B		A		C		D
Queue Length 50th (m)	3.6	49.5	6.9	27.2	12.0	4.6	22.9	19.3
Queue Length 95th (m)	10.7	70.2	m12.8	40.3	24.6	23.3	41.7	41.1
Internal Link Dist (m)		422.4		92.3		38.8		177.2
Turn Bay Length (m)	40.0		50.0		30.0		45.0	
Base Capacity (vph)	215	1860	502	2306	205	460	209	426
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.39	0.35	0.53	0.29	0.39	0.52	0.44

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 105 (88%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 75

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 14.1 — Intersection LOS: B
Intersection Capacity Utilization 93.6% — ICU Level of Service F
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Robertson & Fitzgerald



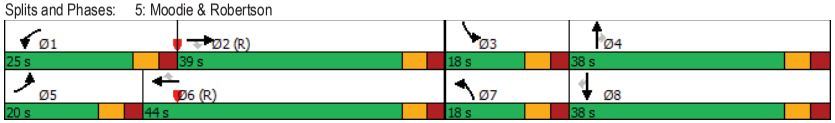
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	573	272	230	922	338	229	325	155	290	434	203
Future Volume (vph)	138	573	272	230	922	338	229	325	155	290	434	203
Lane Group Flow (vph)	138	573	272	230	922	338	229	325	155	290	434	203
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
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)	11.4	34.4	34.4	11.4	34.4	34.4	11.5	37.7	37.7	11.5	37.7	37.7
Total Split (s)	20.0	39.0	39.0	25.0	44.0	44.0	18.0	38.0	38.0	18.0	38.0	38.0
Total Split (%)	16.7%	32.5%	32.5%	20.8%	36.7%	36.7%	15.0%	31.7%	31.7%	15.0%	31.7%	31.7%
Maximum Green (s)	13.6	32.6	32.6	18.6	37.6	37.6	11.5	31.3	31.3	11.5	31.3	31.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.8	3.0	3.0	2.8	3.0	3.0
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)	6.4	6.4	6.4	6.4	6.4	6.4	6.5	6.7	6.7	6.5	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		21.0	21.0		21.0	21.0		24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		15	15		5	5		21	21		12	12
Act Effct Green (s)	13.4	39.2	39.2	19.9	45.7	45.7	11.2	23.4	23.4	11.5	23.6	23.6
Actuated g/C Ratio	0.11	0.33	0.33	0.17	0.38	0.38	0.09	0.20	0.20	0.10	0.20	0.20
v/c Ratio	0.75	0.53	0.42	0.84	0.73	0.44	0.76	0.52	0.38	0.94	0.67	0.45
Control Delay	72.7	38.9	11.4	70.8	40.1	8.0	69.8	45.2	8.3	92.5	49.3	8.2
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	72.7	38.9	11.4	70.8	40.1	8.0	69.8	45.2	8.3	92.5	49.3	8.2
LOS	E	D	B	E	D	A	E	D	A	F	D	A
Approach Delay		36.0			37.6			45.1			53.8	
Approach LOS		D			D			D			D	
Queue Length 50th (m)	31.3	47.7	1.6	54.0	97.0	19.7	27.5	37.2	0.0	35.5	51.5	0.0
Queue Length 95th (m)	#61.6	78.8	30.7	#96.1	#139.7	20.3	#44.1	46.7	15.8	#61.8	62.3	17.8
Internal Link Dist (m)		105.2			158.4			620.1			176.3	
Turn Bay Length (m)	75.0			70.0			83.0		60.0	80.0		75.0
Base Capacity (vph)	195	1083	652	280	1264	762	308	840	487	308	856	526
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	0.71	0.53	0.42	0.82	0.73	0.44	0.74	0.39	0.32	0.94	0.51	0.39

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 105

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 42.2 — Intersection LOS: D
Intersection Capacity Utilization 84.9% — 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.

Splits and Phases: 5: Moodie & Robertson



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	19	1055	5	1435	6	0	27	0
Future Volume (vph)	19	1055	5	1435	6	0	27	0
Lane Group Flow (vph)	19	1059	5	1474	0	13	0	49
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		4		9
Permitted Phases	2		6		4		9	
Detector Phase	2	2	6	6	4	4	9	9
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.4	22.4	22.4	22.4	16.7	16.7	33.7	33.7
Total Split (s)	69.6	69.6	69.6	69.6	16.7	16.7	33.7	33.7
Total Split (%)	58.0%	58.0%	58.0%	58.0%	13.9%	13.9%	28.1%	28.1%
Maximum Green (s)	63.2	63.2	63.2	63.2	10.0	10.0	27.0	27.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0
All-Red Time (s)	2.7	2.7	2.7	2.7	3.7	3.7	3.7	3.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4		6.7		6.7
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0			11.0	11.0
Flash Dont Walk (s)	9.0	9.0	9.0	9.0			16.0	16.0
Pedestrian Calls (#/hr)	17	17	6	6			7	7
Act Effct Green (s)	91.4	91.4	91.4	91.4		10.0		13.4
Actuated g/C Ratio	0.76	0.76	0.76	0.76		0.08		0.11
v/c Ratio	0.11	0.42	0.02	0.59		0.07		0.21
Control Delay	26.4	21.2	8.2	8.6		0.7		3.0
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	26.4	21.2	8.2	8.6		0.7		3.0
LOS	C	C	A	A		A		A
Approach Delay		21.3		8.6		0.7		3.0
Approach LOS		C		A		A		A
Queue Length 50th (m)	1.2	66.2	0.2	37.3		0.0		0.0
Queue Length 95th (m)	m7.9	m153.2	m0.6	36.6		0.0		1.7
Internal Link Dist (m)		89.6		196.4		37.8		53.8
Turn Bay Length (m)	30.0		25.0					
Base Capacity (vph)	179	2521	319	2514		188		367
Starvation Cap Reductn	0	0	0	19		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.11	0.42	0.02	0.59		0.07		0.13

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 63 (53%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 100

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 13.7 — Intersection LOS: B
Intersection Capacity Utilization 65.4% — ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Robertson & Vanier

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	948	151	1437	78	89
Future Volume (vph)	948	151	1437	78	89
Lane Group Flow (vph)	1029	151	1437	78	89
Turn Type	NA	pm+pt	NA	Perm	Perm
Protected Phases	2	1	6		
Permitted Phases		6		4	4
Detector Phase	2	1	6	4	4
Switch Phase					
Minimum Initial (s)	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	33.1	11.1	33.1	31.1	31.1
Total Split (s)	71.0	17.0	88.0	32.0	32.0
Total Split (%)	59.2%	14.2%	73.3%	26.7%	26.7%
Maximum Green (s)	64.9	10.9	81.9	25.9	25.9
Yellow Time (s)	3.7	3.7	3.7	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	3.1	3.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	None	C-Max	None	None
Walk Time (s)	7.0		7.0	10.0	10.0
Flash Dont Walk (s)	20.0		20.0	15.0	15.0
Pedestrian Calls (#/hr)	10		0	16	16
Act Effct Green (s)	76.8	91.6	91.6	16.2	16.2
Actuated g/C Ratio	0.64	0.76	0.76	0.14	0.14
v/c Ratio	0.49	0.41	0.57	0.35	0.33
Control Delay	6.8	11.4	7.8	49.2	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	6.8	11.4	7.8	49.2	11.6
LOS	A	B	A	D	B
Approach Delay	6.8		8.2	29.1	
Approach LOS	A		A	C	
Queue Length 50th (m)	21.2	8.1	44.7	17.8	0.0
Queue Length 95th (m)	8.4	24.8	79.4	29.2	13.4
Internal Link Dist (m)	196.4		308.7	117.3	
Turn Bay Length (m)		60.0		20.0	
Base Capacity (vph)	2093	397	2531	357	373
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.49	0.38	0.57	0.22	0.24

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 56 (47%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 80

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.57
Intersection Signal Delay: 8.9 — Intersection LOS: A
Intersection Capacity Utilization 68.0% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 7: Old Richmond & Robertson

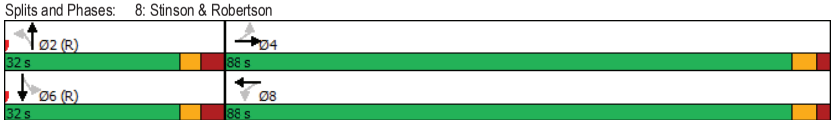
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	17	1080	42	1368	12	1	20	1
Future Volume (vph)	17	1080	42	1368	12	1	20	1
Lane Group Flow (vph)	17	1105	42	1373	0	38	0	68
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.8	26.8	26.8	26.8	31.6	31.6	31.6	31.6
Total Split (s)	88.0	88.0	88.0	88.0	32.0	32.0	32.0	32.0
Total Split (%)	73.3%	73.3%	73.3%	73.3%	26.7%	26.7%	26.7%	26.7%
Maximum Green (s)	82.2	82.2	82.2	82.2	25.4	25.4	25.4	25.4
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0
All-Red Time (s)	2.1	2.1	2.1	2.1	3.6	3.6	3.6	3.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	5.8	5.8	5.8	5.8		6.6		6.6
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0	14.0	14.0	14.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	14	14	17	17	10	10	5	5
Act Effct Green (s)	68.8	68.8	68.8	68.8		38.8		38.8
Actuated g/C Ratio	0.57	0.57	0.57	0.57		0.32		0.32
v/c Ratio	0.15	0.59	0.23	0.72		0.08		0.14
Control Delay	4.8	7.8	25.4	40.3		18.2		15.7
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	4.8	7.8	25.4	40.3		18.2		15.7
LOS	A	A	C	D		B		B
Approach Delay		7.7		39.9		18.2		15.7
Approach LOS		A		D		B		B
Queue Length 50th (m)	0.3	130.5	8.7	175.3		2.1		3.4
Queue Length 95th (m)	m0.7	12.1	m12.6	190.8		11.6		15.9
Internal Link Dist (m)		308.7		283.3		126.0		117.1
Turn Bay Length (m)	75.0		50.0					
Base Capacity (vph)	131	2241	223	2269		484		491
Starvation Cap Reductn	0	0	0	0		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.13	0.49	0.19	0.61		0.08		0.14

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 31 (26%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 70

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 25.3 Intersection LOS: C
Intersection Capacity Utilization 71.3% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Stinson & Robertson



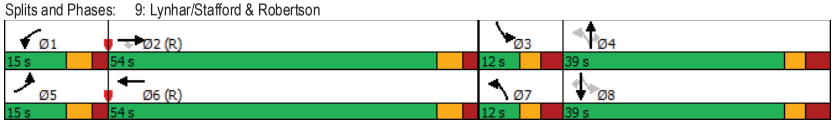
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	129	914	62	58	1089	94	41	80	201	36	175
Future Volume (vph)	129	914	62	58	1089	94	41	80	201	36	175
Lane Group Flow (vph)	129	914	62	58	1166	94	41	80	201	36	175
Turn Type	Prot	NA	Perm	Prot	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6	7	4		3	8	
Permitted Phases			2			4		4	8		8
Detector Phase	5	2	2	1	6	7	4	4	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.1	24.3	24.3	11.1	24.3	11.2	24.7	24.7	11.2	24.7	24.7
Total Split (s)	15.0	54.0	54.0	15.0	54.0	12.0	39.0	39.0	12.0	39.0	39.0
Total Split (%)	12.5%	45.0%	45.0%	12.5%	45.0%	10.0%	32.5%	32.5%	10.0%	32.5%	32.5%
Maximum Green (s)	8.9	47.7	47.7	8.9	47.7	5.8	32.3	32.3	5.8	32.3	32.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.4	2.6	2.6	2.4	2.6	3.2	3.7	3.7	3.2	3.7	3.7
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
Total Lost Time (s)	6.1	6.3	6.3	6.1	6.3	6.2	6.7	6.7	6.2	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		16	16		14		29	29		22	22
Act Effct Green (s)	17.9	66.9	66.9	9.5	56.2	19.0	14.8	14.8	22.3	14.8	14.8
Actuated g/C Ratio	0.15	0.56	0.56	0.08	0.47	0.16	0.12	0.12	0.19	0.12	0.12
v/c Ratio	0.52	0.50	0.07	0.44	0.76	0.45	0.19	0.27	0.87	0.17	0.53
Control Delay	52.3	16.1	1.0	62.3	31.3	46.1	47.7	2.4	79.0	47.2	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.3	16.1	1.0	62.3	31.3	46.1	47.7	2.4	79.0	47.2	13.0
LOS	D	B	A	E	C	D	D	A	E	D	B
Approach Delay		19.5			32.7		30.2			48.2	
Approach LOS		B			C		C			D	
Queue Length 50th (m)	18.3	115.6	1.9	13.3	121.7	17.6	8.5	0.0	40.3	7.5	0.0
Queue Length 95th (m)	49.4	48.1	0.0	26.0	156.1	32.0	19.0	0.6	#83.2	17.2	19.7
Internal Link Dist (m)		283.3			201.3		115.2			173.5	
Turn Bay Length (m)	85.0		50.0	100.0		30.0		30.0	35.0		75.0
Base Capacity (vph)	247	1831	831	142	1528	210	469	471	231	469	511
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.50	0.07	0.41	0.76	0.45	0.09	0.17	0.87	0.08	0.34

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 7 (6%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 29.7 Intersection LOS: C
Intersection Capacity Utilization 76.4% 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: 9: Lynhar/Stafford & Robertson



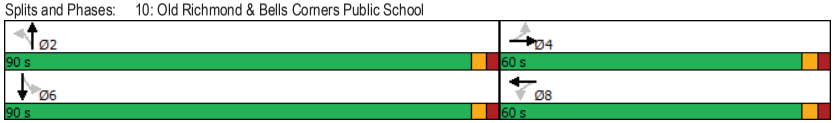
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	31	1	17	0	10	148	16	209
Future Volume (vph)	31	1	17	0	10	148	16	209
Lane Group Flow (vph)	0	49	0	33	0	174	0	240
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.4	40.4	40.4	40.4	70.4	70.4	70.4	70.4
Total Split (s)	60.0	60.0	60.0	60.0	90.0	90.0	90.0	90.0
Total Split (%)	40.0%	40.0%	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%
Maximum Green (s)	54.6	54.6	54.6	54.6	84.6	84.6	84.6	84.6
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.4		5.4		5.4		5.4
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min
Walk Time (s)	7.0	7.0	7.0	7.0	15.0	15.0	15.0	15.0
Flash Dont Walk (s)	7.0	7.0	7.0	7.0	5.0	5.0	5.0	5.0
Pedestrian Calls (#/hr)	23	23	4	4	43	43	10	10
Act Effct Green (s)		10.8		10.8		12.0		12.0
Actuated g/C Ratio		0.32		0.32		0.35		0.35
v/c Ratio		0.12		0.08		0.30		0.43
Control Delay		8.1		7.4		9.1		10.9
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		8.1		7.4		9.1		10.9
LOS		A		A		A		B
Approach Delay		8.1		7.4		9.1		10.9
Approach LOS		A		A		A		B
Queue Length 50th (m)		1.0		0.5		5.9		8.7
Queue Length 95th (m)		6.9		5.0		16.2		22.6
Internal Link Dist (m)		44.5		37.9		236.7		117.3
Turn Bay Length (m)								
Base Capacity (vph)		1271		1297		1629		1562
Starvation Cap Reductn		0		0		0		177
Spillback Cap Reductn		0		0		0		0
Storage Cap Reductn		0		0		0		0
Reduced v/c Ratio		0.04		0.03		0.11		0.17

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 33.9
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.43

Intersection Signal Delay: 9.8	Intersection LOS: A
Intersection Capacity Utilization 37.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 10: Old Richmond & Bells Corners Public School



Appendix H

Synchro Intersection Worksheets – 2034 Future Background Conditions

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	102	177	47	472	1327	63
Future Volume (vph)	102	177	47	472	1327	63
Lane Group Flow (vph)	102	177	47	472	1327	63
Turn Type	Perm	Perm	pm+pt	NA	NA	Perm
Protected Phases			5	2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	28.3	28.3	10.6	15.6	24.6	24.6
Total Split (s)	28.3	28.3	11.0	51.7	40.7	40.7
Total Split (%)	35.4%	35.4%	13.8%	64.6%	50.9%	50.9%
Maximum Green (s)	22.0	22.0	5.4	46.1	35.1	35.1
Yellow Time (s)	4.6	4.6	3.7	3.7	3.7	3.7
All-Red Time (s)	1.7	1.7	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	5.6	5.6	5.6	5.6
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0			14.0	14.0
Flash Dont Walk (s)	15.0	15.0			5.0	5.0
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	11.3	11.3	56.8	56.8	49.5	49.5
Actuated g/C Ratio	0.14	0.14	0.71	0.71	0.62	0.62
v/c Ratio	0.44	0.51	0.18	0.20	0.66	0.07
Control Delay	37.1	12.5	5.6	3.5	13.6	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.1	12.5	5.6	3.5	13.6	4.1
LOS	D	B	A	A	B	A
Approach Delay	21.5			3.7	13.2	
Approach LOS	C			A	B	
Queue Length 50th (m)	14.6	2.2	1.7	9.1	69.2	0.8
Queue Length 95th (m)	27.3	18.1	3.6	11.2	109.6	6.4
Internal Link Dist (m)	1760.7			270.5	415.7	
Turn Bay Length (m)		115.0	125.0			45.0
Base Capacity (vph)	455	519	266	2307	2010	927
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.34	0.18	0.20	0.66	0.07

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 6 (8%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 80

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 12.0 — Intersection LOS: B
Intersection Capacity Utilization 60.2% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: Moodie & Timm

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	90	28	18	6	74	471	116	1113
Future Volume (vph)	90	28	18	6	74	471	116	1113
Lane Group Flow (vph)	90	53	18	14	74	535	116	1299
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	34.0	34.0	34.0	34.0	30.7	30.7	30.7	30.7
Total Split (s)	34.0	34.0	34.0	34.0	46.0	46.0	46.0	46.0
Total Split (%)	42.5%	42.5%	42.5%	42.5%	57.5%	57.5%	57.5%	57.5%
Maximum Green (s)	28.0	28.0	28.0	28.0	40.3	40.3	40.3	40.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	2.7	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	5.7	5.7	5.7	5.7
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	3	3	3	3	6	6	3	3
Act Effct Green (s)	14.4	14.4	14.4	14.4	58.3	58.3	58.3	58.3
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.73	0.73	0.73	0.73
v/c Ratio	0.39	0.18	0.08	0.05	0.33	0.23	0.20	0.56
Control Delay	31.8	16.4	24.2	16.1	14.2	5.9	13.2	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.8	16.4	24.2	16.1	14.2	5.9	13.2	13.2
LOS	C	B	C	B	B	A	B	B
Approach Delay		26.1		20.7		6.9		13.2
Approach LOS		C		C		A		B
Queue Length 50th (m)	12.9	3.8	2.5	0.8	3.4	11.1	7.5	57.2
Queue Length 95th (m)	19.8	9.9	6.0	4.2	21.2	32.6	m22.6	101.4
Internal Link Dist (m)		192.7		115.6		159.6		270.5
Turn Bay Length (m)	35.0		25.0		75.0		45.0	
Base Capacity (vph)	451	536	439	497	225	2350	573	2325
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.10	0.04	0.03	0.33	0.23	0.20	0.56

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 68 (85%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 80

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.56
Intersection Signal Delay: 12.4 Intersection LOS: B
Intersection Capacity Utilization 74.6% ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Moodie & Fitzgerald

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	16	18	594	15	22	1143
Future Volume (vph)	16	18	594	15	22	1143
Lane Group Flow (vph)	16	18	594	15	22	1143
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	32.6	32.6	28.9	28.9	23.9	23.9
Total Split (s)	33.0	33.0	67.0	67.0	67.0	67.0
Total Split (%)	33.0%	33.0%	67.0%	67.0%	67.0%	67.0%
Maximum Green (s)	27.4	27.4	61.1	61.1	61.1	61.1
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.3	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.9	5.9	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	20.0	20.0	16.0	16.0		
Pedestrian Calls (#/hr)	0	0	0	0		
Act Effct Green (s)	10.0	10.0	87.1	87.1	87.1	87.1
Actuated g/C Ratio	0.10	0.10	0.87	0.87	0.87	0.87
v/c Ratio	0.11	0.11	0.21	0.01	0.04	0.40
Control Delay	43.1	19.4	2.2	1.1	2.5	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.1	19.4	2.2	1.1	2.5	3.0
LOS	D	B	A	A	A	A
Approach Delay	30.6		2.2			2.9
Approach LOS	C		A			A
Queue Length 50th (m)	2.9	0.0	12.5	0.0	0.8	30.4
Queue Length 95th (m)	9.2	6.5	16.8	1.1	2.2	38.7
Internal Link Dist (m)	125.7		176.3			159.6
Turn Bay Length (m)		10.0		45.0	60.0	
Base Capacity (vph)	389	419	2832	1293	563	2832
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	0.04	0.04	0.21	0.01	0.04	0.40

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 58 (58%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 65

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.40
Intersection Signal Delay: 3.2 — Intersection LOS: A
Intersection Capacity Utilization 51.3% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Moodie & Loblaws Access

