3265 Jockvale Road

Transportation Impact Assessment

Step 1 Screening Report

Step 2 Scoping Report

Step 3 Forecasting Report

Step 4 Strategy Report

(SPA Revision #2)

Prepared for:

Minto Communities Canada
200-180 Kent Street
Ottawa, ON K1P 0B6

Prepared by:

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6 Plaza Court
Ottawa, ON K2H 7W1

June 2023

PN: 2020-85

Table of Contents

List of Figures

Table of Tables

List of Appendices

1 Screening

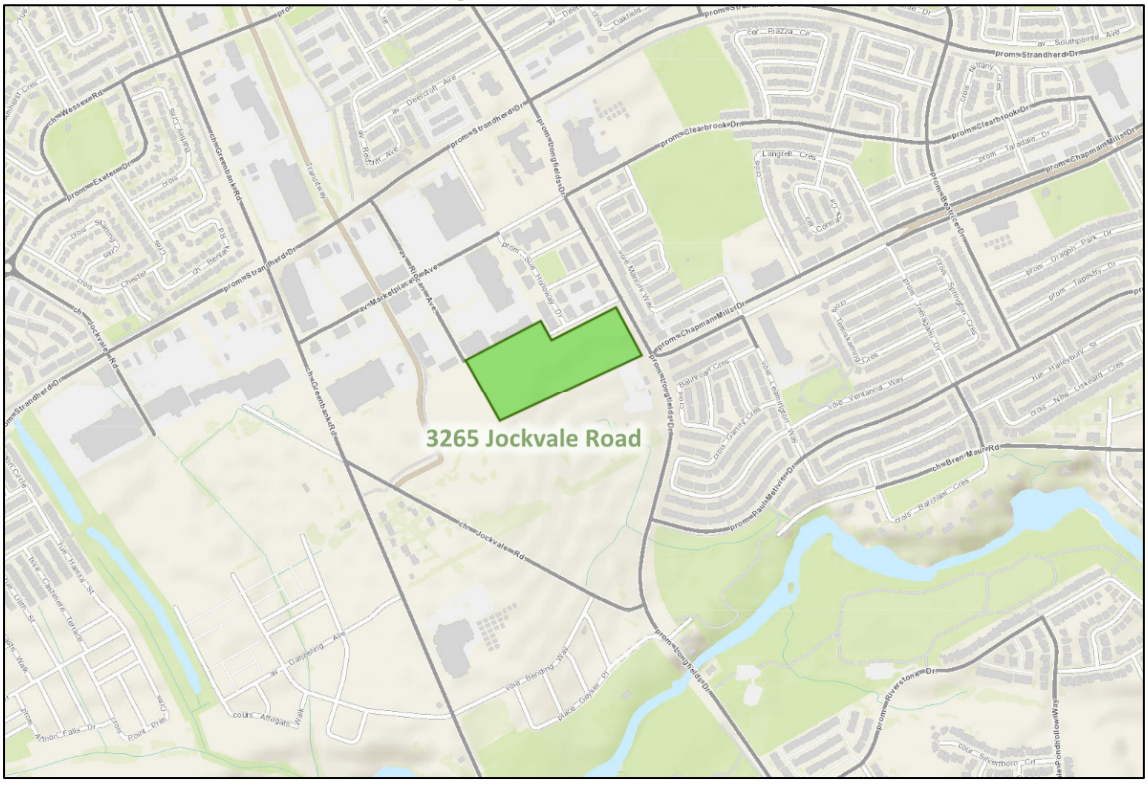
This study has been prepared according to the City of Ottawa's 2017 Transportation Impact Assessment (TIA) Guidelines. Accordingly, a Step 1 Screening Form has been prepared and is included as Appendix A, along with the Certification Form for the TIA Study PM. As shown in the Screening Form, a TIA is required including the Design Review component and the Network Impact Component. This report is part of a site plan application.

2 Existing and Planned Conditions

2.1 Proposed Development

The proposed development is within the Barrhaven Town Centre area, adjacent to the future Chapman Mills Drive corridor and makes up a portion of the 3265 Jockvale Road parcel. The development will consist of 604 stacked townhouse units. Four two-way accesses and two one-way access are proposed on both sides of Glenroy Gilbert Drive. Riocan Avenue is proposed to be extended south to meet a proposed extension of Glenroy Gilbert Drive. Build-out is anticipated to occur in a single phase by 2026. The development area, currently zoned primarily as Residential Fifth Density Zone (R5AA & R5AA [1728]), Mixed-Use Centre (MC[1726]), and Parks and Open Space (O1C), and is within the Barrhaven Downtown Secondary Plan area and South Nepean Town Centre Secondary Plan area and design priority area. The existing land is greenfield. Figure 1 illustrates the study area context and Figure 2 illustrates the proposed site concept plan.