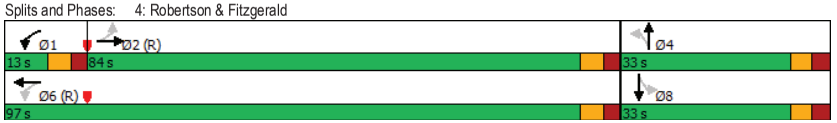
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	181	1360	24	468	4	3	62	8
Future Volume (vph)	181	1360	24	468	4	3	62	8
Lane Group Flow (vph)	181	1365	24	602	4	12	62	70
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		2	1	6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	2	2	1	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	28.4	28.4	11.2	28.4	32.3	32.3	32.3	32.3
Total Split (s)	84.0	84.0	13.0	97.0	33.0	33.0	33.0	33.0
Total Split (%)	64.6%	64.6%	10.0%	74.6%	25.4%	25.4%	25.4%	25.4%
Maximum Green (s)	77.6	77.6	6.8	90.6	26.7	26.7	26.7	26.7
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7	2.5	2.7	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.2	6.4	6.3	6.3	6.3	6.3
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	15.0	15.0		15.0	19.0	19.0	19.0	19.0
Pedestrian Calls (#/hr)	14	14		16	18	18	11	11
Act Effct Green (s)	93.0	93.0	100.8	100.6	16.7	16.7	16.7	16.7
Actuated g/C Ratio	0.72	0.72	0.78	0.77	0.13	0.13	0.13	0.13
v/c Ratio	0.35	0.58	0.09	0.26	0.03	0.06	0.38	0.30
Control Delay	12.3	12.5	5.2	5.3	44.0	26.1	55.9	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.3	12.5	5.2	5.3	44.0	26.1	55.9	16.1
LOS	B	B	A	A	D	C	E	B
Approach Delay		12.5		5.3		30.6		34.8
Approach LOS		B		A		C		C
Queue Length 50th (m)	15.5	78.4	0.4	3.7	1.0	0.7	15.5	1.9
Queue Length 95th (m)	40.8	142.1	m5.6	40.6	4.0	6.1	26.7	14.3
Internal Link Dist (m)		422.4		92.3		38.8		177.2
Turn Bay Length (m)	40.0		50.0		30.0		45.0	
Base Capacity (vph)	518	2370	269	2352	250	296	261	342
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.58	0.09	0.26	0.02	0.04	0.24	0.20

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 97 (75%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.58
Intersection Signal Delay: 11.9 Intersection LOS: B
Intersection Capacity Utilization 74.1% ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Robertson & Fitzgerald



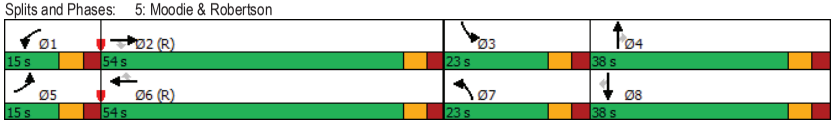
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	1226	116	81	311	162	229	366	310	362	294	124
Future Volume (vph)	82	1226	116	81	311	162	229	366	310	362	294	124
Lane Group Flow (vph)	82	1226	116	81	311	162	229	366	310	362	294	124
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
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)	11.4	34.4	34.4	11.4	34.4	34.4	11.5	37.7	37.7	11.5	37.7	37.7
Total Split (s)	15.0	54.0	54.0	15.0	54.0	54.0	23.0	38.0	38.0	23.0	38.0	38.0
Total Split (%)	11.5%	41.5%	41.5%	11.5%	41.5%	41.5%	17.7%	29.2%	29.2%	17.7%	29.2%	29.2%
Maximum Green (s)	8.6	47.6	47.6	8.6	47.6	47.6	16.5	31.3	31.3	16.5	31.3	31.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.8	3.0	3.0	2.8	3.0	3.0
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)	6.4	6.4	6.4	6.4	6.4	6.4	6.5	6.7	6.7	6.5	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		21.0	21.0		21.0	21.0		24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		4	4		6	6		4	4		6	6
Act Effct Green (s)	10.7	54.6	54.6	10.3	54.3	54.3	14.1	22.7	22.7	16.4	24.9	24.9
Actuated g/C Ratio	0.08	0.42	0.42	0.08	0.42	0.42	0.11	0.17	0.17	0.13	0.19	0.19
v/c Ratio	0.63	0.88	0.17	0.62	0.24	0.23	0.66	0.65	0.84	0.89	0.49	0.33
Control Delay	92.2	34.4	1.1	87.5	24.2	8.3	64.7	54.5	46.9	80.7	49.0	7.4
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	92.2	34.4	1.1	87.5	24.2	8.3	64.7	54.5	46.9	80.7	49.0	7.4
LOS	F	C	A	F	C	A	E	D	D	F	D	A
Approach Delay		35.0			28.8			54.5			57.1	
Approach LOS		D			C			D			E	
Queue Length 50th (m)	20.6	155.0	1.5	18.9	33.4	14.4	29.3	46.7	43.9	47.7	36.0	0.0
Queue Length 95th (m)	m#49.0	#210.8	2.3	#48.4	20.3	15.1	42.1	57.8	72.8	#74.0	46.8	12.5
Internal Link Dist (m)		105.2			158.4			620.1			176.3	
Turn Bay Length (m)	75.0			70.0			83.0		60.0	80.0		75.0
Base Capacity (vph)	132	1392	675	133	1319	700	408	782	458	408	761	441
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	0.62	0.88	0.17	0.61	0.24	0.23	0.56	0.47	0.68	0.89	0.39	0.28

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 119 (92%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 125

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 43.6 — Intersection LOS: D
Intersection Capacity Utilization 85.6% — 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: 5: Moodie & Robertson



Lane Group	EBL	EBT	WBL	WBT	SBL	SBT	Ø4
Lane Configurations							
Traffic Volume (vph)	9	1935	1	549	19	0	
Future Volume (vph)	9	1935	1	549	19	0	
Lane Group Flow (vph)	9	1935	1	560	0	31	
Turn Type	Perm	NA	Perm	NA	Perm	NA	
Protected Phases		2		6		9	4
Permitted Phases	2		6		9		
Detector Phase	2	2	6	6	9	9	
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.4	22.4	22.4	22.4	33.7	33.7	16.7
Total Split (s)	79.6	79.6	79.6	79.6	33.7	33.7	16.7
Total Split (%)	61.2%	61.2%	61.2%	61.2%	25.9%	25.9%	13%
Maximum Green (s)	73.2	73.2	73.2	73.2	27.0	27.0	10.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0	3.0
All-Red Time (s)	2.7	2.7	2.7	2.7	3.7	3.7	3.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.4	6.4	6.4	6.4		6.7	
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	11.0	11.0	
Flash Dont Walk (s)	9.0	9.0	9.0	9.0	16.0	16.0	
Pedestrian Calls (#/hr)	6	6	4	4	3	3	
Act Effct Green (s)	112.7	112.7	112.7	112.7		13.4	
Actuated g/C Ratio	0.87	0.87	0.87	0.87		0.10	
v/c Ratio	0.01	0.67	0.01	0.20		0.13	
Control Delay	5.3	10.2	8.0	5.0		1.2	
Queue Delay	0.0	0.6	0.0	0.0		0.0	
Total Delay	5.3	10.8	8.0	5.0		1.2	
LOS	A	B	A	A		A	
Approach Delay		10.8		5.1		1.2	
Approach LOS		B		A		A	
Queue Length 50th (m)	0.2	81.4	0.1	32.8		0.0	
Queue Length 95th (m)	m0.9	150.2	m0.6	56.6		0.0	
Internal Link Dist (m)		89.6		196.4		53.8	
Turn Bay Length (m)	30.0		25.0				
Base Capacity (vph)	664	2875	67	2781		379	
Starvation Cap Reductn	0	0	0	0		0	
Spillback Cap Reductn	0	496	0	0		0	
Storage Cap Reductn	0	0	0	0		0	
Reduced v/c Ratio	0.01	0.81	0.01	0.20		0.08	

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 112 (86%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 130

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 9.4 — Intersection LOS: A
Intersection Capacity Utilization 77.1% — ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Robertson & Vanier

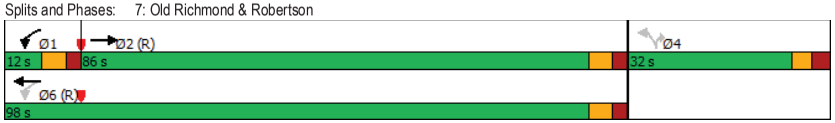
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	1928	45	517	39	218
Future Volume (vph)	1928	45	517	39	218
Lane Group Flow (vph)	1962	45	517	39	218
Turn Type	NA	pm+pt	NA	Perm	Perm
Protected Phases	2	1	6		
Permitted Phases		6		4	4
Detector Phase	2	1	6	4	4
Switch Phase					
Minimum Initial (s)	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	33.1	11.1	33.1	31.1	31.1
Total Split (s)	86.0	12.0	98.0	32.0	32.0
Total Split (%)	66.2%	9.2%	75.4%	24.6%	24.6%
Maximum Green (s)	79.9	5.9	91.9	25.9	25.9
Yellow Time (s)	3.7	3.7	3.7	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	3.1	3.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	None	C-Max	None	None
Walk Time (s)	7.0		7.0	10.0	10.0
Flash Dont Walk (s)	20.0		20.0	15.0	15.0
Pedestrian Calls (#/hr)	5		0	3	3
Act Effct Green (s)	90.2	100.0	100.0	17.8	17.8
Actuated g/C Ratio	0.69	0.77	0.77	0.14	0.14
v/c Ratio	0.86	0.34	0.21	0.18	0.80
Control Delay	23.2	27.2	4.6	48.8	51.9
Queue Delay	46.9	0.0	0.0	0.0	0.0
Total Delay	70.1	27.2	4.6	48.8	52.0
LOS	E	C	A	D	D
Approach Delay	70.1		6.4	51.5	
Approach LOS	E		A	D	
Queue Length 50th (m)	263.1	2.7	15.4	9.0	32.8
Queue Length 95th (m)	#316.9	15.7	26.2	18.4	57.2
Internal Link Dist (m)	196.4		308.7	117.3	
Turn Bay Length (m)		60.0		20.0	
Base Capacity (vph)	2287	132	2455	310	358
Starvation Cap Reductn	599	0	0	0	0
Spillback Cap Reductn	29	0	0	0	1
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.16	0.34	0.21	0.13	0.61

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 17 (13%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 120

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 55.5 — Intersection LOS: E
Intersection Capacity Utilization 81.8% — 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: 7: Old Richmond & Robertson



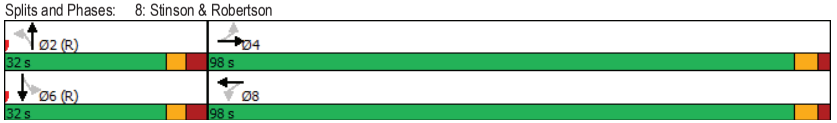
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	54	2001	20	636	9	2	2	0
Future Volume (vph)	54	2001	20	636	9	2	2	0
Lane Group Flow (vph)	54	2007	20	658	0	43	0	13
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.8	26.8	26.8	26.8	31.6	31.6	31.6	31.6
Total Split (s)	98.0	98.0	98.0	98.0	32.0	32.0	32.0	32.0
Total Split (%)	75.4%	75.4%	75.4%	75.4%	24.6%	24.6%	24.6%	24.6%
Maximum Green (s)	92.2	92.2	92.2	92.2	25.4	25.4	25.4	25.4
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0
All-Red Time (s)	2.1	2.1	2.1	2.1	3.6	3.6	3.6	3.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	5.8	5.8	5.8	5.8		6.6		6.6
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0	14.0	14.0	14.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	3	3	11	11	0	0	6	6
Act Effct Green (s)	92.2	92.2	92.2	92.2		25.4		25.4
Actuated g/C Ratio	0.71	0.71	0.71	0.71		0.20		0.20
v/c Ratio	0.12	0.85	0.35	0.29		0.14		0.05
Control Delay	2.5	8.2	21.9	2.7		26.0		8.2
Queue Delay	0.0	0.9	0.0	0.0		0.0		0.0
Total Delay	2.5	9.1	21.9	2.7		26.0		8.2
LOS	A	A	C	A		C		A
Approach Delay		8.9		3.3		26.0		8.2
Approach LOS		A		A		C		A
Queue Length 50th (m)	1.0	105.2	0.3	6.3		4.2		0.0
Queue Length 95th (m)	m1.4	25.3	7.6	8.7		14.6		3.6
Internal Link Dist (m)		308.7		283.3		126.0		117.1
Turn Bay Length (m)	75.0		50.0					
Base Capacity (vph)	465	2350	57	2293		303		273
Starvation Cap Reductn	0	130	0	0		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.12	0.90	0.35	0.29		0.14		0.05

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 129 (99%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 7.8 — Intersection LOS: A
Intersection Capacity Utilization 89.8% — ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Stinson & Robertson



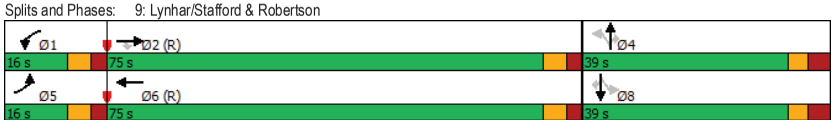
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	42	1880	27	14	660	33	11	101	31	4	53
Future Volume (vph)	42	1880	27	14	660	33	11	101	31	4	53
Lane Group Flow (vph)	42	1880	27	14	743	33	11	101	31	4	53
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		4			8	
Permitted Phases			2			4		4	8		8
Detector Phase	5	2	2	1	6	4	4	4	8	8	8
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.1	24.3	24.3	11.1	24.3	24.7	24.7	24.7	24.7	24.7	24.7
Total Split (s)	16.0	75.0	75.0	16.0	75.0	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	12.3%	57.7%	57.7%	12.3%	57.7%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Maximum Green (s)	9.9	68.7	68.7	9.9	68.7	32.3	32.3	32.3	32.3	32.3	32.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.4	2.6	2.6	2.4	2.6	3.7	3.7	3.7	3.7	3.7	3.7
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
Total Lost Time (s)	6.1	6.3	6.3	6.1	6.3	6.7	6.7	6.7	6.7	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		4	4		5	4	4	4	4	4	4
Act Effct Green (s)	9.0	99.7	99.7	6.7	92.5	11.7	11.7	11.7	11.7	11.7	11.7
Actuated g/C Ratio	0.07	0.77	0.77	0.05	0.71	0.09	0.09	0.09	0.09	0.09	0.09
v/c Ratio	0.40	0.74	0.02	0.16	0.33	0.28	0.07	0.45	0.30	0.03	0.27
Control Delay	48.9	10.4	0.2	62.7	8.4	60.5	53.3	16.5	61.5	52.0	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.9	10.4	0.2	62.7	8.4	60.5	53.3	16.5	61.5	52.0	7.6
LOS	D	B	A	E	A	E	D	B	E	D	A
Approach Delay		11.0			9.4		29.3			28.6	
Approach LOS		B			A		C			C	
Queue Length 50th (m)	10.7	80.3	0.0	3.5	33.7	8.2	2.7	0.0	7.7	1.0	0.0
Queue Length 95th (m)	m12.4	116.6	m0.0	10.3	58.1	17.8	8.2	16.0	16.9	4.3	5.7
Internal Link Dist (m)		283.3			201.3		115.2			173.5	
Turn Bay Length (m)	85.0		50.0	100.0		30.0		30.0	35.0		75.0
Base Capacity (vph)	122	2543	1118	126	2261	321	433	436	290	433	406
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.74	0.02	0.11	0.33	0.10	0.03	0.23	0.11	0.01	0.13

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 36 (28%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 12.0 — Intersection LOS: B
Intersection Capacity Utilization 88.8% — ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Lynhar/Stafford & Robertson



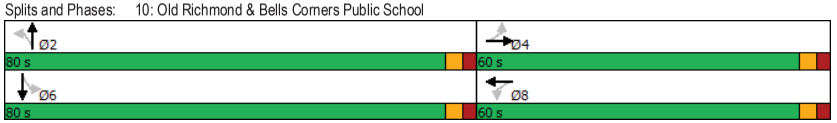
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	20	0	6	0	15	214	37	105
Future Volume (vph)	20	0	6	0	15	214	37	105
Lane Group Flow (vph)	0	29	0	32	0	274	0	178
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.4	40.4	40.4	40.4	45.4	45.4	45.4	45.4
Total Split (s)	60.0	60.0	60.0	60.0	80.0	80.0	80.0	80.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	57.1%	57.1%	57.1%	57.1%
Maximum Green (s)	54.6	54.6	54.6	54.6	74.6	74.6	74.6	74.6
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.4		5.4		5.4		5.4
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min
Walk Time (s)	7.0	7.0	7.0	7.0	15.0	15.0	15.0	15.0
Flash Dont Walk (s)	7.0	7.0	7.0	7.0	5.0	5.0	5.0	5.0
Pedestrian Calls (#/hr)	1	1	10	10	15	15	18	18
Act Effct Green (s)		10.8		10.8		11.9		11.9
Actuated g/C Ratio		0.32		0.32		0.35		0.35
v/c Ratio		0.07		0.07		0.48		0.35
Control Delay		6.8		5.9		11.3		9.6
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		6.8		5.9		11.3		9.6
LOS		A		A		B		A
Approach Delay		6.8		5.9		11.3		9.6
Approach LOS		A		A		B		A
Queue Length 50th (m)		0.3		0.3		9.9		5.8
Queue Length 95th (m)		4.4		4.3		25.3		16.7
Internal Link Dist (m)		44.5		37.9		236.7		117.3
Turn Bay Length (m)								
Base Capacity (vph)		1294		1397		1600		1405
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		0.02		0.02		0.17		0.13

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 33.8
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.48

Intersection Signal Delay: 10.1	Intersection LOS: B
Intersection Capacity Utilization 41.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 10: Old Richmond & Bells Corners Public School



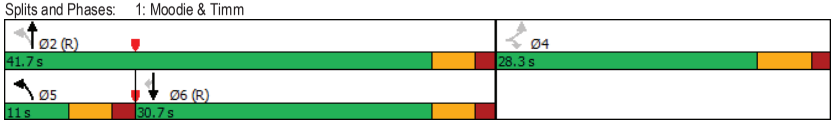
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	54	59	149	1239	794	149
Future Volume (vph)	54	59	149	1239	794	149
Lane Group Flow (vph)	54	59	149	1239	794	149
Turn Type	Perm	Perm	pm+pt	NA	NA	Perm
Protected Phases			5	2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	28.3	28.3	10.6	15.6	24.6	24.6
Total Split (s)	28.3	28.3	11.0	41.7	30.7	30.7
Total Split (%)	40.4%	40.4%	15.7%	59.6%	43.9%	43.9%
Maximum Green (s)	22.0	22.0	5.4	36.1	25.1	25.1
Yellow Time (s)	4.6	4.6	3.7	3.7	3.7	3.7
All-Red Time (s)	1.7	1.7	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	5.6	5.6	5.6	5.6
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0			14.0	14.0
Flash Dont Walk (s)	15.0	15.0			5.0	5.0
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	10.1	10.1	51.3	52.4	37.6	37.6
Actuated g/C Ratio	0.14	0.14	0.73	0.75	0.54	0.54
v/c Ratio	0.23	0.22	0.31	0.50	0.45	0.17
Control Delay	29.2	10.6	7.6	10.0	12.5	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.2	10.6	7.6	10.0	12.5	2.8
LOS	C	B	A	B	B	A
Approach Delay	19.5			9.8	10.9	
Approach LOS	B			A	B	
Queue Length 50th (m)	6.4	0.0	9.9	58.0	34.3	0.0
Queue Length 95th (m)	15.6	9.1	13.7	91.0	52.8	8.5
Internal Link Dist (m)	1760.7			270.5	415.7	
Turn Bay Length (m)		115.0	125.0			45.0
Base Capacity (vph)	521	506	477	2482	1763	865
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.12	0.31	0.50	0.45	0.17

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 55 (79%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 65

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.50
Intersection Signal Delay: 10.7 — Intersection LOS: B
Intersection Capacity Utilization 54.8% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: Moodie & Timm