Figure 1: Area Context Plan



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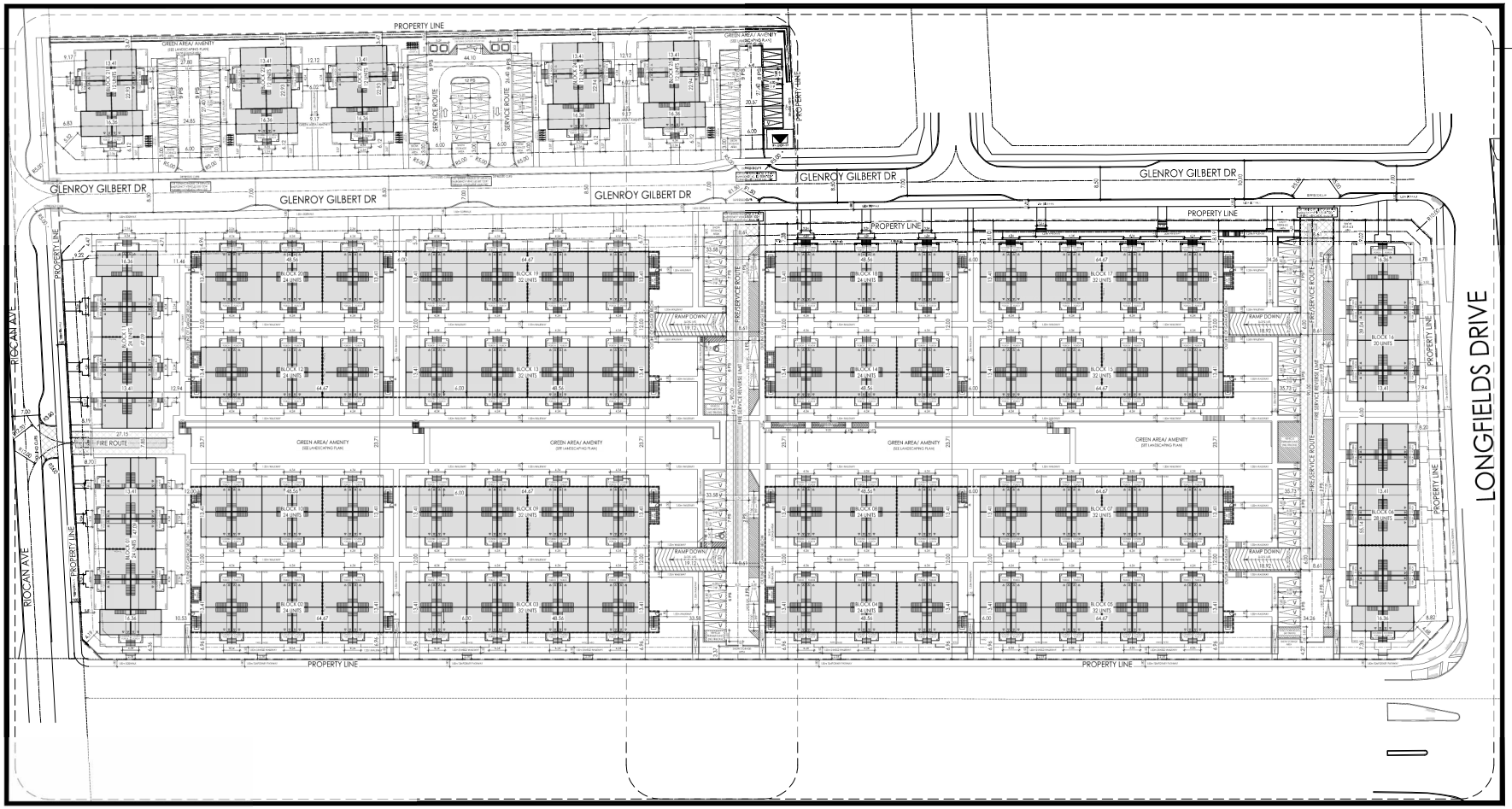
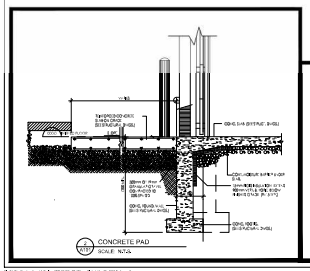