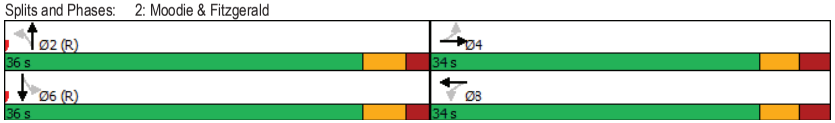
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	207	6	91	20	51	1007	30	727
Future Volume (vph)	207	6	91	20	51	1007	30	727
Lane Group Flow (vph)	207	73	91	75	51	1054	30	796
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	34.0	34.0	34.0	34.0	30.7	30.7	30.7	30.7
Total Split (s)	34.0	34.0	34.0	34.0	36.0	36.0	36.0	36.0
Total Split (%)	48.6%	48.6%	48.6%	48.6%	51.4%	51.4%	51.4%	51.4%
Maximum Green (s)	28.0	28.0	28.0	28.0	30.3	30.3	30.3	30.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	2.7	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	5.7	5.7	5.7	5.7
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	4	4	1	1	8	8	2	2
Act Effct Green (s)	17.9	17.9	17.9	17.9	40.4	40.4	40.4	40.4
Actuated g/C Ratio	0.26	0.26	0.26	0.26	0.58	0.58	0.58	0.58
v/c Ratio	0.66	0.17	0.29	0.18	0.18	0.55	0.14	0.42
Control Delay	32.2	6.1	20.9	9.4	12.1	12.0	3.0	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.2	6.1	20.9	9.4	12.1	12.0	3.0	2.6
LOS	C	A	C	A	B	B	A	A
Approach Delay		25.4		15.7		12.0		2.6
Approach LOS		C		B		B		A
Queue Length 50th (m)	24.6	0.6	9.7	2.9	2.8	39.0	0.1	0.9
Queue Length 95th (m)	35.5	7.3	16.5	9.3	11.6	79.3	m0.5	3.5
Internal Link Dist (m)		192.7		115.6		159.6		270.5
Turn Bay Length (m)	35.0		25.0		75.0		45.0	
Base Capacity (vph)	494	628	493	643	277	1901	220	1888
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.12	0.18	0.12	0.18	0.55	0.14	0.42

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: 65

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 10.6 Intersection LOS: B
Intersection Capacity Utilization 73.2% ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Moodie & Fitzgerald

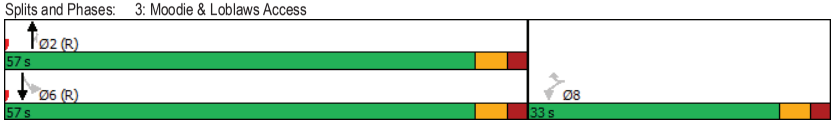


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	107	51	1049	54	75	812
Future Volume (vph)	107	51	1049	54	75	812
Lane Group Flow (vph)	107	51	1049	54	75	812
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	32.6	32.6	28.9	28.9	23.9	23.9
Total Split (s)	33.0	33.0	57.0	57.0	57.0	57.0
Total Split (%)	36.7%	36.7%	63.3%	63.3%	63.3%	63.3%
Maximum Green (s)	27.4	27.4	51.1	51.1	51.1	51.1
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.3	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.9	5.9	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	20.0	20.0	16.0	16.0		
Pedestrian Calls (#/hr)	10	10	2	2		
Act Effct Green (s)	14.2	14.2	68.6	68.6	68.6	68.6
Actuated g/C Ratio	0.16	0.16	0.76	0.76	0.76	0.76
v/c Ratio	0.41	0.19	0.42	0.05	0.22	0.32
Control Delay	37.1	9.7	6.6	2.2	8.5	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.1	9.7	6.6	2.2	8.5	5.8
LOS	D	A	A	A	A	A
Approach Delay	28.2		6.4			6.0
Approach LOS	C		A			A
Queue Length 50th (m)	17.6	0.0	28.5	0.0	3.2	20.0
Queue Length 95th (m)	26.5	7.8	72.6	4.5	15.4	51.6
Internal Link Dist (m)	125.7		176.3			159.6
Turn Bay Length (m)		10.0		45.0	60.0	
Base Capacity (vph)	504	468	2501	1116	337	2501
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.11	0.42	0.05	0.22	0.32

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 9 (10%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 65

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.42
Intersection Signal Delay: 7.8 — Intersection LOS: A
Intersection Capacity Utilization 65.8% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 3: Moodie & Loblaws Access



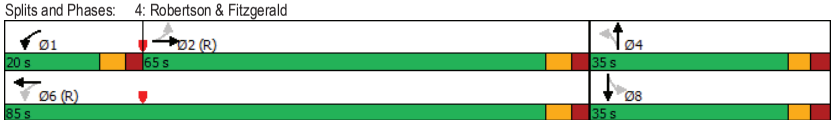
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	32	688	176	1182	60	24	108	39
Future Volume (vph)	32	688	176	1182	60	24	108	39
Lane Group Flow (vph)	32	718	176	1226	60	179	108	188
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		2	1	6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	2	2	1	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	28.4	28.4	11.2	28.4	32.3	32.3	32.3	32.3
Total Split (s)	65.0	65.0	20.0	85.0	35.0	35.0	35.0	35.0
Total Split (%)	54.2%	54.2%	16.7%	70.8%	29.2%	29.2%	29.2%	29.2%
Maximum Green (s)	58.6	58.6	13.8	78.6	28.7	28.7	28.7	28.7
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7	2.5	2.7	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.2	6.4	6.3	6.3	6.3	6.3
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	15.0	15.0		15.0	19.0	19.0	19.0	19.0
Pedestrian Calls (#/hr)	23	23		22	40	40	18	18
Act Effct Green (s)	67.9	67.9	84.3	84.1	23.2	23.2	23.2	23.2
Actuated g/C Ratio	0.57	0.57	0.70	0.70	0.19	0.19	0.19	0.19
v/c Ratio	0.15	0.39	0.38	0.53	0.36	0.45	0.64	0.52
Control Delay	17.6	16.4	7.5	6.3	46.3	12.4	60.9	26.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.6	16.4	7.5	6.3	46.3	12.4	60.9	26.0
LOS	B	B	A	A	D	B	E	C
Approach Delay		16.4		6.5		20.9		38.7
Approach LOS		B		A		C		D
Queue Length 50th (m)	3.6	49.5	6.9	27.2	12.0	4.6	22.9	19.3
Queue Length 95th (m)	10.7	70.2	m12.8	40.3	24.6	23.3	41.7	41.1
Internal Link Dist (m)		422.4		92.3		38.8		177.2
Turn Bay Length (m)	40.0		50.0		30.0		45.0	
Base Capacity (vph)	215	1860	502	2306	205	460	209	426
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.39	0.35	0.53	0.29	0.39	0.52	0.44

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 105 (88%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 75

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 14.1 Intersection LOS: B
Intersection Capacity Utilization 93.6% ICU Level of Service F
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Robertson & Fitzgerald



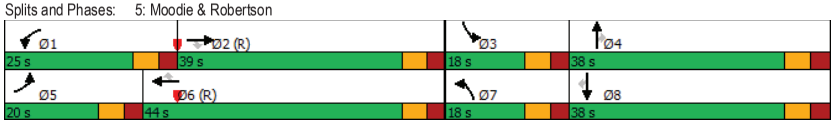
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	573	272	230	922	338	229	376	155	290	434	203
Future Volume (vph)	138	573	272	230	922	338	229	376	155	290	434	203
Lane Group Flow (vph)	138	573	272	230	922	338	229	376	155	290	434	203
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
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)	11.4	34.4	34.4	11.4	34.4	34.4	11.5	37.7	37.7	11.5	37.7	37.7
Total Split (s)	20.0	39.0	39.0	25.0	44.0	44.0	18.0	38.0	38.0	18.0	38.0	38.0
Total Split (%)	16.7%	32.5%	32.5%	20.8%	36.7%	36.7%	15.0%	31.7%	31.7%	15.0%	31.7%	31.7%
Maximum Green (s)	13.6	32.6	32.6	18.6	37.6	37.6	11.5	31.3	31.3	11.5	31.3	31.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.8	3.0	3.0	2.8	3.0	3.0
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)	6.4	6.4	6.4	6.4	6.4	6.4	6.5	6.7	6.7	6.5	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		21.0	21.0		21.0	21.0		24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		15	15		5	5		21	21		12	12
Act Effct Green (s)	13.4	39.2	39.2	19.9	45.7	45.7	11.2	23.4	23.4	11.5	23.6	23.6
Actuated g/C Ratio	0.11	0.33	0.33	0.17	0.38	0.38	0.09	0.20	0.20	0.10	0.20	0.20
v/c Ratio	0.75	0.53	0.42	0.84	0.73	0.44	0.76	0.60	0.38	0.94	0.67	0.45
Control Delay	72.7	38.9	11.4	70.8	40.1	8.0	69.8	47.3	8.3	92.5	49.3	8.2
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	72.7	38.9	11.4	70.8	40.1	8.0	69.8	47.3	8.3	92.5	49.3	8.2
LOS	E	D	B	E	D	A	E	D	A	F	D	A
Approach Delay		36.0			37.6			46.1			53.8	
Approach LOS		D			D			D			D	
Queue Length 50th (m)	31.3	47.7	1.6	54.0	97.0	19.7	27.5	43.8	0.0	35.5	51.5	0.0
Queue Length 95th (m)	#61.6	78.8	30.7	#96.1	#139.7	20.3	#44.1	54.0	15.8	#61.8	62.3	17.8
Internal Link Dist (m)		105.2			158.4			620.1			176.3	
Turn Bay Length (m)	75.0			70.0			83.0		60.0	80.0		75.0
Base Capacity (vph)	195	1083	652	280	1264	762	308	840	487	308	856	526
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	0.71	0.53	0.42	0.82	0.73	0.44	0.74	0.45	0.32	0.94	0.51	0.39

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 105

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 42.4 — Intersection LOS: D
Intersection Capacity Utilization 85.6% — 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.

Splits and Phases: 5: Moodie & Robertson



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	19	1055	5	1435	6	0	27	0
Future Volume (vph)	19	1055	5	1435	6	0	27	0
Lane Group Flow (vph)	19	1059	5	1474	0	13	0	49
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		4		9
Permitted Phases	2		6		4		9	
Detector Phase	2	2	6	6	4	4	9	9
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.4	22.4	22.4	22.4	16.7	16.7	33.7	33.7
Total Split (s)	69.6	69.6	69.6	69.6	16.7	16.7	33.7	33.7
Total Split (%)	58.0%	58.0%	58.0%	58.0%	13.9%	13.9%	28.1%	28.1%
Maximum Green (s)	63.2	63.2	63.2	63.2	10.0	10.0	27.0	27.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0
All-Red Time (s)	2.7	2.7	2.7	2.7	3.7	3.7	3.7	3.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4		6.7		6.7
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0			11.0	11.0
Flash Dont Walk (s)	9.0	9.0	9.0	9.0			16.0	16.0
Pedestrian Calls (#/hr)	17	17	6	6			7	7
Act Effct Green (s)	91.4	91.4	91.4	91.4		10.0		13.4
Actuated g/C Ratio	0.76	0.76	0.76	0.76		0.08		0.11
v/c Ratio	0.11	0.42	0.02	0.59		0.07		0.21
Control Delay	26.4	21.2	8.2	8.6		0.7		3.0
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	26.4	21.2	8.2	8.6		0.7		3.0
LOS	C	C	A	A		A		A
Approach Delay		21.3		8.6		0.7		3.0
Approach LOS		C		A		A		A
Queue Length 50th (m)	1.2	66.2	0.2	37.3		0.0		0.0
Queue Length 95th (m)	m7.9	m153.2	m0.6	36.6		0.0		1.7
Internal Link Dist (m)		89.6		196.4		37.8		53.8
Turn Bay Length (m)	30.0		25.0					
Base Capacity (vph)	179	2521	319	2514		188		367
Starvation Cap Reductn	0	0	0	19		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.11	0.42	0.02	0.59		0.07		0.13

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 63 (53%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 100

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 13.7 — Intersection LOS: B
Intersection Capacity Utilization 65.4% — ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Robertson & Vanier

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	948	151	1437	78	89
Future Volume (vph)	948	151	1437	78	89
Lane Group Flow (vph)	1029	151	1437	78	89
Turn Type	NA	pm+pt	NA	Perm	Perm
Protected Phases	2	1	6		
Permitted Phases		6		4	4
Detector Phase	2	1	6	4	4
Switch Phase					
Minimum Initial (s)	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	33.1	11.1	33.1	31.1	31.1
Total Split (s)	71.0	17.0	88.0	32.0	32.0
Total Split (%)	59.2%	14.2%	73.3%	26.7%	26.7%
Maximum Green (s)	64.9	10.9	81.9	25.9	25.9
Yellow Time (s)	3.7	3.7	3.7	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	3.1	3.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	None	C-Max	None	None
Walk Time (s)	7.0		7.0	10.0	10.0
Flash Dont Walk (s)	20.0		20.0	15.0	15.0
Pedestrian Calls (#/hr)	10		0	16	16
Act Effct Green (s)	76.8	91.6	91.6	16.2	16.2
Actuated g/C Ratio	0.64	0.76	0.76	0.14	0.14
v/c Ratio	0.49	0.41	0.57	0.35	0.33
Control Delay	6.8	11.4	7.8	49.2	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	6.8	11.4	7.8	49.2	11.6
LOS	A	B	A	D	B
Approach Delay	6.8		8.2	29.1	
Approach LOS	A		A	C	
Queue Length 50th (m)	21.2	8.1	44.7	17.8	0.0
Queue Length 95th (m)	8.4	24.8	79.4	29.2	13.4
Internal Link Dist (m)	196.4		308.7	117.3	
Turn Bay Length (m)		60.0		20.0	
Base Capacity (vph)	2093	397	2531	357	373
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.49	0.38	0.57	0.22	0.24

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 56 (47%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 80

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.57
Intersection Signal Delay: 8.9 — Intersection LOS: A
Intersection Capacity Utilization 68.0% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 7: Old Richmond & Robertson

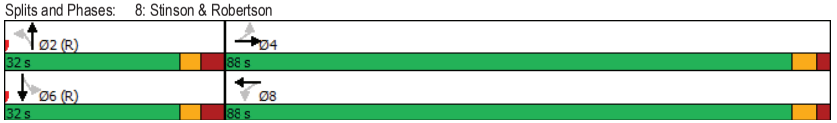
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	17	1080	42	1368	12	1	20	1
Future Volume (vph)	17	1080	42	1368	12	1	20	1
Lane Group Flow (vph)	17	1105	42	1373	0	38	0	68
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.8	26.8	26.8	26.8	31.6	31.6	31.6	31.6
Total Split (s)	88.0	88.0	88.0	88.0	32.0	32.0	32.0	32.0
Total Split (%)	73.3%	73.3%	73.3%	73.3%	26.7%	26.7%	26.7%	26.7%
Maximum Green (s)	82.2	82.2	82.2	82.2	25.4	25.4	25.4	25.4
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0
All-Red Time (s)	2.1	2.1	2.1	2.1	3.6	3.6	3.6	3.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	5.8	5.8	5.8	5.8		6.6		6.6
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0	14.0	14.0	14.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	14	14	17	17	10	10	5	5
Act Effct Green (s)	68.8	68.8	68.8	68.8		38.8		38.8
Actuated g/C Ratio	0.57	0.57	0.57	0.57		0.32		0.32
v/c Ratio	0.15	0.59	0.23	0.72		0.08		0.14
Control Delay	4.8	7.8	25.4	40.3		18.2		15.7
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	4.8	7.8	25.4	40.3		18.2		15.7
LOS	A	A	C	D		B		B
Approach Delay		7.7		39.9		18.2		15.7
Approach LOS		A		D		B		B
Queue Length 50th (m)	0.3	130.5	8.7	175.3		2.1		3.4
Queue Length 95th (m)	m0.7	12.1	m12.6	190.8		11.6		15.9
Internal Link Dist (m)		308.7		283.3		126.0		117.1
Turn Bay Length (m)	75.0		50.0					
Base Capacity (vph)	131	2241	223	2269		484		491
Starvation Cap Reductn	0	0	0	0		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.13	0.49	0.19	0.61		0.08		0.14

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 31 (26%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 70

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 25.3 — Intersection LOS: C
Intersection Capacity Utilization 71.3% — ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Stinson & Robertson



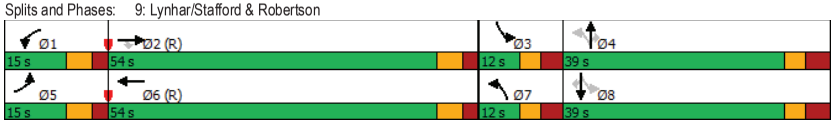
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	129	914	62	58	1089	94	41	80	201	36	175
Future Volume (vph)	129	914	62	58	1089	94	41	80	201	36	175
Lane Group Flow (vph)	129	914	62	58	1166	94	41	80	201	36	175
Turn Type	Prot	NA	Perm	Prot	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6	7	4		3	8	
Permitted Phases			2			4		4	8		8
Detector Phase	5	2	2	1	6	7	4	4	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.1	24.3	24.3	11.1	24.3	11.2	24.7	24.7	11.2	24.7	24.7
Total Split (s)	15.0	54.0	54.0	15.0	54.0	12.0	39.0	39.0	12.0	39.0	39.0
Total Split (%)	12.5%	45.0%	45.0%	12.5%	45.0%	10.0%	32.5%	32.5%	10.0%	32.5%	32.5%
Maximum Green (s)	8.9	47.7	47.7	8.9	47.7	5.8	32.3	32.3	5.8	32.3	32.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.4	2.6	2.6	2.4	2.6	3.2	3.7	3.7	3.2	3.7	3.7
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
Total Lost Time (s)	6.1	6.3	6.3	6.1	6.3	6.2	6.7	6.7	6.2	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		16	16		14		29	29		22	22
Act Effct Green (s)	17.9	66.9	66.9	9.5	56.2	19.0	14.8	14.8	22.3	14.8	14.8
Actuated g/C Ratio	0.15	0.56	0.56	0.08	0.47	0.16	0.12	0.12	0.19	0.12	0.12
v/c Ratio	0.52	0.50	0.07	0.44	0.76	0.45	0.19	0.27	0.87	0.17	0.53
Control Delay	52.3	16.1	1.0	62.3	31.3	46.1	47.7	2.4	79.0	47.2	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.3	16.1	1.0	62.3	31.3	46.1	47.7	2.4	79.0	47.2	13.0
LOS	D	B	A	E	C	D	D	A	E	D	B
Approach Delay		19.5			32.7		30.2			48.2	
Approach LOS		B			C		C			D	
Queue Length 50th (m)	18.3	115.6	1.9	13.3	121.7	17.6	8.5	0.0	40.3	7.5	0.0
Queue Length 95th (m)	49.4	48.1	0.0	26.0	156.1	32.0	19.0	0.6	#83.2	17.2	19.7
Internal Link Dist (m)		283.3			201.3		115.2			173.5	
Turn Bay Length (m)	85.0		50.0	100.0		30.0		30.0	35.0		75.0
Base Capacity (vph)	247	1831	831	142	1528	210	469	471	231	469	511
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.50	0.07	0.41	0.76	0.45	0.09	0.17	0.87	0.08	0.34

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 7 (6%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 29.7 Intersection LOS: C
Intersection Capacity Utilization 76.4% 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: 9: Lynhar/Stafford & Robertson



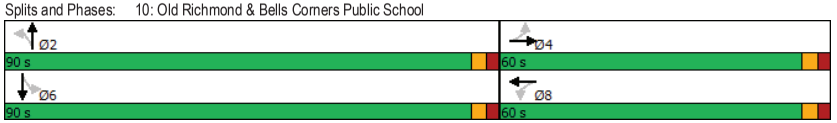
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	31	1	17	0	10	148	16	209
Future Volume (vph)	31	1	17	0	10	148	16	209
Lane Group Flow (vph)	0	49	0	33	0	174	0	240
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.4	40.4	40.4	40.4	70.4	70.4	70.4	70.4
Total Split (s)	60.0	60.0	60.0	60.0	90.0	90.0	90.0	90.0
Total Split (%)	40.0%	40.0%	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%
Maximum Green (s)	54.6	54.6	54.6	54.6	84.6	84.6	84.6	84.6
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.4		5.4		5.4		5.4
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min
Walk Time (s)	7.0	7.0	7.0	7.0	15.0	15.0	15.0	15.0
Flash Dont Walk (s)	7.0	7.0	7.0	7.0	5.0	5.0	5.0	5.0
Pedestrian Calls (#/hr)	23	23	4	4	43	43	10	10
Act Effct Green (s)		10.8		10.8		12.0		12.0
Actuated g/C Ratio		0.32		0.32		0.35		0.35
v/c Ratio		0.12		0.08		0.30		0.43
Control Delay		8.1		7.4		9.1		10.9
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		8.1		7.4		9.1		10.9
LOS		A		A		A		B
Approach Delay		8.1		7.4		9.1		10.9
Approach LOS		A		A		A		B
Queue Length 50th (m)		1.0		0.5		5.9		8.7
Queue Length 95th (m)		6.9		5.0		16.2		22.6
Internal Link Dist (m)		44.5		37.9		236.7		117.3
Turn Bay Length (m)								
Base Capacity (vph)		1271		1297		1629		1562
Starvation Cap Reductn		0		0		0		177
Spillback Cap Reductn		0		0		0		0
Storage Cap Reductn		0		0		0		0
Reduced v/c Ratio		0.04		0.03		0.11		0.17

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 33.9
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.43

Intersection Signal Delay: 9.8	Intersection LOS: A
Intersection Capacity Utilization 37.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 10: Old Richmond & Bells Corners Public School



Appendix I

TDM Checklist

TDM Measures Checklist:
Non-Residential Developments (office, institutional, retail or industrial)

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: *Non-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	☑
		2.2 Bicycle skills training	
		Commuter travel	
BETTER	★	2.2.1 Offer on-site cycling courses for commuters, or subsidize off-site courses	☐
		2.3 Valet bike parking	
		Visitor travel	
BETTER		2.3.1 Offer secure valet bike parking during public events when demand exceeds fixed supply (e.g. for festivals, concerts, games)	☐

		TDM measures: *Non-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	☑
BASIC		3.1.2 Provide online links to OC Transpo and STO information	☑
BETTER		3.1.3 Provide real-time arrival information display at entrances	☐
		3.2 Transit fare incentives	
		Commuter travel	
BETTER		3.2.1 Offer preloaded PRESTO cards to encourage commuters to use transit	☐
BETTER	★	3.2.2 Subsidize or reimburse monthly transit pass purchases by employees	☐
		Visitor travel	
BETTER		3.2.3 Arrange inclusion of same-day transit fare in price of tickets (e.g. for festivals, concerts, games)	☐
		3.3 Enhanced public transit service	
		Commuter travel	
BETTER		3.3.1 Contract with OC Transpo to provide enhanced transit services (e.g. for shift changes, weekends)	☐
		Visitor travel	
BETTER		3.3.2 Contract with OC Transpo to provide enhanced transit services (e.g. for festivals, concerts, games)	☐
		3.4 Private transit service	
		Commuter travel	
BETTER		3.4.1 Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for shift changes, weekends)	☐
		Visitor travel	
BETTER		3.4.2 Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for festivals, concerts, games)	☐

			TDM measures: *Non-residential developments*	Check if proposed & add descriptions
		4.	**RIDESHARING**	
		4.1	**Ridematching service**	
			Commuter travel	
BASIC	★	4.1.1	Provide a dedicated ridematching portal at OttawaRideMatch.com	☑
		4.2	**Carpool parking price incentives**	
			Commuter travel	
BETTER		4.2.1	Provide discounts on parking costs for registered carpools	☐
		4.3	**Vanpool service**	
			Commuter travel	
BETTER		4.3.1	Provide a vanpooling service for long-distance commuters	☐
		5.	**CARSHARING & BIKESHARING**	
		5.1	**Bikeshare stations & memberships**	
BETTER		5.1.1	Contract with provider to install on-site bikeshare station for use by commuters and visitors	☐
			Commuter travel	
BETTER		5.1.2	Provide employees with bikeshare memberships for local business travel	☐
		5.2	**Carshare vehicles & memberships**	
			Commuter travel	
BETTER		5.2.1	Contract with provider to install on-site carshare vehicles and promote their use by tenants	☐
BETTER		5.2.2	Provide employees with carshare memberships for local business travel	☐
		6.	**PARKING**	
		6.1	**Priced parking**	
			Commuter travel	
BASIC	★	6.1.1	Charge for long-term parking (daily, weekly, monthly)	☐
BASIC		6.1.2	Unbundle parking cost from lease rates at multi-tenant sites	☐
			Visitor travel	
BETTER		6.1.3	Charge for short-term parking (hourly)	☐

TDM Measures Checklist **City of Ottawa**
Version 1.0 (30 June 2017)

			TDM measures: *Non-residential developments*	Check if proposed & add descriptions
		7.	**TDM MARKETING & COMMUNICATIONS**	
		7.1	**Multimodal travel information**	
			Commuter travel	
BASIC	★	7.1.1	Provide a multimodal travel option information package to new/relocating employees and students	☑
			Visitor travel	
BETTER	★	7.1.2	Include multimodal travel option information in invitations or advertising that attract visitors or customers (e.g. for festivals, concerts, games)	☐
		7.2	**Personalized trip planning**	
			Commuter travel	
BETTER	★	7.2.1	Offer personalized trip planning to new/relocating employees	☐
		7.3	**Promotions**	
			Commuter travel	
BETTER		7.3.1	Deliver promotions and incentives to maintain awareness, build understanding, and encourage trial of sustainable modes	☐
		8.	**OTHER INCENTIVES & AMENITIES**	
		8.1	**Emergency ride home**	
			Commuter travel	
BETTER	★	8.1.1	Provide emergency ride home service to non-driving commuters	☐
		8.2	**Alternative work arrangements**	
			Commuter travel	
BASIC	★	8.2.1	Encourage flexible work hours	☐
BETTER		8.2.2	Encourage compressed workweeks	☐
BETTER	★	8.2.3	Encourage telework	☐
		8.3	**Local business travel options**	
			Commuter travel	
BASIC	★	8.3.1	Provide local business travel options that minimize the need for employees to bring a personal car to work	☐
		8.4	**Commuter incentives**	
			Commuter travel	
BETTER		8.4.1	Offer employees a taxable, mode-neutral commuting allowance	☐
		8.5	**On-site amenities**	
			Commuter travel	
BETTER		8.5.1	Provide on-site amenities/services to minimize mid-day or mid-commute errands	☐

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	☐

Appendix J

TRANS Screenline SL11 Data

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Station ID	Station Location	direction	flow_motorcycles	flow_cars_lightgoods	flow_buses	flow_single_trucks	flow_articulated_trucks	flow_bicycles
3607	Robertson at CNR Crossing	Westbound	0	925	11	30	4	2
3607	Robertson at CNR Crossing	Eastbound	2	1727	18	18	3	1
3803	Carling Imm East of Dick Bell Park	Westbound	5	830	1	5	0	2
3803	Carling Imm East of Dick Bell Park	Eastbound	1	1116	3	5	0	0
50007	HWY 417	Westbound	10	4364	23	148	59	0
50007	HWY 417	Eastbound	5	5204	9	133	88	0
50785	Corkstown at Still Water Creek	Westbound	0	67	5	0	0	10
50785	Corkstown at Still Water Creek	Eastbound	0	109	9	2	0	17

Appendix K

Synchro Intersection Worksheets – 2029 Future Total Conditions

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	90	28	18	6	74	512	116	1048
Future Volume (vph)	90	28	18	6	74	512	116	1048
Lane Group Flow (vph)	90	53	18	14	74	576	116	1234
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	34.0	34.0	34.0	34.0	30.7	30.7	30.7	30.7
Total Split (s)	34.0	34.0	34.0	34.0	46.0	46.0	46.0	46.0
Total Split (%)	42.5%	42.5%	42.5%	42.5%	57.5%	57.5%	57.5%	57.5%
Maximum Green (s)	28.0	28.0	28.0	28.0	40.3	40.3	40.3	40.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	2.7	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	5.7	5.7	5.7	5.7
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	3	3	3	3	6	6	3	3
Act Effct Green (s)	14.4	14.4	14.4	14.4	58.3	58.3	58.3	58.3
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.73	0.73	0.73	0.73
v/c Ratio	0.39	0.18	0.08	0.05	0.30	0.24	0.21	0.53
Control Delay	31.8	16.4	24.2	16.1	12.8	6.0	13.9	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.8	16.4	24.2	16.1	12.8	6.0	13.9	13.7
LOS	C	B	C	B	B	A	B	B
Approach Delay		26.1		20.7		6.8		13.7
Approach LOS		C		C		A		B
Queue Length 50th (m)	12.9	3.8	2.5	0.8	3.3	12.3	8.3	57.0
Queue Length 95th (m)	19.8	9.9	6.0	4.2	19.6	35.7	m24.5	107.9
Internal Link Dist (m)		192.7		115.6		159.6		270.5
Turn Bay Length (m)	35.0		25.0		75.0		45.0	
Base Capacity (vph)	451	536	439	497	247	2352	550	2322
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.10	0.04	0.03	0.30	0.24	0.21	0.53

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 68 (85%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 75

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.53
Intersection Signal Delay: 12.6 — Intersection LOS: B
Intersection Capacity Utilization 72.7% — ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Moodie & Fitzgerald

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	16	18	635	15	22	1075
Future Volume (vph)	16	18	635	15	22	1075
Lane Group Flow (vph)	16	18	635	15	22	1075
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	32.6	32.6	28.9	28.9	23.9	23.9
Total Split (s)	33.0	33.0	67.0	67.0	67.0	67.0
Total Split (%)	33.0%	33.0%	67.0%	67.0%	67.0%	67.0%
Maximum Green (s)	27.4	27.4	61.1	61.1	61.1	61.1
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.3	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.9	5.9	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	20.0	20.0	16.0	16.0		
Pedestrian Calls (#/hr)	0	0	0	0		
Act Effct Green (s)	10.0	10.0	87.1	87.1	87.1	87.1
Actuated g/C Ratio	0.10	0.10	0.87	0.87	0.87	0.87
v/c Ratio	0.11	0.11	0.22	0.01	0.04	0.38
Control Delay	43.1	19.4	2.2	1.1	2.5	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.1	19.4	2.2	1.1	2.5	2.8
LOS	D	B	A	A	A	A
Approach Delay	30.6		2.2			2.8
Approach LOS	C		A			A
Queue Length 50th (m)	2.9	0.0	13.6	0.0	0.8	27.7
Queue Length 95th (m)	9.2	6.5	18.2	1.1	2.2	35.4
Internal Link Dist (m)	125.7		176.3			159.6
Turn Bay Length (m)		10.0		45.0	60.0	
Base Capacity (vph)	389	419	2832	1293	540	2832
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	0.04	0.04	0.22	0.01	0.04	0.38

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 58 (58%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 65

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.38
Intersection Signal Delay: 3.1 — Intersection LOS: A
Intersection Capacity Utilization 49.3% — ICU Level of Service A
Analysis Period (min) 15

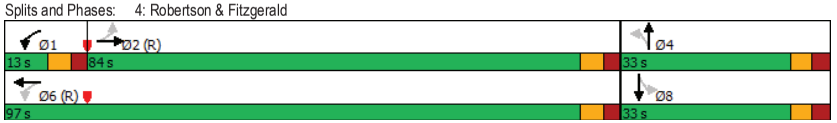
Splits and Phases: 3: Moodie & Loblaws Access

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	181	1365	24	479	4	3	62	8
Future Volume (vph)	181	1365	24	479	4	3	62	8
Lane Group Flow (vph)	181	1370	24	613	4	12	62	70
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		2	1	6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	2	2	1	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	28.4	28.4	11.2	28.4	32.3	32.3	32.3	32.3
Total Split (s)	84.0	84.0	13.0	97.0	33.0	33.0	33.0	33.0
Total Split (%)	64.6%	64.6%	10.0%	74.6%	25.4%	25.4%	25.4%	25.4%
Maximum Green (s)	77.6	77.6	6.8	90.6	26.7	26.7	26.7	26.7
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7	2.5	2.7	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.2	6.4	6.3	6.3	6.3	6.3
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	15.0	15.0		15.0	19.0	19.0	19.0	19.0
Pedestrian Calls (#/hr)	14	14		16	18	18	11	11
Act Effct Green (s)	93.0	93.0	100.8	100.6	16.7	16.7	16.7	16.7
Actuated g/C Ratio	0.72	0.72	0.78	0.77	0.13	0.13	0.13	0.13
v/c Ratio	0.35	0.58	0.09	0.26	0.03	0.06	0.38	0.30
Control Delay	12.3	12.5	5.1	5.3	44.0	26.1	55.9	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.3	12.5	5.1	5.3	44.0	26.1	55.9	16.1
LOS	B	B	A	A	D	C	E	B
Approach Delay		12.5		5.3		30.6		34.8
Approach LOS		B		A		C		C
Queue Length 50th (m)	15.6	78.9	0.4	3.9	1.0	0.7	15.5	1.9
Queue Length 95th (m)	41.1	142.8	m5.5	40.7	4.0	6.1	26.7	14.3
Internal Link Dist (m)		422.4		92.3		38.8		177.2
Turn Bay Length (m)	40.0		50.0		30.0		45.0	
Base Capacity (vph)	513	2370	268	2351	250	296	261	342
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.58	0.09	0.26	0.02	0.04	0.24	0.20

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 97 (75%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.58
Intersection Signal Delay: 11.9 — Intersection LOS: B
Intersection Capacity Utilization 74.3% — ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Robertson & Fitzgerald



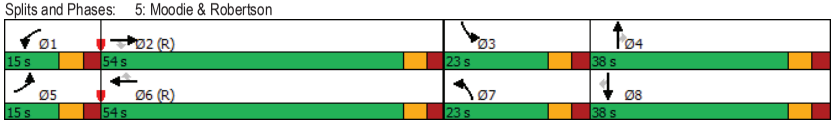
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	1226	116	81	311	177	229	387	310	394	296	135
Future Volume (vph)	87	1226	116	81	311	177	229	387	310	394	296	135
Lane Group Flow (vph)	87	1226	116	81	311	177	229	387	310	394	296	135
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
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)	11.4	34.4	34.4	11.4	34.4	34.4	11.5	37.7	37.7	11.5	37.7	37.7
Total Split (s)	15.0	54.0	54.0	15.0	54.0	54.0	23.0	38.0	38.0	23.0	38.0	38.0
Total Split (%)	11.5%	41.5%	41.5%	11.5%	41.5%	41.5%	17.7%	29.2%	29.2%	17.7%	29.2%	29.2%
Maximum Green (s)	8.6	47.6	47.6	8.6	47.6	47.6	16.5	31.3	31.3	16.5	31.3	31.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.8	3.0	3.0	2.8	3.0	3.0
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)	6.4	6.4	6.4	6.4	6.4	6.4	6.5	6.7	6.7	6.5	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		21.0	21.0		21.0	21.0		24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		4	4		6	6		4	4		6	6
Act Effct Green (s)	11.0	54.0	54.0	10.3	53.3	53.3	14.1	23.2	23.2	16.5	25.6	25.6
Actuated g/C Ratio	0.08	0.42	0.42	0.08	0.41	0.41	0.11	0.18	0.18	0.13	0.20	0.20
v/c Ratio	0.64	0.89	0.17	0.62	0.24	0.25	0.66	0.67	0.83	0.97	0.48	0.35
Control Delay	91.3	35.5	1.2	86.8	24.8	8.5	64.7	55.0	45.8	93.1	48.4	8.8
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	91.3	35.5	1.2	86.8	24.8	8.5	64.7	55.0	45.8	93.1	48.4	8.8
LOS	F	D	A	F	C	A	E	D	D	F	D	A
Approach Delay		36.1			28.6			54.3			63.2	
Approach LOS		D			C			D			E	
Queue Length 50th (m)	21.1	156.8	1.8	18.1	34.0	17.3	29.3	49.3	43.8	52.5	35.9	0.0
Queue Length 95th (m)	m#54.0	#210.5	2.4	#48.4	20.2	17.9	42.1	61.0	73.1	#83.6	47.3	15.5
Internal Link Dist (m)		105.2			158.4			620.1			176.3	
Turn Bay Length (m)	75.0			70.0			83.0		60.0	80.0		75.0
Base Capacity (vph)	135	1377	669	133	1295	700	408	782	457	408	761	441
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	0.64	0.89	0.17	0.61	0.24	0.25	0.56	0.49	0.68	0.97	0.39	0.31

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 119 (92%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 125

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 45.4 — Intersection LOS: D
Intersection Capacity Utilization 87.1% — 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: 5: Moodie & Robertson



Lane Group	EBL	EBT	WBL	WBT	SBL	SBT	Ø4
Lane Configurations							
Traffic Volume (vph)	9	1967	1	564	19	0	
Future Volume (vph)	9	1967	1	564	19	0	
Lane Group Flow (vph)	9	1967	1	575	0	31	
Turn Type	Perm	NA	Perm	NA	Perm	NA	
Protected Phases		2		6		9	4
Permitted Phases	2		6		9		
Detector Phase	2	2	6	6	9	9	
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.4	22.4	22.4	22.4	33.7	33.7	16.7
Total Split (s)	79.6	79.6	79.6	79.6	33.7	33.7	16.7
Total Split (%)	61.2%	61.2%	61.2%	61.2%	25.9%	25.9%	13%
Maximum Green (s)	73.2	73.2	73.2	73.2	27.0	27.0	10.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0	3.0
All-Red Time (s)	2.7	2.7	2.7	2.7	3.7	3.7	3.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.4	6.4	6.4	6.4		6.7	
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	11.0	11.0	
Flash Dont Walk (s)	9.0	9.0	9.0	9.0	16.0	16.0	
Pedestrian Calls (#/hr)	6	6	4	4	3	3	
Act Effct Green (s)	112.7	112.7	112.7	112.7		13.4	
Actuated g/C Ratio	0.87	0.87	0.87	0.87		0.10	
v/c Ratio	0.01	0.68	0.02	0.21		0.13	
Control Delay	5.2	10.6	7.0	5.1		1.2	
Queue Delay	0.0	0.8	0.0	0.0		0.0	
Total Delay	5.2	11.4	7.0	5.1		1.2	
LOS	A	B	A	A		A	
Approach Delay		11.3		5.1		1.2	
Approach LOS		B		A		A	
Queue Length 50th (m)	0.3	95.0	0.1	34.0		0.0	
Queue Length 95th (m)	m1.0	m152.9	m0.6	58.5		0.0	
Internal Link Dist (m)		89.6		196.4		53.8	
Turn Bay Length (m)	30.0		25.0				
Base Capacity (vph)	655	2875	64	2781		379	
Starvation Cap Reductn	0	0	0	0		0	
Spillback Cap Reductn	0	529	0	0		0	
Storage Cap Reductn	0	0	0	0		0	
Reduced v/c Ratio	0.01	0.84	0.02	0.21		0.08	

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 112 (86%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 140

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 9.8 — Intersection LOS: A
Intersection Capacity Utilization 78.0% — ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Robertson & Vanier

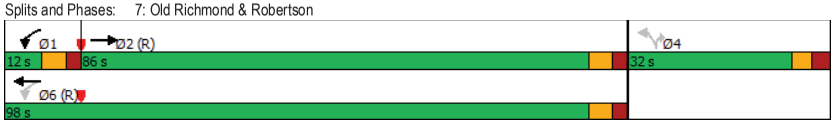
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	1960	45	532	39	218
Future Volume (vph)	1960	45	532	39	218
Lane Group Flow (vph)	1994	45	532	39	218
Turn Type	NA	pm+pt	NA	Perm	Perm
Protected Phases	2	1	6		
Permitted Phases		6		4	4
Detector Phase	2	1	6	4	4
Switch Phase					
Minimum Initial (s)	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	33.1	11.1	33.1	31.1	31.1
Total Split (s)	86.0	12.0	98.0	32.0	32.0
Total Split (%)	66.2%	9.2%	75.4%	24.6%	24.6%
Maximum Green (s)	79.9	5.9	91.9	25.9	25.9
Yellow Time (s)	3.7	3.7	3.7	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	3.1	3.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	None	C-Max	None	None
Walk Time (s)	7.0		7.0	10.0	10.0
Flash Dont Walk (s)	20.0		20.0	15.0	15.0
Pedestrian Calls (#/hr)	5		0	3	3
Act Effct Green (s)	90.1	100.0	100.0	17.8	17.8
Actuated g/C Ratio	0.69	0.77	0.77	0.14	0.14
v/c Ratio	0.87	0.35	0.22	0.18	0.80
Control Delay	24.2	29.1	4.6	48.7	52.4
Queue Delay	46.7	0.0	0.0	0.0	0.0
Total Delay	70.9	29.1	4.6	48.7	52.4
LOS	E	C	A	D	D
Approach Delay	70.9		6.5	51.8	
Approach LOS	E		A	D	
Queue Length 50th (m)	267.6	3.1	16.0	9.0	33.1
Queue Length 95th (m)	#326.2	16.2	27.0	18.4	57.5
Internal Link Dist (m)	196.4		308.7	117.3	
Turn Bay Length (m)		60.0		20.0	
Base Capacity (vph)	2286	129	2454	310	357
Starvation Cap Reductn	599	0	0	0	0
Spillback Cap Reductn	39	0	0	0	1
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.18	0.35	0.22	0.13	0.61

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 17 (13%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 120

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 56.0 — Intersection LOS: E
Intersection Capacity Utilization 82.8% — 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.