KEY PLAN

1 / A102 — 1 / A103

1 / 100 SITE PLAN
1:450



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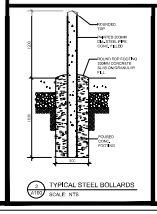
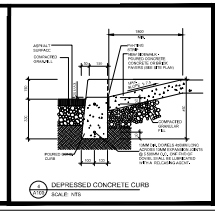


2 / A101 TYPICAL STEEL BOLLARDS
SCALE: NTS



3 / A101 DEPRESSED CONCRETE CURB
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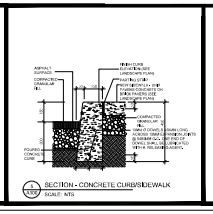

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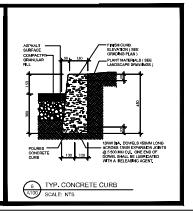

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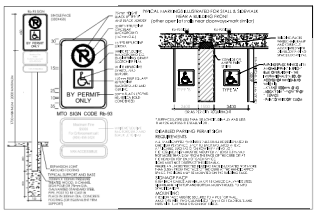
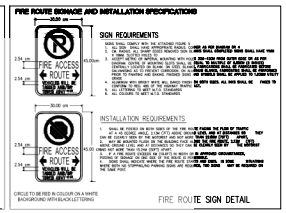
SCALE: NTS





SITE STATISTICS

ITEMS	REQUIRED	PROPOSED - NORTH LOT		PROPOSED - SOUTH LOT	
LOT AREA :	NO MINIMUM	6377,55 SM [68647,37 SF]		41841,63 SM [450379,59 SF]	
BUILDING AREA	NO MINIMUM	1636,78 SM [17618,15 SF]		14753,99 SM [158810,67 SF]	
LOT COVERAGE (lot area/building area) :	NO MINIMUM	25,53 %		35,26 %	
GROSS FLOOR AREA	NO MINIMUM	4884,84 SM 52579,98 SF		44261,97 SM 476432,01 SF	
F.S.I. (gross floor areas/pt area):	NO MINIMUM	0.77		1.06	
SETBACKS :					
MIN. FRONT YARD:	NO MINIMUM	**6.80 M (Riocan)**		**4.7 M (Riocan)**	
MIN CORNER SIDE YARD:	NO MINIMUM	**5.50 M (Glenroy Gilbery)**		**4.10 M (Chapman Mills)**	
				4.4 M (Glenroy Gilbert)	
MIN INTERIOR SIDE YARD:	NO MINIMUM	**3.40 M**		**N/A**	
MIN REAR YARD:	NO MINIMUM	**23.50 M**		**4.78 M (LONGFIELDS)**	
NUMBER OF TOWNHOUSE UNITS :					
2 RED :		**60 SUITES**		**544 SUITES**	
TOTAL NUMBER OF UNITS :		**60 SUITES**		**544 SUITES**	
TOTAL PARKING SPACES :		**66 PS**	**RATIO**	**590 PS**	**RATIO**
RESIDENT PARKING SPACES:	0.5 SPACES/UNIT	SURFACE: 59 U/G: 0 TOTAL: 60	1:1	SURFACE: 0 U/G: 544 TOTAL: 544	1:1
VISITOR PARKING SPACES:	0.1 SPACES/UNIT	SURFACE: 6 U/G: 0 TOTAL: 6	1:11	SURFACE: 52 U/G: 0 TOTAL: 52	1:11
BARRIER FREE PARKING SPACES DEDICATED FOR VISITORS :	NORTH LOT = 0 SOUTH LOT = 2	SURFACE: 0 U/G: 0 TOTAL: 0	N/A	SURFACE: 2 U/G: 0 TOTAL: 2	N/A
BICYCLE SPACES :					
LONG-TERM BICYCLE SPACES :	0.5 SPACES/UNIT	30		272	
TOTAL LANDSCAPE :	N/A	2079,38 SM [22382,25 SF] (32,60 % OF LOT AREA)		16264,78 SM [175072,61 SF] (38,87 % OF LOT AREA)	
LANDSCAPED OPEN SPACE AREA :					
SOFT LANDSCAPE AREA :	N/A	1572,15 SM [16922,52 SF] (75,61 % OF LANDSCAPING)		11706,43 SM [126006,98 SF] (71,97 % OF LANDSCAPING)	
HARD LANDSCAPE AREA :	N/A	507,23 SM [5459,73 SF] (24,39 % OF LANDSCAPING)		4558,35 SM [49065,63 SF] (28,03 % OF LANDSCAPING)	
LOCKER SPACES :	N/A	TBD		TBD	
AMENITY AREA (TOTAL) :	6 SM/UNIT	1001,33 SM (MIN 360 SM)		9391,14 SM (MIN 3624 SM)	
AMENITY AREA (COMMUNAL) :	3 SM/UNIT	296,33 SM (MIN 180 SM)		3028,14 SM (MIN 1812 SM)	
PLANNED UNIT DEVELOPMENT:					
MIN. WIDTH OF PRIVATE WAY (WITHIN A PUD):	6M	6M		6.6M	
MIN. SEPARTION BETWEEN BUILDINGS (WITHIN A PUD):	3M	6.1M		6M	