Splits and Phases: 7: Old Richmond & Robertson



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	54	2033	20	651	9	2	2	0
Future Volume (vph)	54	2033	20	651	9	2	2	0
Lane Group Flow (vph)	54	2039	20	673	0	43	0	13
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.8	26.8	26.8	26.8	31.6	31.6	31.6	31.6
Total Split (s)	98.0	98.0	98.0	98.0	32.0	32.0	32.0	32.0
Total Split (%)	75.4%	75.4%	75.4%	75.4%	24.6%	24.6%	24.6%	24.6%
Maximum Green (s)	92.2	92.2	92.2	92.2	25.4	25.4	25.4	25.4
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0
All-Red Time (s)	2.1	2.1	2.1	2.1	3.6	3.6	3.6	3.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	5.8	5.8	5.8	5.8		6.6		6.6
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0	14.0	14.0	14.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	3	3	11	11	0	0	6	6
Act Effct Green (s)	92.2	92.2	92.2	92.2		25.4		25.4
Actuated g/C Ratio	0.71	0.71	0.71	0.71		0.20		0.20
v/c Ratio	0.12	0.87	0.38	0.29		0.14		0.05
Control Delay	2.4	8.4	27.1	2.7		26.8		8.2
Queue Delay	0.0	1.1	0.0	0.0		0.0		0.0
Total Delay	2.4	9.5	27.1	2.7		26.8		8.2
LOS	A	A	C	A		C		A
Approach Delay		9.3		3.4		26.8		8.2
Approach LOS		A		A		C		A
Queue Length 50th (m)	1.0	106.7	0.3	6.2		4.5		0.0
Queue Length 95th (m)	m1.4	25.3	#10.3	8.7		14.8		3.6
Internal Link Dist (m)		308.7		283.3		126.0		117.1
Turn Bay Length (m)	75.0		50.0					
Base Capacity (vph)	456	2350	52	2293		302		273
Starvation Cap Reductn	0	130	0	0		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.12	0.92	0.38	0.29		0.14		0.05

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 129 (99%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 8.1 — Intersection LOS: A
Intersection Capacity Utilization 90.7% — 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: 8: Stinson & Robertson

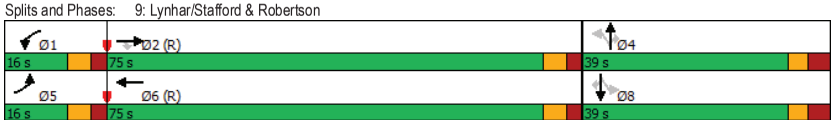
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	42	1912	27	14	675	33	11	101	31	4	53
Future Volume (vph)	42	1912	27	14	675	33	11	101	31	4	53
Lane Group Flow (vph)	42	1912	27	14	758	33	11	101	31	4	53
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		4			8	
Permitted Phases			2			4		4	8		8
Detector Phase	5	2	2	1	6	4	4	4	8	8	8
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.1	24.3	24.3	11.1	24.3	24.7	24.7	24.7	24.7	24.7	24.7
Total Split (s)	16.0	75.0	75.0	16.0	75.0	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	12.3%	57.7%	57.7%	12.3%	57.7%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Maximum Green (s)	9.9	68.7	68.7	9.9	68.7	32.3	32.3	32.3	32.3	32.3	32.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.4	2.6	2.6	2.4	2.6	3.7	3.7	3.7	3.7	3.7	3.7
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
Total Lost Time (s)	6.1	6.3	6.3	6.1	6.3	6.7	6.7	6.7	6.7	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		4	4		5	4	4	4	4	4	4
Act Effct Green (s)	9.0	99.7	99.7	6.7	92.5	11.7	11.7	11.7	11.7	11.7	11.7
Actuated g/C Ratio	0.07	0.77	0.77	0.05	0.71	0.09	0.09	0.09	0.09	0.09	0.09
v/c Ratio	0.40	0.75	0.02	0.16	0.33	0.28	0.07	0.45	0.30	0.03	0.27
Control Delay	48.2	10.9	0.2	62.7	8.5	60.5	53.3	16.5	61.5	52.0	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	10.9	0.2	62.7	8.5	60.5	53.3	16.5	61.5	52.0	7.6
LOS	D	B	A	E	A	E	D	B	E	D	A
Approach Delay		11.5			9.4		29.3			28.6	
Approach LOS		B			A		C			C	
Queue Length 50th (m)	10.7	84.5	0.0	3.5	34.6	8.2	2.7	0.0	7.7	1.0	0.0
Queue Length 95th (m)	m12.2	121.1	m0.0	10.3	59.6	17.8	8.2	16.0	16.9	4.3	5.7
Internal Link Dist (m)		283.3			201.3		115.2			173.5	
Turn Bay Length (m)	85.0		50.0	100.0		30.0		30.0	35.0		75.0
Base Capacity (vph)	122	2543	1118	126	2264	321	433	436	290	433	406
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.75	0.02	0.11	0.33	0.10	0.03	0.23	0.11	0.01	0.13

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 36 (28%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 100

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 12.3 — Intersection LOS: B
Intersection Capacity Utilization 89.7% — ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Lynhar/Stafford & Robertson



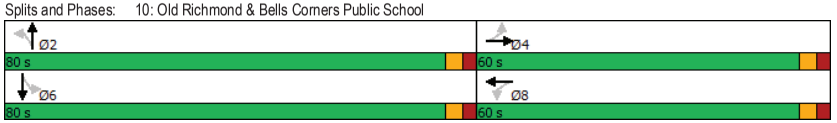
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		✣		✣		✣		✣
Traffic Volume (vph)	20	0	6	0	15	214	37	105
Future Volume (vph)	20	0	6	0	15	214	37	105
Lane Group Flow (vph)	0	29	0	32	0	274	0	178
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.4	40.4	40.4	40.4	45.4	45.4	45.4	45.4
Total Split (s)	60.0	60.0	60.0	60.0	80.0	80.0	80.0	80.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	57.1%	57.1%	57.1%	57.1%
Maximum Green (s)	54.6	54.6	54.6	54.6	74.6	74.6	74.6	74.6
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.4		5.4		5.4		5.4
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min
Walk Time (s)	7.0	7.0	7.0	7.0	15.0	15.0	15.0	15.0
Flash Dont Walk (s)	7.0	7.0	7.0	7.0	5.0	5.0	5.0	5.0
Pedestrian Calls (#/hr)	1	1	10	10	15	15	18	18
Act Effct Green (s)		10.8		10.8		11.9		11.9
Actuated g/C Ratio		0.32		0.32		0.35		0.35
v/c Ratio		0.07		0.07		0.48		0.35
Control Delay		6.8		5.9		11.3		9.6
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		6.8		5.9		11.3		9.6
LOS		A		A		B		A
Approach Delay		6.8		5.9		11.3		9.6
Approach LOS		A		A		B		A
Queue Length 50th (m)		0.3		0.3		9.9		5.8
Queue Length 95th (m)		4.4		4.3		25.3		16.7
Internal Link Dist (m)		44.5		37.9		236.7		117.3
Turn Bay Length (m)								
Base Capacity (vph)		1294		1397		1600		1405
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		0.02		0.02		0.17		0.13

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 33.8
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.48

Intersection Signal Delay: 10.1	Intersection LOS: B
Intersection Capacity Utilization 41.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 10: Old Richmond & Bells Corners Public School

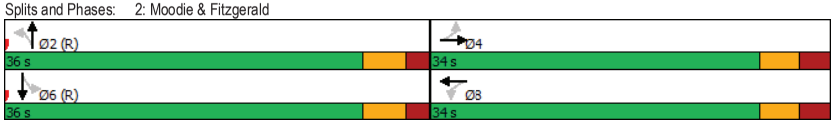


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	207	6	91	20	51	955	30	791
Future Volume (vph)	207	6	91	20	51	955	30	791
Lane Group Flow (vph)	207	73	91	75	51	1002	30	860
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	34.0	34.0	34.0	34.0	30.7	30.7	30.7	30.7
Total Split (s)	34.0	34.0	34.0	34.0	36.0	36.0	36.0	36.0
Total Split (%)	48.6%	48.6%	48.6%	48.6%	51.4%	51.4%	51.4%	51.4%
Maximum Green (s)	28.0	28.0	28.0	28.0	30.3	30.3	30.3	30.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	2.7	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	5.7	5.7	5.7	5.7
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	4	4	1	1	8	8	2	2
Act Effct Green (s)	17.9	17.9	17.9	17.9	40.4	40.4	40.4	40.4
Actuated g/C Ratio	0.26	0.26	0.26	0.26	0.58	0.58	0.58	0.58
v/c Ratio	0.66	0.17	0.29	0.17	0.20	0.53	0.13	0.46
Control Delay	32.2	6.1	20.9	8.2	12.6	11.6	11.5	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.2	6.1	20.9	8.2	12.6	11.6	11.5	10.7
LOS	C	A	C	A	B	B	B	B
Approach Delay		25.4		15.2		11.7		10.7
Approach LOS		C		B		B		B
Queue Length 50th (m)	24.6	0.6	9.7	2.1	2.8	36.1	1.6	28.9
Queue Length 95th (m)	35.5	7.3	16.5	8.6	12.0	73.8	7.7	59.8
Internal Link Dist (m)		192.7		115.6		159.6		270.5
Turn Bay Length (m)	35.0		25.0		75.0		45.0	
Base Capacity (vph)	494	628	493	648	254	1901	239	1890
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.12	0.18	0.12	0.20	0.53	0.13	0.46

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: 65

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 13.2 — Intersection LOS: B
Intersection Capacity Utilization 71.7% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 2: Moodie & Fitzgerald



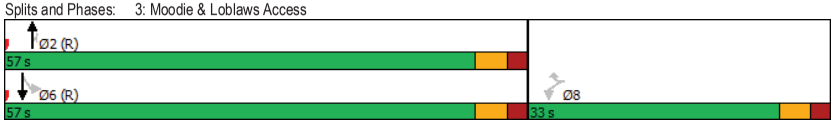
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	107	51	994	54	75	876
Future Volume (vph)	107	51	994	54	75	876
Lane Group Flow (vph)	107	51	994	54	75	876
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	32.6	32.6	28.9	28.9	23.9	23.9
Total Split (s)	33.0	33.0	57.0	57.0	57.0	57.0
Total Split (%)	36.7%	36.7%	63.3%	63.3%	63.3%	63.3%
Maximum Green (s)	27.4	27.4	51.1	51.1	51.1	51.1
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.3	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.9	5.9	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	20.0	20.0	16.0	16.0		
Pedestrian Calls (#/hr)	10	10	2	2		
Act Effct Green (s)	14.2	14.2	68.6	68.6	68.6	68.6
Actuated g/C Ratio	0.16	0.16	0.76	0.76	0.76	0.76
v/c Ratio	0.41	0.19	0.40	0.05	0.21	0.35
Control Delay	37.1	9.7	6.4	2.2	8.1	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.1	9.7	6.4	2.2	8.1	6.0
LOS	D	A	A	A	A	A
Approach Delay	28.2		6.2			6.2
Approach LOS	C		A			A
Queue Length 50th (m)	17.6	0.0	26.3	0.0	3.1	22.0
Queue Length 95th (m)	26.5	7.8	67.3	4.5	14.9	57.0
Internal Link Dist (m)	125.7		176.3			159.6
Turn Bay Length (m)		10.0		45.0	60.0	
Base Capacity (vph)	504	468	2501	1116	361	2501
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.11	0.40	0.05	0.21	0.35

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 9 (10%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 65

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.41
Intersection Signal Delay: 7.8 — Intersection LOS: A
Intersection Capacity Utilization 64.2% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 3: Moodie & Loblaws Access



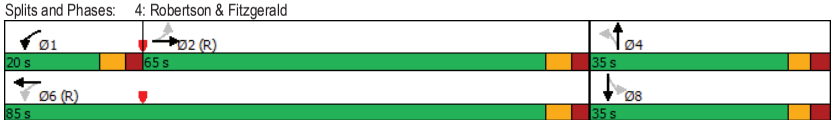
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	32	699	176	1190	60	24	108	39
Future Volume (vph)	32	699	176	1190	60	24	108	39
Lane Group Flow (vph)	32	729	176	1234	60	179	108	188
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		2	1	6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	2	2	1	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	28.4	28.4	11.2	28.4	32.3	32.3	32.3	32.3
Total Split (s)	65.0	65.0	20.0	85.0	35.0	35.0	35.0	35.0
Total Split (%)	54.2%	54.2%	16.7%	70.8%	29.2%	29.2%	29.2%	29.2%
Maximum Green (s)	58.6	58.6	13.8	78.6	28.7	28.7	28.7	28.7
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7	2.5	2.7	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.2	6.4	6.3	6.3	6.3	6.3
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	15.0	15.0		15.0	19.0	19.0	19.0	19.0
Pedestrian Calls (#/hr)	23	23		22	40	40	18	18
Act Effct Green (s)	67.9	67.9	84.3	84.1	23.2	23.2	23.2	23.2
Actuated g/C Ratio	0.57	0.57	0.70	0.70	0.19	0.19	0.19	0.19
v/c Ratio	0.15	0.39	0.38	0.54	0.36	0.45	0.64	0.52
Control Delay	17.6	16.5	7.6	6.4	46.3	12.4	60.9	26.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.6	16.5	7.6	6.4	46.3	12.4	60.9	26.6
LOS	B	B	A	A	D	B	E	C
Approach Delay		16.5		6.5		20.9		39.1
Approach LOS		B		A		C		D
Queue Length 50th (m)	3.6	50.5	7.0	27.5	12.0	4.6	22.9	19.8
Queue Length 95th (m)	10.7	71.5	m12.6	41.0	24.6	23.3	41.7	41.5
Internal Link Dist (m)		422.4		92.3		38.8		177.2
Turn Bay Length (m)	40.0		50.0		30.0		45.0	
Base Capacity (vph)	213	1860	497	2306	205	460	209	424
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.39	0.35	0.54	0.29	0.39	0.52	0.44

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 105 (88%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 75

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 14.2 — Intersection LOS: B
Intersection Capacity Utilization 93.8% — ICU Level of Service F
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Robertson & Fitzgerald



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	149	573	272	230	922	370	229	367	155	314	466	211
Future Volume (vph)	149	573	272	230	922	370	229	367	155	314	466	211
Lane Group Flow (vph)	149	573	272	230	922	370	229	367	155	314	466	211
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
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)	11.4	34.4	34.4	11.4	34.4	34.4	11.5	37.7	37.7	11.5	37.7	37.7
Total Split (s)	20.0	39.0	39.0	25.0	44.0	44.0	18.0	38.0	38.0	18.0	38.0	38.0
Total Split (%)	16.7%	32.5%	32.5%	20.8%	36.7%	36.7%	15.0%	31.7%	31.7%	15.0%	31.7%	31.7%
Maximum Green (s)	13.6	32.6	32.6	18.6	37.6	37.6	11.5	31.3	31.3	11.5	31.3	31.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.8	3.0	3.0	2.8	3.0	3.0
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)	6.4	6.4	6.4	6.4	6.4	6.4	6.5	6.7	6.7	6.5	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		21.0	21.0		21.0	21.0		24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		15	15		5	5		21	21		12	12
Act Effct Green (s)	14.1	38.6	38.6	19.9	44.4	44.4	11.2	24.0	24.0	11.5	24.2	24.2
Actuated g/C Ratio	0.12	0.32	0.32	0.17	0.37	0.37	0.09	0.20	0.20	0.10	0.20	0.20
v/c Ratio	0.77	0.54	0.42	0.84	0.75	0.49	0.76	0.57	0.38	1.02	0.70	0.46
Control Delay	73.7	39.5	11.6	70.9	41.2	9.0	69.8	46.1	8.2	109.8	49.9	8.1
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	73.7	39.5	11.6	70.9	41.2	9.0	69.8	46.1	8.2	109.8	49.9	8.1
LOS	E	D	B	E	D	A	E	D	A	F	D	A
Approach Delay		37.0			37.8			45.5			60.0	
Approach LOS		D			D			D			E	
Queue Length 50th (m)	33.2	48.1	1.5	54.1	97.8	23.1	27.5	42.2	0.0	~39.6	55.3	0.0
Queue Length 95th (m)	#68.4	79.0	30.8	#96.3	#139.7	22.5	#44.1	52.7	15.8	#68.9	66.8	18.2
Internal Link Dist (m)		105.2			158.4			620.1			176.3	
Turn Bay Length (m)	75.0			70.0			83.0		60.0	80.0		75.0
Base Capacity (vph)	201	1066	646	280	1228	757	308	840	487	308	856	532
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	0.74	0.54	0.42	0.82	0.75	0.49	0.74	0.44	0.32	1.02	0.54	0.40

Intersection Summary

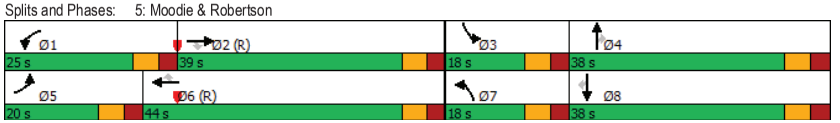
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 105

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 44.2 — Intersection LOS: D
Intersection Capacity Utilization 86.2% — 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.

Splits and Phases: 5: Moodie & Robertson



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	19	1079	5	1467	6	0	27	0
Future Volume (vph)	19	1079	5	1467	6	0	27	0
Lane Group Flow (vph)	19	1083	5	1506	0	13	0	49
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		4		9
Permitted Phases	2		6		4		9	
Detector Phase	2	2	6	6	4	4	9	9
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.4	22.4	22.4	22.4	16.7	16.7	33.7	33.7
Total Split (s)	69.6	69.6	69.6	69.6	16.7	16.7	33.7	33.7
Total Split (%)	58.0%	58.0%	58.0%	58.0%	13.9%	13.9%	28.1%	28.1%
Maximum Green (s)	63.2	63.2	63.2	63.2	10.0	10.0	27.0	27.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0
All-Red Time (s)	2.7	2.7	2.7	2.7	3.7	3.7	3.7	3.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4		6.7		6.7
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0			11.0	11.0
Flash Dont Walk (s)	9.0	9.0	9.0	9.0			16.0	16.0
Pedestrian Calls (#/hr)	17	17	6	6			7	7
Act Effct Green (s)	91.4	91.4	91.4	91.4		10.0		13.4
Actuated g/C Ratio	0.76	0.76	0.76	0.76		0.08		0.11
v/c Ratio	0.11	0.43	0.02	0.60		0.07		0.21
Control Delay	26.7	21.6	7.6	8.8		0.7		3.0
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	26.7	21.6	7.6	8.8		0.7		3.0
LOS	C	C	A	A		A		A
Approach Delay		21.7		8.8		0.7		3.0
Approach LOS		C		A		A		A
Queue Length 50th (m)	1.3	70.1	0.2	37.4		0.0		0.0
Queue Length 95th (m)	m7.8	m153.3	m0.6	36.6		0.0		1.7
Internal Link Dist (m)		89.6		196.4		37.8		53.8
Turn Bay Length (m)	30.0		25.0					
Base Capacity (vph)	171	2521	310	2514		188		367
Starvation Cap Reductn	0	0	0	18		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.11	0.43	0.02	0.60		0.07		0.13

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 63 (53%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 100

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 13.9 — Intersection LOS: B
Intersection Capacity Utilization 66.3% — ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Robertson & Vanier

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	972	151	1469	78	89
Future Volume (vph)	972	151	1469	78	89
Lane Group Flow (vph)	1053	151	1469	78	89
Turn Type	NA	pm+pt	NA	Perm	Perm
Protected Phases	2	1	6		
Permitted Phases		6		4	4
Detector Phase	2	1	6	4	4
Switch Phase					
Minimum Initial (s)	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	33.1	11.1	33.1	31.1	31.1
Total Split (s)	71.0	17.0	88.0	32.0	32.0
Total Split (%)	59.2%	14.2%	73.3%	26.7%	26.7%
Maximum Green (s)	64.9	10.9	81.9	25.9	25.9
Yellow Time (s)	3.7	3.7	3.7	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	3.1	3.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	None	C-Max	None	None
Walk Time (s)	7.0		7.0	10.0	10.0
Flash Dont Walk (s)	20.0		20.0	15.0	15.0
Pedestrian Calls (#/hr)	10		0	16	16
Act Effct Green (s)	76.8	91.6	91.6	16.2	16.2
Actuated g/C Ratio	0.64	0.76	0.76	0.14	0.14
v/c Ratio	0.50	0.41	0.58	0.35	0.33
Control Delay	6.5	11.9	8.2	49.2	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	6.5	11.9	8.2	49.2	11.6
LOS	A	B	A	D	B
Approach Delay	6.5		8.6	29.1	
Approach LOS	A		A	C	
Queue Length 50th (m)	17.6	8.6	48.7	17.8	0.0
Queue Length 95th (m)	11.3	25.0	84.0	29.2	13.4
Internal Link Dist (m)	196.4		308.7	117.3	
Turn Bay Length (m)		60.0		20.0	
Base Capacity (vph)	2093	389	2531	357	373
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.50	0.39	0.58	0.22	0.24

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 56 (47%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 80

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.58
Intersection Signal Delay: 9.0 — Intersection LOS: A
Intersection Capacity Utilization 68.7% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 7: Old Richmond & Robertson

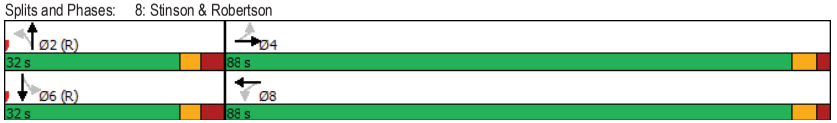
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	17	1104	42	1400	12	1	20	1
Future Volume (vph)	17	1104	42	1400	12	1	20	1
Lane Group Flow (vph)	17	1129	42	1405	0	38	0	68
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.8	26.8	26.8	26.8	31.6	31.6	31.6	31.6
Total Split (s)	88.0	88.0	88.0	88.0	32.0	32.0	32.0	32.0
Total Split (%)	73.3%	73.3%	73.3%	73.3%	26.7%	26.7%	26.7%	26.7%
Maximum Green (s)	82.2	82.2	82.2	82.2	25.4	25.4	25.4	25.4
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0
All-Red Time (s)	2.1	2.1	2.1	2.1	3.6	3.6	3.6	3.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	5.8	5.8	5.8	5.8		6.6		6.6
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0	14.0	14.0	14.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	14	14	17	17	10	10	5	5
Act Effct Green (s)	70.2	70.2	70.2	70.2		37.4		37.4
Actuated g/C Ratio	0.58	0.58	0.58	0.58		0.31		0.31
v/c Ratio	0.16	0.59	0.22	0.72		0.08		0.14
Control Delay	4.6	7.4	25.0	40.2		18.7		16.1
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	4.6	7.4	25.0	40.2		18.7		16.1
LOS	A	A	C	D		B		B
Approach Delay		7.3		39.8		18.7		16.1
Approach LOS		A		D		B		B
Queue Length 50th (m)	0.2	124.4	8.9	179.5		2.1		3.5
Queue Length 95th (m)	m0.7	11.8	m12.4	192.2		11.7		16.1
Internal Link Dist (m)		308.7		283.3		126.0		117.1
Turn Bay Length (m)	75.0		50.0					
Base Capacity (vph)	128	2241	219	2269		466		474
Starvation Cap Reductn	0	0	0	0		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.13	0.50	0.19	0.62		0.08		0.14

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 31 (26%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 70

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 25.1 Intersection LOS: C
Intersection Capacity Utilization 72.2% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Stinson & Robertson



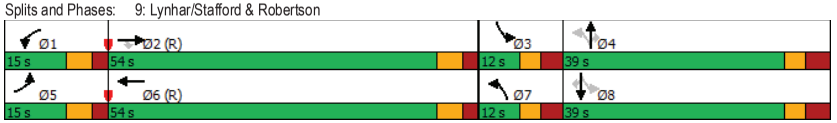
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	129	938	62	58	1121	94	41	80	201	36	175
Future Volume (vph)	129	938	62	58	1121	94	41	80	201	36	175
Lane Group Flow (vph)	129	938	62	58	1198	94	41	80	201	36	175
Turn Type	Prot	NA	Perm	Prot	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6	7	4		3	8	
Permitted Phases			2			4		4	8		8
Detector Phase	5	2	2	1	6	7	4	4	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.1	24.3	24.3	11.1	24.3	11.2	24.7	24.7	11.2	24.7	24.7
Total Split (s)	15.0	54.0	54.0	15.0	54.0	12.0	39.0	39.0	12.0	39.0	39.0
Total Split (%)	12.5%	45.0%	45.0%	12.5%	45.0%	10.0%	32.5%	32.5%	10.0%	32.5%	32.5%
Maximum Green (s)	8.9	47.7	47.7	8.9	47.7	5.8	32.3	32.3	5.8	32.3	32.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.4	2.6	2.6	2.4	2.6	3.2	3.7	3.7	3.2	3.7	3.7
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
Total Lost Time (s)	6.1	6.3	6.3	6.1	6.3	6.2	6.7	6.7	6.2	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		16	16		14		29	29		22	22
Act Effct Green (s)	17.9	66.9	66.9	9.5	56.2	19.0	14.8	14.8	22.3	14.8	14.8
Actuated g/C Ratio	0.15	0.56	0.56	0.08	0.47	0.16	0.12	0.12	0.19	0.12	0.12
v/c Ratio	0.52	0.51	0.07	0.44	0.78	0.45	0.19	0.27	0.87	0.17	0.53
Control Delay	52.7	16.3	0.9	62.3	32.1	46.1	47.7	2.4	79.0	47.2	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.7	16.3	0.9	62.3	32.1	46.1	47.7	2.4	79.0	47.2	13.0
LOS	D	B	A	E	C	D	D	A	E	D	B
Approach Delay		19.6			33.5		30.2			48.2	
Approach LOS		B			C		C			D	
Queue Length 50th (m)	18.7	118.6	1.7	13.3	127.0	17.6	8.5	0.0	40.3	7.5	0.0
Queue Length 95th (m)	49.3	57.5	0.0	26.0	162.6	32.0	19.0	0.6	#83.2	17.2	19.7
Internal Link Dist (m)		283.3			201.3		115.2			173.5	
Turn Bay Length (m)	85.0		50.0	100.0		30.0		30.0	35.0		75.0
Base Capacity (vph)	247	1831	831	142	1529	210	469	471	231	469	511
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.51	0.07	0.41	0.78	0.45	0.09	0.17	0.87	0.08	0.34

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 7 (6%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 30.1 Intersection LOS: C
Intersection Capacity Utilization 77.3% 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: 9: Lynhar/Stafford & Robertson



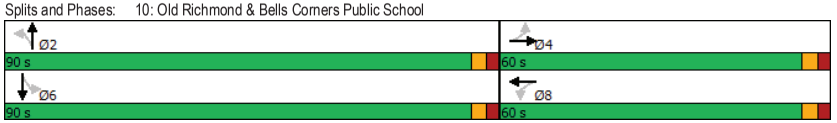
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	31	1	17	0	10	148	16	209
Future Volume (vph)	31	1	17	0	10	148	16	209
Lane Group Flow (vph)	0	49	0	33	0	174	0	240
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.4	40.4	40.4	40.4	70.4	70.4	70.4	70.4
Total Split (s)	60.0	60.0	60.0	60.0	90.0	90.0	90.0	90.0
Total Split (%)	40.0%	40.0%	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%
Maximum Green (s)	54.6	54.6	54.6	54.6	84.6	84.6	84.6	84.6
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.4		5.4		5.4		5.4
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min
Walk Time (s)	7.0	7.0	7.0	7.0	15.0	15.0	15.0	15.0
Flash Dont Walk (s)	7.0	7.0	7.0	7.0	5.0	5.0	5.0	5.0
Pedestrian Calls (#/hr)	23	23	4	4	43	43	10	10
Act Effct Green (s)		10.8		10.8		12.0		12.0
Actuated g/C Ratio		0.32		0.32		0.35		0.35
v/c Ratio		0.12		0.08		0.30		0.43
Control Delay		8.1		7.4		9.1		10.9
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		8.1		7.4		9.1		10.9
LOS		A		A		A		B
Approach Delay		8.1		7.4		9.1		10.9
Approach LOS		A		A		A		B
Queue Length 50th (m)		1.0		0.5		5.9		8.7
Queue Length 95th (m)		6.9		5.0		16.2		22.6
Internal Link Dist (m)		44.5		37.9		236.7		117.3
Turn Bay Length (m)								
Base Capacity (vph)		1271		1297		1629		1562
Starvation Cap Reductn		0		0		0		177
Spillback Cap Reductn		0		0		0		0
Storage Cap Reductn		0		0		0		0
Reduced v/c Ratio		0.04		0.03		0.11		0.17

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 33.9
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.43

Intersection Signal Delay: 9.8	Intersection LOS: A
Intersection Capacity Utilization 37.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 10: Old Richmond & Bells Corners Public School



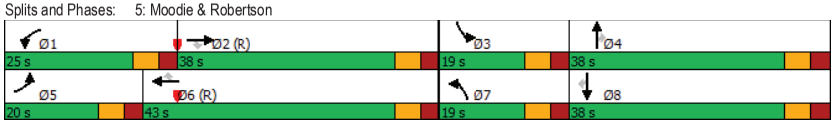
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	149	573	272	230	922	370	229	367	155	314	466	211
Future Volume (vph)	149	573	272	230	922	370	229	367	155	314	466	211
Lane Group Flow (vph)	149	573	272	230	922	370	229	367	155	314	466	211
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
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)	11.4	34.4	34.4	11.4	34.4	34.4	11.5	37.7	37.7	11.5	37.7	37.7
Total Split (s)	20.0	38.0	38.0	25.0	43.0	43.0	19.0	38.0	38.0	19.0	38.0	38.0
Total Split (%)	16.7%	31.7%	31.7%	20.8%	35.8%	35.8%	15.8%	31.7%	31.7%	15.8%	31.7%	31.7%
Maximum Green (s)	13.6	31.6	31.6	18.6	36.6	36.6	12.5	31.3	31.3	12.5	31.3	31.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.8	3.0	3.0	2.8	3.0	3.0
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)	6.4	6.4	6.4	6.4	6.4	6.4	6.5	6.7	6.7	6.5	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		21.0	21.0		21.0	21.0		24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		15	15		5	5		21	21		12	12
Act Effct Green (s)	14.1	37.9	37.9	19.9	43.8	43.8	11.9	23.7	23.7	12.5	24.2	24.2
Actuated g/C Ratio	0.12	0.32	0.32	0.17	0.36	0.36	0.10	0.20	0.20	0.10	0.20	0.20
v/c Ratio	0.77	0.55	0.42	0.84	0.76	0.49	0.72	0.58	0.38	0.94	0.70	0.46
Control Delay	73.7	41.7	12.7	70.7	43.1	9.0	65.6	46.4	8.3	89.2	49.9	8.1
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	73.7	41.7	12.7	70.7	43.1	9.0	65.6	46.4	8.3	89.2	49.9	8.1
LOS	E	D	B	E	D	A	E	D	A	F	D	A
Approach Delay		38.5			38.9			44.4			53.5	
Approach LOS		D			D			D			D	
Queue Length 50th (m)	33.2	50.3	1.5	54.1	100.0	22.4	27.2	42.2	0.0	38.4	55.3	0.0
Queue Length 95th (m)	#68.4	81.1	32.4	#96.3	#143.4	23.2	40.4	52.7	15.8	#65.5	66.8	18.2
Internal Link Dist (m)		105.2			158.4			620.1			176.3	
Turn Bay Length (m)	75.0			70.0			83.0		60.0	80.0		75.0
Base Capacity (vph)	201	1047	640	280	1209	758	335	840	487	335	856	532
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	0.74	0.55	0.42	0.82	0.76	0.49	0.68	0.44	0.32	0.94	0.54	0.40

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 105

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 43.2 — Intersection LOS: D
Intersection Capacity Utilization 86.2% — 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.

Splits and Phases: 5: Moodie & Robertson



Appendix L

Synchro Intersection Worksheets – 2034 Future Total Conditions

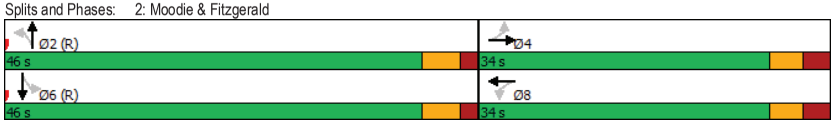
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	90	28	18	6	74	512	116	1198
Future Volume (vph)	90	28	18	6	74	512	116	1198
Lane Group Flow (vph)	90	53	18	14	74	576	116	1384
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	34.0	34.0	34.0	34.0	30.7	30.7	30.7	30.7
Total Split (s)	34.0	34.0	34.0	34.0	46.0	46.0	46.0	46.0
Total Split (%)	42.5%	42.5%	42.5%	42.5%	57.5%	57.5%	57.5%	57.5%
Maximum Green (s)	28.0	28.0	28.0	28.0	40.3	40.3	40.3	40.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	2.7	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	5.7	5.7	5.7	5.7
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	3	3	3	3	6	6	3	3
Act Effct Green (s)	14.4	14.4	14.4	14.4	58.3	58.3	58.3	58.3
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.73	0.73	0.73	0.73
v/c Ratio	0.39	0.18	0.08	0.05	0.37	0.24	0.21	0.59
Control Delay	31.8	16.4	24.2	16.1	17.1	6.0	14.0	15.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.8	16.4	24.2	16.1	17.1	6.0	14.0	15.0
LOS	C	B	C	B	B	A	B	B
Approach Delay		26.1		20.7		7.3		14.9
Approach LOS		C		C		A		B
Queue Length 50th (m)	12.9	3.8	2.5	0.8	3.5	12.3	9.3	72.5
Queue Length 95th (m)	19.8	9.9	6.0	4.2	#26.5	35.7	m21.8	120.0
Internal Link Dist (m)		192.7		115.6		159.6		270.5
Turn Bay Length (m)	35.0		25.0		75.0		45.0	
Base Capacity (vph)	451	536	439	497	201	2352	550	2327
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.10	0.04	0.03	0.37	0.24	0.21	0.59

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 68 (85%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 13.6 Intersection LOS: B
Intersection Capacity Utilization 77.1% 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Moodie & Fitzgerald



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	16	18	635	15	22	1228
Future Volume (vph)	16	18	635	15	22	1228
Lane Group Flow (vph)	16	18	635	15	22	1228
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	32.6	32.6	28.9	28.9	23.9	23.9
Total Split (s)	33.0	33.0	67.0	67.0	67.0	67.0
Total Split (%)	33.0%	33.0%	67.0%	67.0%	67.0%	67.0%
Maximum Green (s)	27.4	27.4	61.1	61.1	61.1	61.1
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.3	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.9	5.9	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	20.0	20.0	16.0	16.0		
Pedestrian Calls (#/hr)	0	0	0	0		
Act Effct Green (s)	10.0	10.0	87.1	87.1	87.1	87.1
Actuated g/C Ratio	0.10	0.10	0.87	0.87	0.87	0.87
v/c Ratio	0.11	0.11	0.22	0.01	0.04	0.43
Control Delay	43.1	19.4	2.2	1.1	2.5	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.2
Total Delay	43.1	19.4	2.2	1.1	2.5	3.3
LOS	D	B	A	A	A	A
Approach Delay	30.6		2.2			3.3
Approach LOS	C		A			A
Queue Length 50th (m)	2.9	0.0	13.6	0.0	0.8	34.0
Queue Length 95th (m)	9.2	6.5	18.2	1.1	2.2	43.3
Internal Link Dist (m)	125.7		176.3			159.6
Turn Bay Length (m)		10.0		45.0	60.0	
Base Capacity (vph)	389	419	2832	1293	540	2832
Starvation Cap Reductn	0	0	0	0	0	619
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.04	0.22	0.01	0.04	0.55

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 58 (58%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 65

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.43
Intersection Signal Delay: 3.4 — Intersection LOS: A
Intersection Capacity Utilization 53.7% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Moodie & Loblaws Access

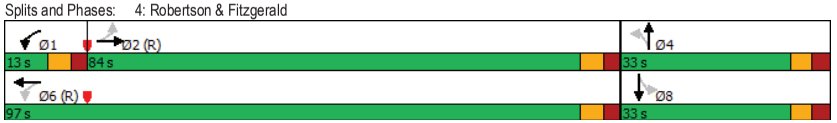
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	181	1365	24	479	4	3	62	8
Future Volume (vph)	181	1365	24	479	4	3	62	8
Lane Group Flow (vph)	181	1370	24	613	4	12	62	70
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		2	1	6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	2	2	1	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	28.4	28.4	11.2	28.4	32.3	32.3	32.3	32.3
Total Split (s)	84.0	84.0	13.0	97.0	33.0	33.0	33.0	33.0
Total Split (%)	64.6%	64.6%	10.0%	74.6%	25.4%	25.4%	25.4%	25.4%
Maximum Green (s)	77.6	77.6	6.8	90.6	26.7	26.7	26.7	26.7
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7	2.5	2.7	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.2	6.4	6.3	6.3	6.3	6.3
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	15.0	15.0		15.0	19.0	19.0	19.0	19.0
Pedestrian Calls (#/hr)	14	14		16	18	18	11	11
Act Effct Green (s)	93.0	93.0	100.8	100.6	16.7	16.7	16.7	16.7
Actuated g/C Ratio	0.72	0.72	0.78	0.77	0.13	0.13	0.13	0.13
v/c Ratio	0.35	0.58	0.09	0.26	0.03	0.06	0.38	0.30
Control Delay	12.3	12.5	5.1	5.3	44.0	26.1	55.9	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.3	12.5	5.1	5.3	44.0	26.1	55.9	16.1
LOS	B	B	A	A	D	C	E	B
Approach Delay		12.5		5.3		30.6		34.8
Approach LOS		B		A		C		C
Queue Length 50th (m)	15.6	78.9	0.4	3.9	1.0	0.7	15.5	1.9
Queue Length 95th (m)	41.1	142.8	m5.5	40.7	4.0	6.1	26.7	14.3
Internal Link Dist (m)		422.4		92.3		38.8		177.2
Turn Bay Length (m)	40.0		50.0		30.0		45.0	
Base Capacity (vph)	513	2370	268	2351	250	296	261	342
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.58	0.09	0.26	0.02	0.04	0.24	0.20

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 97 (75%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.58
Intersection Signal Delay: 11.9 — Intersection LOS: B
Intersection Capacity Utilization 74.3% — ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Robertson & Fitzgerald



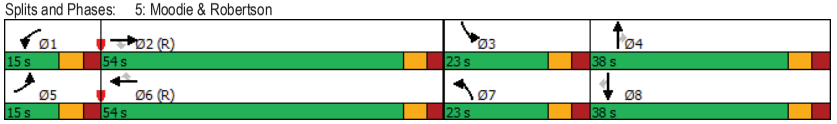
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	1226	116	81	311	177	229	387	310	394	336	135
Future Volume (vph)	87	1226	116	81	311	177	229	387	310	394	336	135
Lane Group Flow (vph)	87	1226	116	81	311	177	229	387	310	394	336	135
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
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)	11.4	34.4	34.4	11.4	34.4	34.4	11.5	37.7	37.7	11.5	37.7	37.7
Total Split (s)	15.0	54.0	54.0	15.0	54.0	54.0	23.0	38.0	38.0	23.0	38.0	38.0
Total Split (%)	11.5%	41.5%	41.5%	11.5%	41.5%	41.5%	17.7%	29.2%	29.2%	17.7%	29.2%	29.2%
Maximum Green (s)	8.6	47.6	47.6	8.6	47.6	47.6	16.5	31.3	31.3	16.5	31.3	31.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.8	3.0	3.0	2.8	3.0	3.0
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)	6.4	6.4	6.4	6.4	6.4	6.4	6.5	6.7	6.7	6.5	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		21.0	21.0		21.0	21.0		24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		4	4		6	6		4	4		6	6
Act Effct Green (s)	11.0	54.0	54.0	10.3	53.3	53.3	14.1	23.2	23.2	16.5	25.6	25.6
Actuated g/C Ratio	0.08	0.42	0.42	0.08	0.41	0.41	0.11	0.18	0.18	0.13	0.20	0.20
v/c Ratio	0.64	0.89	0.17	0.62	0.24	0.25	0.66	0.67	0.83	0.97	0.54	0.35
Control Delay	91.3	35.5	1.2	86.8	24.8	8.5	64.7	55.0	45.8	93.1	49.8	8.8
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	91.3	35.5	1.2	86.8	24.8	8.5	64.7	55.0	45.8	93.1	49.8	8.8
LOS	F	D	A	F	C	A	E	D	D	F	D	A
Approach Delay		36.1			28.6			54.3			63.1	
Approach LOS		D			C			D			E	
Queue Length 50th (m)	21.1	156.8	1.8	18.1	34.0	17.3	29.3	49.3	43.8	52.5	41.4	0.0
Queue Length 95th (m)	m#54.0	#210.5	2.4	#48.4	20.2	17.9	42.1	61.0	73.1	#83.6	53.5	15.5
Internal Link Dist (m)		105.2			158.4			620.1			176.3	
Turn Bay Length (m)	75.0			70.0			83.0		60.0	80.0		75.0
Base Capacity (vph)	135	1377	669	133	1295	700	408	782	457	408	761	441
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	0.64	0.89	0.17	0.61	0.24	0.25	0.56	0.49	0.68	0.97	0.44	0.31

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 119 (92%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 125

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 45.6 — Intersection LOS: D
Intersection Capacity Utilization 87.1% — 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: 5: Moodie & Robertson



Lane Group	EBL	EBT	WBL	WBT	SBL	SBT	Ø4
Lane Configurations							
Traffic Volume (vph)	9	1967	1	564	19	0	
Future Volume (vph)	9	1967	1	564	19	0	
Lane Group Flow (vph)	9	1967	1	575	0	31	
Turn Type	Perm	NA	Perm	NA	Perm	NA	
Protected Phases		2		6		9	4
Permitted Phases	2		6		9		
Detector Phase	2	2	6	6	9	9	
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.4	22.4	22.4	22.4	33.7	33.7	16.7
Total Split (s)	79.6	79.6	79.6	79.6	33.7	33.7	16.7
Total Split (%)	61.2%	61.2%	61.2%	61.2%	25.9%	25.9%	13%
Maximum Green (s)	73.2	73.2	73.2	73.2	27.0	27.0	10.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0	3.0
All-Red Time (s)	2.7	2.7	2.7	2.7	3.7	3.7	3.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.4	6.4	6.4	6.4		6.7	
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	11.0	11.0	
Flash Dont Walk (s)	9.0	9.0	9.0	9.0	16.0	16.0	
Pedestrian Calls (#/hr)	6	6	4	4	3	3	
Act Effct Green (s)	112.7	112.7	112.7	112.7		13.4	
Actuated g/C Ratio	0.87	0.87	0.87	0.87		0.10	
v/c Ratio	0.01	0.68	0.02	0.21		0.13	
Control Delay	5.2	10.6	7.0	5.1		1.2	
Queue Delay	0.0	0.8	0.0	0.0		0.0	
Total Delay	5.2	11.4	7.0	5.1		1.2	
LOS	A	B	A	A		A	
Approach Delay		11.3		5.1		1.2	
Approach LOS		B		A		A	
Queue Length 50th (m)	0.3	95.0	0.1	34.0		0.0	
Queue Length 95th (m)	m1.0	m152.9	m0.6	58.5		0.0	
Internal Link Dist (m)		89.6		196.4		53.8	
Turn Bay Length (m)	30.0		25.0				
Base Capacity (vph)	655	2875	64	2781		379	
Starvation Cap Reductn	0	0	0	0		0	
Spillback Cap Reductn	0	529	0	0		0	
Storage Cap Reductn	0	0	0	0		0	
Reduced v/c Ratio	0.01	0.84	0.02	0.21		0.08	

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 112 (86%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 140

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 9.8 — Intersection LOS: A
Intersection Capacity Utilization 78.0% — ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Robertson & Vanier

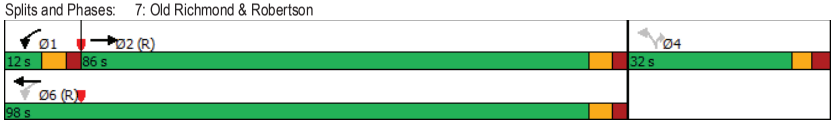
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	1960	45	532	39	218
Future Volume (vph)	1960	45	532	39	218
Lane Group Flow (vph)	1994	45	532	39	218
Turn Type	NA	pm+pt	NA	Perm	Perm
Protected Phases	2	1	6		
Permitted Phases		6		4	4
Detector Phase	2	1	6	4	4
Switch Phase					
Minimum Initial (s)	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	33.1	11.1	33.1	31.1	31.1
Total Split (s)	86.0	12.0	98.0	32.0	32.0
Total Split (%)	66.2%	9.2%	75.4%	24.6%	24.6%
Maximum Green (s)	79.9	5.9	91.9	25.9	25.9
Yellow Time (s)	3.7	3.7	3.7	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	3.1	3.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	None	C-Max	None	None
Walk Time (s)	7.0		7.0	10.0	10.0
Flash Dont Walk (s)	20.0		20.0	15.0	15.0
Pedestrian Calls (#/hr)	5		0	3	3
Act Effct Green (s)	90.1	100.0	100.0	17.8	17.8
Actuated g/C Ratio	0.69	0.77	0.77	0.14	0.14
v/c Ratio	0.87	0.35	0.22	0.18	0.80
Control Delay	24.2	29.1	4.6	48.7	52.4
Queue Delay	46.7	0.0	0.0	0.0	0.0
Total Delay	70.9	29.1	4.6	48.7	52.4
LOS	E	C	A	D	D
Approach Delay	70.9		6.5	51.8	
Approach LOS	E		A	D	
Queue Length 50th (m)	267.6	3.1	16.0	9.0	33.1
Queue Length 95th (m)	#326.2	16.2	27.0	18.4	57.5
Internal Link Dist (m)	196.4		308.7	117.3	
Turn Bay Length (m)		60.0		20.0	
Base Capacity (vph)	2286	129	2454	310	357
Starvation Cap Reductn	599	0	0	0	0
Spillback Cap Reductn	39	0	0	0	1
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.18	0.35	0.22	0.13	0.61

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 17 (13%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 120

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 56.0 — Intersection LOS: E
Intersection Capacity Utilization 82.8% — 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.

Splits and Phases: 7: Old Richmond & Robertson



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	54	2033	20	651	9	2	2	0
Future Volume (vph)	54	2033	20	651	9	2	2	0
Lane Group Flow (vph)	54	2039	20	673	0	43	0	13
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.8	26.8	26.8	26.8	31.6	31.6	31.6	31.6
Total Split (s)	98.0	98.0	98.0	98.0	32.0	32.0	32.0	32.0
Total Split (%)	75.4%	75.4%	75.4%	75.4%	24.6%	24.6%	24.6%	24.6%
Maximum Green (s)	92.2	92.2	92.2	92.2	25.4	25.4	25.4	25.4
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0
All-Red Time (s)	2.1	2.1	2.1	2.1	3.6	3.6	3.6	3.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	5.8	5.8	5.8	5.8		6.6		6.6
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0	14.0	14.0	14.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	3	3	11	11	0	0	6	6
Act Effct Green (s)	92.2	92.2	92.2	92.2		25.4		25.4
Actuated g/C Ratio	0.71	0.71	0.71	0.71		0.20		0.20
v/c Ratio	0.12	0.87	0.38	0.29		0.14		0.05
Control Delay	2.4	8.4	27.1	2.7		26.8		8.2
Queue Delay	0.0	1.1	0.0	0.0		0.0		0.0
Total Delay	2.4	9.5	27.1	2.7		26.8		8.2
LOS	A	A	C	A		C		A
Approach Delay		9.3		3.4		26.8		8.2
Approach LOS		A		A		C		A
Queue Length 50th (m)	1.0	106.7	0.3	6.2		4.5		0.0
Queue Length 95th (m)	m1.4	25.3	#10.3	8.7		14.8		3.6
Internal Link Dist (m)		308.7		283.3		126.0		117.1
Turn Bay Length (m)	75.0		50.0					
Base Capacity (vph)	456	2350	52	2293		302		273
Starvation Cap Reductn	0	130	0	0		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.12	0.92	0.38	0.29		0.14		0.05

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 129 (99%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 8.1 — Intersection LOS: A
Intersection Capacity Utilization 90.7% — 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: 8: Stinson & Robertson

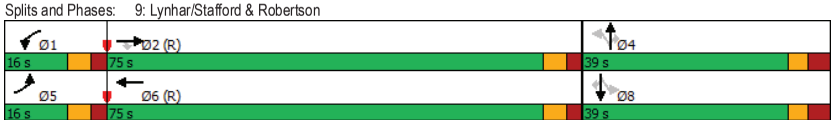
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	42	1912	27	14	675	33	11	101	31	4	53
Future Volume (vph)	42	1912	27	14	675	33	11	101	31	4	53
Lane Group Flow (vph)	42	1912	27	14	758	33	11	101	31	4	53
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		4			8	
Permitted Phases			2			4		4	8		8
Detector Phase	5	2	2	1	6	4	4	4	8	8	8
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.1	24.3	24.3	11.1	24.3	24.7	24.7	24.7	24.7	24.7	24.7
Total Split (s)	16.0	75.0	75.0	16.0	75.0	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	12.3%	57.7%	57.7%	12.3%	57.7%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Maximum Green (s)	9.9	68.7	68.7	9.9	68.7	32.3	32.3	32.3	32.3	32.3	32.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.4	2.6	2.6	2.4	2.6	3.7	3.7	3.7	3.7	3.7	3.7
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
Total Lost Time (s)	6.1	6.3	6.3	6.1	6.3	6.7	6.7	6.7	6.7	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		4	4		5	4	4	4	4	4	4
Act Effct Green (s)	9.0	99.7	99.7	6.7	92.5	11.7	11.7	11.7	11.7	11.7	11.7
Actuated g/C Ratio	0.07	0.77	0.77	0.05	0.71	0.09	0.09	0.09	0.09	0.09	0.09
v/c Ratio	0.40	0.75	0.02	0.16	0.33	0.28	0.07	0.45	0.30	0.03	0.27
Control Delay	48.2	10.9	0.2	62.7	8.5	60.5	53.3	16.5	61.5	52.0	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	10.9	0.2	62.7	8.5	60.5	53.3	16.5	61.5	52.0	7.6
LOS	D	B	A	E	A	E	D	B	E	D	A
Approach Delay		11.5			9.4		29.3			28.6	
Approach LOS		B			A		C			C	
Queue Length 50th (m)	10.7	84.5	0.0	3.5	34.6	8.2	2.7	0.0	7.7	1.0	0.0
Queue Length 95th (m)	m12.2	121.1	m0.0	10.3	59.6	17.8	8.2	16.0	16.9	4.3	5.7
Internal Link Dist (m)		283.3			201.3		115.2			173.5	
Turn Bay Length (m)	85.0		50.0	100.0		30.0		30.0	35.0		75.0
Base Capacity (vph)	122	2543	1118	126	2264	321	433	436	290	433	406
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.75	0.02	0.11	0.33	0.10	0.03	0.23	0.11	0.01	0.13

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 36 (28%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 100

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 12.3 — Intersection LOS: B
Intersection Capacity Utilization 89.7% — ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Lynhar/Stafford & Robertson



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	20	0	6	0	15	214	37	105
Future Volume (vph)	20	0	6	0	15	214	37	105
Lane Group Flow (vph)	0	29	0	32	0	274	0	178
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.4	40.4	40.4	40.4	45.4	45.4	45.4	45.4
Total Split (s)	60.0	60.0	60.0	60.0	80.0	80.0	80.0	80.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	57.1%	57.1%	57.1%	57.1%
Maximum Green (s)	54.6	54.6	54.6	54.6	74.6	74.6	74.6	74.6
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.4		5.4		5.4		5.4
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min
Walk Time (s)	7.0	7.0	7.0	7.0	15.0	15.0	15.0	15.0
Flash Dont Walk (s)	7.0	7.0	7.0	7.0	5.0	5.0	5.0	5.0
Pedestrian Calls (#/hr)	1	1	10	10	15	15	18	18
Act Effct Green (s)		10.8		10.8		11.9		11.9
Actuated g/C Ratio		0.32		0.32		0.35		0.35
v/c Ratio		0.07		0.07		0.48		0.35
Control Delay		6.8		5.9		11.3		9.6
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		6.8		5.9		11.3		9.6
LOS		A		A		B		A
Approach Delay		6.8		5.9		11.3		9.6
Approach LOS		A		A		B		A
Queue Length 50th (m)		0.3		0.3		9.9		5.8
Queue Length 95th (m)		4.4		4.3		25.3		16.7
Internal Link Dist (m)		44.5		37.9		236.7		117.3
Turn Bay Length (m)								
Base Capacity (vph)		1294		1397		1600		1405
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		0.02		0.02		0.17		0.13

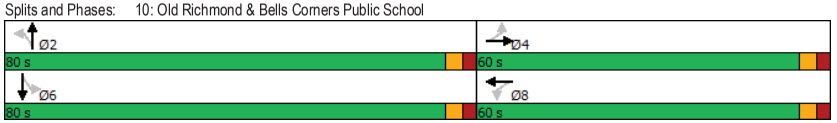
Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 33.8
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.48

Intersection Signal Delay: 10.1	Intersection LOS: B
Intersection Capacity Utilization 41.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 10: Old Richmond & Bells Corners Public School

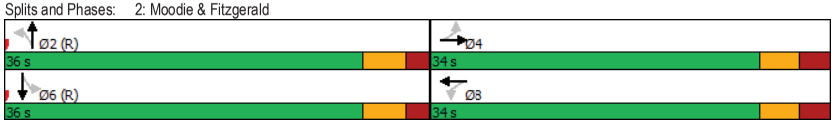


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	207	6	91	20	51	1092	30	791
Future Volume (vph)	207	6	91	20	51	1092	30	791
Lane Group Flow (vph)	207	73	91	75	51	1139	30	860
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	34.0	34.0	34.0	34.0	30.7	30.7	30.7	30.7
Total Split (s)	34.0	34.0	34.0	34.0	36.0	36.0	36.0	36.0
Total Split (%)	48.6%	48.6%	48.6%	48.6%	51.4%	51.4%	51.4%	51.4%
Maximum Green (s)	28.0	28.0	28.0	28.0	30.3	30.3	30.3	30.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	2.7	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	5.7	5.7	5.7	5.7
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	9.0	9.0	9.0	9.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	4	4	1	1	8	8	2	2
Act Effct Green (s)	17.9	17.9	17.9	17.9	40.4	40.4	40.4	40.4
Actuated g/C Ratio	0.26	0.26	0.26	0.26	0.58	0.58	0.58	0.58
v/c Ratio	0.66	0.17	0.29	0.18	0.20	0.60	0.16	0.46
Control Delay	32.2	6.1	20.9	11.6	12.6	12.8	12.7	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.2	6.1	20.9	11.6	12.6	12.8	12.7	10.7
LOS	C	A	C	B	B	B	B	B
Approach Delay		25.4		16.7		12.8		10.7
Approach LOS		C		B		B		B
Queue Length 50th (m)	24.6	0.6	9.7	4.2	2.8	43.7	1.6	28.9
Queue Length 95th (m)	35.5	7.3	16.5	10.4	12.0	88.8	8.3	59.8
Internal Link Dist (m)		192.7		115.6		159.6		270.5
Turn Bay Length (m)	35.0		25.0		75.0		45.0	
Base Capacity (vph)	494	628	493	636	254	1903	192	1890
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.12	0.18	0.12	0.20	0.60	0.16	0.46

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: 65

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 13.7 — Intersection LOS: B
Intersection Capacity Utilization 73.8% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: Moodie & Fitzgerald



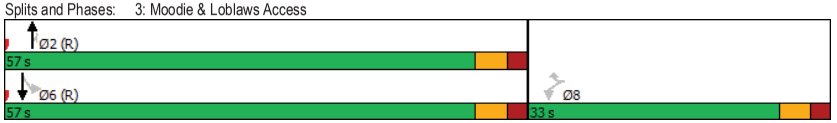
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	107	51	1134	54	75	876
Future Volume (vph)	107	51	1134	54	75	876
Lane Group Flow (vph)	107	51	1134	54	75	876
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	32.6	32.6	28.9	28.9	23.9	23.9
Total Split (s)	33.0	33.0	57.0	57.0	57.0	57.0
Total Split (%)	36.7%	36.7%	63.3%	63.3%	63.3%	63.3%
Maximum Green (s)	27.4	27.4	51.1	51.1	51.1	51.1
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.3	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.9	5.9	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	20.0	20.0	16.0	16.0		
Pedestrian Calls (#/hr)	10	10	2	2		
Act Effct Green (s)	14.2	14.2	68.6	68.6	68.6	68.6
Actuated g/C Ratio	0.16	0.16	0.76	0.76	0.76	0.76
v/c Ratio	0.41	0.19	0.45	0.05	0.25	0.35
Control Delay	37.1	9.7	6.9	2.2	9.2	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.1	9.7	6.9	2.2	9.2	6.0
LOS	D	A	A	A	A	A
Approach Delay	28.2		6.7			6.2
Approach LOS	C		A			A
Queue Length 50th (m)	17.6	0.0	32.0	0.0	3.2	22.0
Queue Length 95th (m)	26.5	7.8	81.4	4.5	16.4	57.0
Internal Link Dist (m)	125.7		176.3			159.6
Turn Bay Length (m)		10.0		45.0	60.0	
Base Capacity (vph)	504	468	2501	1116	304	2501
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.11	0.45	0.05	0.25	0.35

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 9 (10%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 65

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.45
Intersection Signal Delay: 8.0 — Intersection LOS: A
Intersection Capacity Utilization 68.3% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 3: Moodie & Loblaws Access



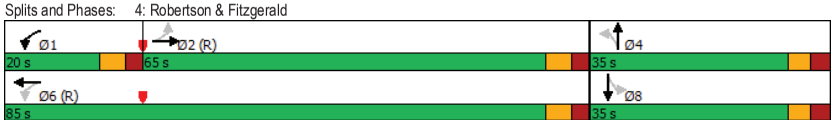
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	32	699	176	1190	60	24	108	39
Future Volume (vph)	32	699	176	1190	60	24	108	39
Lane Group Flow (vph)	32	729	176	1234	60	179	108	188
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		2	1	6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	2	2	1	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	28.4	28.4	11.2	28.4	32.3	32.3	32.3	32.3
Total Split (s)	65.0	65.0	20.0	85.0	35.0	35.0	35.0	35.0
Total Split (%)	54.2%	54.2%	16.7%	70.8%	29.2%	29.2%	29.2%	29.2%
Maximum Green (s)	58.6	58.6	13.8	78.6	28.7	28.7	28.7	28.7
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7	2.5	2.7	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.2	6.4	6.3	6.3	6.3	6.3
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	15.0	15.0		15.0	19.0	19.0	19.0	19.0
Pedestrian Calls (#/hr)	23	23		22	40	40	18	18
Act Effct Green (s)	67.9	67.9	84.3	84.1	23.2	23.2	23.2	23.2
Actuated g/C Ratio	0.57	0.57	0.70	0.70	0.19	0.19	0.19	0.19
v/c Ratio	0.15	0.39	0.38	0.54	0.36	0.45	0.64	0.52
Control Delay	17.6	16.5	7.1	5.8	46.3	12.4	60.9	26.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.6	16.5	7.1	5.8	46.3	12.4	60.9	26.6
LOS	B	B	A	A	D	B	E	C
Approach Delay		16.5		5.9		20.9		39.1
Approach LOS		B		A		C		D
Queue Length 50th (m)	3.6	50.5	6.1	24.2	12.0	4.6	22.9	19.8
Queue Length 95th (m)	10.7	71.5	m12.0	39.1	24.6	23.3	41.7	41.5
Internal Link Dist (m)		422.4		92.3		38.8		177.2
Turn Bay Length (m)	40.0		50.0		30.0		45.0	
Base Capacity (vph)	213	1860	497	2306	205	460	209	424
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.39	0.35	0.54	0.29	0.39	0.52	0.44

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 105 (88%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 75

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 13.9 — Intersection LOS: B
Intersection Capacity Utilization 93.8% — ICU Level of Service F
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Robertson & Fitzgerald



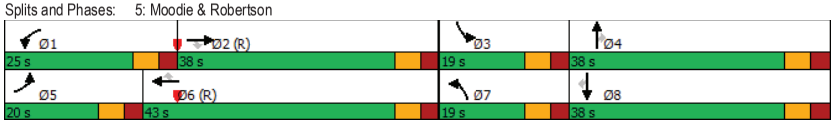
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	149	573	272	230	922	370	229	418	155	314	466	211
Future Volume (vph)	149	573	272	230	922	370	229	418	155	314	466	211
Lane Group Flow (vph)	149	573	272	230	922	370	229	418	155	314	466	211
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
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)	11.4	34.4	34.4	11.4	34.4	34.4	11.5	37.7	37.7	11.5	37.7	37.7
Total Split (s)	20.0	38.0	38.0	25.0	43.0	43.0	19.0	38.0	38.0	19.0	38.0	38.0
Total Split (%)	16.7%	31.7%	31.7%	20.8%	35.8%	35.8%	15.8%	31.7%	31.7%	15.8%	31.7%	31.7%
Maximum Green (s)	13.6	31.6	31.6	18.6	36.6	36.6	12.5	31.3	31.3	12.5	31.3	31.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.8	3.0	3.0	2.8	3.0	3.0
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)	6.4	6.4	6.4	6.4	6.4	6.4	6.5	6.7	6.7	6.5	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		21.0	21.0		21.0	21.0		24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		15	15		5	5		21	21		12	12
Act Effct Green (s)	14.1	37.7	37.7	19.9	43.5	43.5	11.9	23.9	23.9	12.5	24.5	24.5
Actuated g/C Ratio	0.12	0.31	0.31	0.17	0.36	0.36	0.10	0.20	0.20	0.10	0.20	0.20
v/c Ratio	0.77	0.55	0.43	0.84	0.77	0.50	0.72	0.65	0.38	0.94	0.70	0.46
Control Delay	73.7	41.8	12.7	70.9	43.3	9.8	65.6	48.4	8.2	89.2	49.5	8.1
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	73.7	41.8	12.7	70.9	43.3	9.8	65.6	48.4	8.2	89.2	49.5	8.1
LOS	E	D	B	E	D	A	E	D	A	F	D	A
Approach Delay		38.6			39.3			45.5			53.3	
Approach LOS		D			D			D			D	
Queue Length 50th (m)	33.2	50.3	1.5	54.1	100.0	24.5	27.2	48.9	0.0	38.4	55.3	0.0
Queue Length 95th (m)	#68.4	81.1	32.4	#96.3	#143.4	24.0	40.4	60.1	15.8	#65.5	66.8	18.2
Internal Link Dist (m)		105.2			158.4			620.1			176.3	
Turn Bay Length (m)	75.0			70.0			83.0		60.0	80.0		75.0
Base Capacity (vph)	201	1040	637	280	1202	745	335	840	487	335	856	532
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	0.74	0.55	0.43	0.82	0.77	0.50	0.68	0.50	0.32	0.94	0.54	0.40

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 105

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 43.5 — Intersection LOS: D
Intersection Capacity Utilization 87.0% — 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.

Splits and Phases: 5: Moodie & Robertson



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	19	1079	5	1467	6	0	27	0
Future Volume (vph)	19	1079	5	1467	6	0	27	0
Lane Group Flow (vph)	19	1083	5	1506	0	13	0	49
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		4		9
Permitted Phases	2		6		4		9	
Detector Phase	2	2	6	6	4	4	9	9
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.4	22.4	22.4	22.4	16.7	16.7	33.7	33.7
Total Split (s)	69.6	69.6	69.6	69.6	16.7	16.7	33.7	33.7
Total Split (%)	58.0%	58.0%	58.0%	58.0%	13.9%	13.9%	28.1%	28.1%
Maximum Green (s)	63.2	63.2	63.2	63.2	10.0	10.0	27.0	27.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0
All-Red Time (s)	2.7	2.7	2.7	2.7	3.7	3.7	3.7	3.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4		6.7		6.7
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0			11.0	11.0
Flash Dont Walk (s)	9.0	9.0	9.0	9.0			16.0	16.0
Pedestrian Calls (#/hr)	17	17	6	6			7	7
Act Effct Green (s)	91.4	91.4	91.4	91.4		10.0		13.4
Actuated g/C Ratio	0.76	0.76	0.76	0.76		0.08		0.11
v/c Ratio	0.11	0.43	0.02	0.60		0.07		0.21
Control Delay	27.0	21.9	7.6	8.8		0.7		3.0
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	27.0	21.9	7.6	8.8		0.7		3.0
LOS	C	C	A	A		A		A
Approach Delay		22.0		8.8		0.7		3.0
Approach LOS		C		A		A		A
Queue Length 50th (m)	1.4	70.2	0.2	37.4		0.0		0.0
Queue Length 95th (m)	m8.0	m156.6	m0.6	36.6		0.0		1.7
Internal Link Dist (m)		89.6		196.4		37.8		53.8
Turn Bay Length (m)	30.0		25.0					
Base Capacity (vph)	171	2521	310	2514		188		367
Starvation Cap Reductn	0	0	0	18		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.11	0.43	0.02	0.60		0.07		0.13

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 63 (53%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 100

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 14.0 — Intersection LOS: B
Intersection Capacity Utilization 66.3% — ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Robertson & Vanier

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	972	151	1469	78	89
Future Volume (vph)	972	151	1469	78	89
Lane Group Flow (vph)	1053	151	1469	78	89
Turn Type	NA	pm+pt	NA	Perm	Perm
Protected Phases	2	1	6		
Permitted Phases		6		4	4
Detector Phase	2	1	6	4	4
Switch Phase					
Minimum Initial (s)	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	33.1	11.1	33.1	31.1	31.1
Total Split (s)	71.0	17.0	88.0	32.0	32.0
Total Split (%)	59.2%	14.2%	73.3%	26.7%	26.7%
Maximum Green (s)	64.9	10.9	81.9	25.9	25.9
Yellow Time (s)	3.7	3.7	3.7	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	3.1	3.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	None	C-Max	None	None
Walk Time (s)	7.0		7.0	10.0	10.0
Flash Dont Walk (s)	20.0		20.0	15.0	15.0
Pedestrian Calls (#/hr)	10		0	16	16
Act Effct Green (s)	76.8	91.6	91.6	16.2	16.2
Actuated g/C Ratio	0.64	0.76	0.76	0.14	0.14
v/c Ratio	0.50	0.41	0.58	0.35	0.33
Control Delay	6.6	11.9	8.2	49.2	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	6.6	11.9	8.2	49.2	11.6
LOS	A	B	A	D	B
Approach Delay	6.6		8.6	29.1	
Approach LOS	A		A	C	
Queue Length 50th (m)	17.6	8.6	48.7	17.8	0.0
Queue Length 95th (m)	11.3	25.0	84.0	29.2	13.4
Internal Link Dist (m)	196.4		308.7	117.3	
Turn Bay Length (m)		60.0		20.0	
Base Capacity (vph)	2093	389	2531	357	373
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.50	0.39	0.58	0.22	0.24

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 56 (47%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 80

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.58
Intersection Signal Delay: 9.1 — Intersection LOS: A
Intersection Capacity Utilization 68.7% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 7: Old Richmond & Robertson

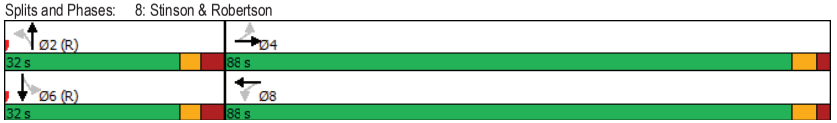
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	17	1104	42	1400	12	1	20	1
Future Volume (vph)	17	1104	42	1400	12	1	20	1
Lane Group Flow (vph)	17	1129	42	1405	0	38	0	68
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.8	26.8	26.8	26.8	31.6	31.6	31.6	31.6
Total Split (s)	88.0	88.0	88.0	88.0	32.0	32.0	32.0	32.0
Total Split (%)	73.3%	73.3%	73.3%	73.3%	26.7%	26.7%	26.7%	26.7%
Maximum Green (s)	82.2	82.2	82.2	82.2	25.4	25.4	25.4	25.4
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0
All-Red Time (s)	2.1	2.1	2.1	2.1	3.6	3.6	3.6	3.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	5.8	5.8	5.8	5.8		6.6		6.6
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0	14.0	14.0	14.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	14	14	17	17	10	10	5	5
Act Effct Green (s)	70.2	70.2	70.2	70.2		37.4		37.4
Actuated g/C Ratio	0.58	0.58	0.58	0.58		0.31		0.31
v/c Ratio	0.16	0.59	0.22	0.72		0.08		0.14
Control Delay	4.6	7.4	25.0	40.2		18.7		16.1
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	4.6	7.4	25.0	40.2		18.7		16.1
LOS	A	A	C	D		B		B
Approach Delay		7.4		39.8		18.7		16.1
Approach LOS		A		D		B		B
Queue Length 50th (m)	0.2	124.4	8.9	179.5		2.1		3.5
Queue Length 95th (m)	m0.7	11.8	m12.4	192.2		11.7		16.1
Internal Link Dist (m)		308.7		283.3		126.0		117.1
Turn Bay Length (m)	75.0		50.0					
Base Capacity (vph)	128	2241	219	2269		466		474
Starvation Cap Reductn	0	0	0	0		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.13	0.50	0.19	0.62		0.08		0.14

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 31 (26%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 70

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 25.1 — Intersection LOS: C
Intersection Capacity Utilization 72.2% — ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Stinson & Robertson



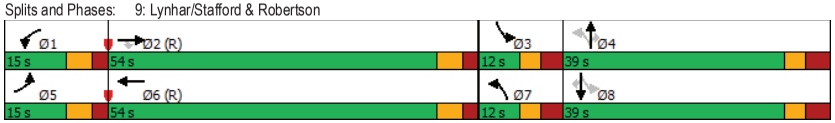
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	129	938	62	58	1121	94	41	80	201	36	175
Future Volume (vph)	129	938	62	58	1121	94	41	80	201	36	175
Lane Group Flow (vph)	129	938	62	58	1198	94	41	80	201	36	175
Turn Type	Prot	NA	Perm	Prot	NA	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6	7	4		3	8	
Permitted Phases			2			4		4	8		8
Detector Phase	5	2	2	1	6	7	4	4	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.1	24.3	24.3	11.1	24.3	11.2	24.7	24.7	11.2	24.7	24.7
Total Split (s)	15.0	54.0	54.0	15.0	54.0	12.0	39.0	39.0	12.0	39.0	39.0
Total Split (%)	12.5%	45.0%	45.0%	12.5%	45.0%	10.0%	32.5%	32.5%	10.0%	32.5%	32.5%
Maximum Green (s)	8.9	47.7	47.7	8.9	47.7	5.8	32.3	32.3	5.8	32.3	32.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.4	2.6	2.6	2.4	2.6	3.2	3.7	3.7	3.2	3.7	3.7
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
Total Lost Time (s)	6.1	6.3	6.3	6.1	6.3	6.2	6.7	6.7	6.2	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		16	16		14		29	29		22	22
Act Effct Green (s)	17.9	66.9	66.9	9.5	56.2	19.0	14.8	14.8	22.3	14.8	14.8
Actuated g/C Ratio	0.15	0.56	0.56	0.08	0.47	0.16	0.12	0.12	0.19	0.12	0.12
v/c Ratio	0.52	0.51	0.07	0.44	0.78	0.45	0.19	0.27	0.87	0.17	0.53
Control Delay	52.7	16.3	0.9	62.3	32.1	46.1	47.7	2.4	79.0	47.2	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.7	16.3	0.9	62.3	32.1	46.1	47.7	2.4	79.0	47.2	13.0
LOS	D	B	A	E	C	D	D	A	E	D	B
Approach Delay		19.6			33.5		30.2			48.2	
Approach LOS		B			C		C			D	
Queue Length 50th (m)	18.7	118.6	1.7	13.3	127.0	17.6	8.5	0.0	40.3	7.5	0.0
Queue Length 95th (m)	49.3	57.5	0.0	26.0	162.6	32.0	19.0	0.6	#83.2	17.2	19.7
Internal Link Dist (m)		283.3			201.3		115.2			173.5	
Turn Bay Length (m)	85.0		50.0	100.0		30.0		30.0	35.0		75.0
Base Capacity (vph)	247	1831	831	142	1529	210	469	471	231	469	511
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.51	0.07	0.41	0.78	0.45	0.09	0.17	0.87	0.08	0.34

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 7 (6%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 30.1 — Intersection LOS: C
Intersection Capacity Utilization 77.3% — 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: 9: Lynhar/Stafford & Robertson



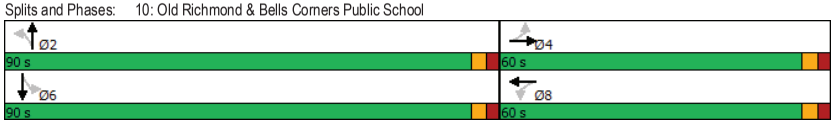
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	31	1	17	0	10	148	16	209
Future Volume (vph)	31	1	17	0	10	148	16	209
Lane Group Flow (vph)	0	49	0	33	0	174	0	240
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.4	40.4	40.4	40.4	70.4	70.4	70.4	70.4
Total Split (s)	60.0	60.0	60.0	60.0	90.0	90.0	90.0	90.0
Total Split (%)	40.0%	40.0%	40.0%	40.0%	60.0%	60.0%	60.0%	60.0%
Maximum Green (s)	54.6	54.6	54.6	54.6	84.6	84.6	84.6	84.6
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.4		5.4		5.4		5.4
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min
Walk Time (s)	7.0	7.0	7.0	7.0	15.0	15.0	15.0	15.0
Flash Dont Walk (s)	7.0	7.0	7.0	7.0	5.0	5.0	5.0	5.0
Pedestrian Calls (#/hr)	23	23	4	4	43	43	10	10
Act Effct Green (s)		10.8		10.8		12.0		12.0
Actuated g/C Ratio		0.32		0.32		0.35		0.35
v/c Ratio		0.12		0.08		0.30		0.43
Control Delay		8.1		7.4		9.1		10.9
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		8.1		7.4		9.1		10.9
LOS		A		A		A		B
Approach Delay		8.1		7.4		9.1		10.9
Approach LOS		A		A		A		B
Queue Length 50th (m)		1.0		0.5		5.9		8.7
Queue Length 95th (m)		6.9		5.0		16.2		22.6
Internal Link Dist (m)		44.5		37.9		236.7		117.3
Turn Bay Length (m)								
Base Capacity (vph)		1271		1297		1629		1562
Starvation Cap Reductn		0		0		0		177
Spillback Cap Reductn		0		0		0		0
Storage Cap Reductn		0		0		0		0
Reduced v/c Ratio		0.04		0.03		0.11		0.17

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 33.9
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.43

Intersection Signal Delay: 9.8	Intersection LOS: A
Intersection Capacity Utilization 37.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 10: Old Richmond & Bells Corners Public School



Appendix M

MMLOS Analysis

Multi-Modal Level of Service - Intersections Form

Consultant	**CGH Transportation Inc**	**Project**	**2020-90**
Scenario	**Existing/Future**	**Date**	**2021-08-20**
Comments			

INTERSECTIONS		Fitzgerald/Menten @ Moodie				Loblaws @ Moodie				Robertson @ Fitzgerald			
	Crossing Side	**NORTH**	**SOUTH**	**EAST**	**WEST**	**NORTH**	**SOUTH**	**EAST**	**WEST**	**NORTH**	**SOUTH**	**EAST**	**WEST**
Pedestrian	Lanes	7	7	5	4	7	8	7		5	5	7	7
	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
	Conflicting Left Turns	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive		Permissive	Protected/ Permissive	Permissive	Permissive
	Conflicting Right Turns	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	Permissive or yield control
	Right Turns on Red (RToR) ?	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed		RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed
	Ped Signal Leading Interval?	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 Right Turn	No Channel		No Channel	No Channel	No Channel	No Channel
	Corner Radius	10-15m	5-10m	10-15m	5-10m	3-5m	No Right Turn	10-15m		10-15m	10-15m	5-10m	10-15m
	Crosswalk Type	Std transverse 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	Std transverse markings	Std transverse markings
	PETSI Score	**4**	**5**	**37**	**54**	**6**	**3**	**4**		**37**	**37**	**5**	**4**
	Ped. Exposure to Traffic LoS	**F**	**F**	**E**	**D**	**F**	**F**	**F**	**-**	**E**	**E**	**F**	**F**
	Cycle Length	80	80	80	80	100	100	90		120	120	120	120
	Effective Walk Time	7	7	24	24	7	7	35		64	43	10	10
	Average Pedestrian Delay	**33**	**33**	**20**	**20**	**43**	**43**	**17**		**13**	**25**	**50**	**50**
	Pedestrian Delay LoS	**D**	**D**	**C**	**C**	**E**	**E**	**B**	**-**	**B**	**C**	**E**	**E**
	Level of Service	**F**	**F**	**E**	**D**	**F**	**F**	**F**	**-**	**E**	**E**	**F**	**F**
		F				**F**				**F**			
	Approach From	**NORTH**	**SOUTH**	**EAST**	**WEST**	**NORTH**	**SOUTH**	**EAST**	**WEST**	**NORTH**	**SOUTH**	**EAST**	**WEST**
Bicycle	Bicycle Lane Arrangement on Approach						Pocket Bike Lane						
	Right Turn Lane Configuration						≤ 50 m Introduced right turn lane						
	Right Turning Speed						≤ 25 km/h						
	Cyclist relative to RT motorists	**A**	**A**	**A**	**A**	**A**	**B**	**A**	**-**	**A**	**A**	**A**	**A**
	Separated or Mixed Traffic	**-**	**-**	**-**	**-**	**-**	**Separated**	**-**	**-**	**-**	**-**	**-**	**-**
	Left Turn Approach	One lane crossed	≥ 2 lanes crossed	No lane crossed	No lane crossed	One lane crossed	No lane crossed			No lane crossed	No lane crossed	≥ 2 lanes crossed	≥ 2 lanes crossed
	Operating Speed	≥ 60 km/h	≥ 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	≥ 60 km/h	≤ 40 km/h			> 50 to < 60 km/h	> 40 to ≤ 50 km/h	≥ 60 km/h	≥ 60 km/h
	Left Turning Cyclist	**F**	**F**	**C**	**C**	**F**	**A**	**B**	**-**	**C**	**B**	**F**	**F**
	Level of Service	**F**	**F**	**C**	**C**	**F**	**B**	**B**	**-**	**C**	**B**	**F**	**F**
		F				**F**				**F**			
Transit	Average Signal Delay	≤ 20 sec	≤ 20 sec		≤ 20 sec	≤ 10 sec	≤ 10 sec					≤ 10 sec	≤ 20 sec
	Level of Service	**C**	**C**	**-**	**C**	**B**	**B**	**-**	**-**	**-**	**-**	**B**	**C**
		C				**B**				**C**			
Truck	Effective Corner Radius												
	Number of Receiving Lanes on Departure from Intersection												
	Level of Service	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		-				**-**				**-**			
Auto	Volume to Capacity Ratio	0.61 - 0.70				0.0 - 0.60				0.0 - 0.60			
	Level of Service	**B**				**A**				**A**			

Robertson @ Moodie				Robertson @ Vanier				Robertson @ Old Richmond				Robertson @ Stinson			
NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
8	8	9	9	3			6		7	6	6	4	5	6	6
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
Protected	Protected	Protected	Protected	Permissive			Permissive		Protected/ Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
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
RTOR prohibited	RTOR prohibited	RTOR prohibited	RTOR prohibited	RTOR allowed			RTOR allowed		RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed
No	No	No	No	No			No		No	No	No	No	No	No	No
Smart Channel	Smart Channel	Smart Channel	Smart Channel	No Channel			No Channel		No Channel	No Channel	No Right Turn	No Channel	No Channel	No Channel	No Channel
10-15m	10-15m	10-15m	10-15m	5-10m			5-10m		10-15m	5-10m	No Right Turn	10-15m	10-15m	10-15m	10-15m
Std transverse 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	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings
5	**5**	**-12**	**-12**	**71**			**21**		**4**	**21**	**35**	**53**	**37**	**20**	**20**
F	**F**	**F**	**F**	**C**	**-**	**-**	**F**	**-**	**F**	**F**	**E**	**D**	**E**	**F**	**F**
120	120	130	130	120			130		120	120	120	120	120	130	130
12	17	7	7	55			10		62	11	11	68	68	7	7
49	**44**	**58**	**58**	**18**			**55**		**14**	**50**	**50**	**11**	**11**	**58**	**58**
E	**E**	**E**	**E**	**B**	**-**	**-**	**E**	**-**	**B**	**E**	**E**	**B**	**B**	**E**	**E**
F	**F**	**F**	**F**	**C**	**-**	**-**	**F**	**-**	**F**	**F**	**E**	**D**	**E**	**F**	**F**
F				**F**				**F**				**F**			
NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Pocket Bike Lane	Pocket Bike Lane	Pocket Bike Lane	Pocket Bike Lane												
> 50 m Introduced right turn lane	> 50 m Introduced right turn lane	Bike lane shifts to the left of right turn	Bike lane shifts to the left of right turn												
≤ 25 km/h	≤ 25 km/h	≤ 25 km/h	≤ 25 km/h												
D	**D**	**D**	**D**	**A**	**A**	**A**	**A**	**-**	**A**	**A**	**A**	**A**	**A**	**A**	**A**
Separated	**Separated**	**Separated**	**Separated**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
≥ 2 lanes crossed	≥ 2 lanes crossed	≥ 2 lanes crossed	≥ 2 lanes crossed	No lane crossed	No lane crossed	One lane crossed	One lane crossed		No lane crossed	One lane crossed		No lane crossed	No lane crossed	One lane crossed	One lane crossed
≥ 60 km/h	≥ 60 km/h	≥ 60 km/h	≥ 60 km/h	≤ 40 km/h	≤ 40 km/h	≥ 60 km/h	≥ 60 km/h		> 50 to < 60 km/h	≥ 60 km/h		> 40 to ≤ 50 km/h	> 50 to < 60 km/h	≥ 60 km/h	≥ 60 km/h
F	**F**	**F**	**F**	**B**	**B**	**F**	**F**	**-**	**C**	**F**	**A**	**B**	**C**	**F**	**F**
F	**F**	**F**	**F**	**B**	**B**	**F**	**F**	**-**	**C**	**F**	**A**	**B**	**C**	**F**	**F**
F				**F**				**F**				**F**			
> 40 sec	> 40 sec	≤ 30 sec	> 40 sec			≤ 10 sec	≤ 30 sec		> 40 sec	≤ 30 sec	≤ 10 sec			> 40 sec	≤ 10 sec
F	**F**	**D**	**F**	**-**	**-**	**B**	**D**	**-**	**F**	**D**	**B**	**-**	**-**	**F**	**B**
F				**D**				**F**				**F**			
> 15 m	> 15 m	> 15 m	10 - 15 m												
≥ 2	≥ 2	≥ 2	≥ 2												
A	**A**	**A**	**B**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
B				**-**				**-**				**-**			
0.81 - 0.90				0.61 - 0.70				0.81 - 0.90				0.61 - 0.70			
D				**B**				**D**				**B**			

Robertson @ Stafford/Lynhar				BCPS @ Old Richmond			
NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
6	6	6	7	3	3	0 - 2	0 - 2
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
Protected	Protected	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
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
RTOR prohibited	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed
No	No	No	No	No	No	No	No
No Channel	No Channel	No Channel	Conv'tl without Receiving Lane	No Channel	No Channel	No Channel	No Channel
10-15m	5-10m	5-10m	15-25m	3-5m	0-3m	3-5m	3-5m
Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Textured/coloured pavement
31	**29**	**21**	**6**	**72**	**73**	**87**	**90**
E	**F**	**F**	**F**	**C**	**C**	**B**	**A**
120	120	130	130				
30	30	13	13				
34	**34**	**53**	**53**				
D	**D**	**E**	**E**	**-**	**-**	**-**	**-**
E	**F**	**F**	**F**	**C**	**C**	**B**	**A**
F				**C**			
NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Mixed Traffic	Mixed Traffic		Mixed Traffic				
> 50 m	≤ 50 m		≤ 50 m				
>25 km/h	≤ 25 km/h		≤ 25 km/h				
F	**D**	**A**	**D**	**A**	**A**	**A**	**A**
Mixed Traffic	**Mixed Traffic**	**-**	**Mixed Traffic**	**-**	**-**	**-**	**-**
One lane crossed	No lane crossed	One lane crossed	One lane crossed	No lane crossed	No lane crossed	No lane crossed	No lane crossed
> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	≥ 60 km/h	≥ 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	≤ 40 km/h	≤ 40 km/h
D	**B**	**F**	**F**	**C**	**C**	**B**	**B**
F	**D**	**F**	**F**	**C**	**C**	**B**	**B**
F				**C**			
		≤ 40 sec	≤ 20 sec	≤ 20 sec	≤ 20 sec		
-	**-**	**E**	**C**	**C**	**C**	**-**	**-**
E				**C**			
-	**-**	**-**	**-**	**-**	**-**	**-**	**-**
-				**-**			
0.71 - 0.80				0.0 - 0.60			
C				**A**			