THESE DRAWINGS ARE NOT TO BE SCALED.
ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR PRIOR TO COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES MUST BE REPORTED DIRECTLY TO SRN ARCHITECTS INC.

NO.	DATE:	ISSUED FOR:
9	11-MAY-22	REV. PER ENG
10	17-JUN-22	ISSUED FOR SPA
11	07-SEP-22	REV. PER CLIENT
12	16-SEP-22	REV. PER CLIENT
13	11-OCT-22	REV. PER CLIENT
14	25-OCT-22	REV. PER SPA
15	14-DEC-22	REV. PER CLIENT
16	01-MAY-23	REV. PER CLIENT
17	17-MAY-23	REV. PER CLIENT
18	23-MAY-23	RE-ISSUED FOR SPA

ADDITIONAL NOTES:
PART OF LOT 14
CONCESSION 2 (RIDEAU FRONT)
GEOGRAPHIC TOWNSHIP OF NEPEAN
CITY OF OTTAWA
STANTEC GEOMATICS, 2021

LEGEND
- MAIN ENTRANCE
- BICYCLE PARKING, REFER TO LANDSCAPE DRAWINGS
- BARRIER FREE PARKING
- VISITOR PARKING
- RESIDENT PARKING
- TACTILE INDICATOR

FOR SITE GRADING AND SERVICING REFER TO CIVIL DRAWINGS

PRELIMINARY, NOT FOR CONSTRUCTION
ALL AREAS CALCULATIONS ARE PRELIMINARY

NO.	DATE:	REVISION COMMENT:

SRN ARCHITECTS
8395 JANE STREET, SUITE 203
VAUGHAN, ONTARIO, L4K 5Y2
PHONE: 905.417.0670 FAX: 905.417.0671

CLIENT:
Minto Communities Canada
200-180 Kent Street
Ottawa, Ontario K1P 0B6

PROJECT:
Barrhaven Town Centre - Anthem
Ottawa, Ontario

DRAWING TITLE:
SITE PLAN

DATE: 2023-05-23	SCALE: 1:500
DRAWN BY: AB	CHECKED BY: GR
PROJECT NUMBER: S21001	DRAWING NUMBER: A101

2.2 Existing Conditions

2.2.1 Area Road Network

Greenbank Road: Greenbank Road is a City of Ottawa arterial road. North of Marketplace Avenue, it has a divided four-lane urban cross-section including with bike lanes and sidewalks on both sides of the road, and between Marketplace Avenue and Jockvale Road it has a three-lane semi-urban cross-section, curbed with a sidewalk on the east side and with a paved shoulder on the west side of the road. Between Jockvale Road and St. Joseph Catholic High School, it has a two-lane semi-urban cross-section, curbed with a sidewalk on the east side and a bike lane on the east side of the road, and with a paved shoulder on the west side of the road, and south of St. Joseph Catholic High School it has a rural cross section with paved shoulders on both sides of the road. The posted speed limit is 60 km/h outside of the school zone surrounding the high school, and The Ottawa Official Plan reserves a 44.5 metre right-of-way north of Strandherd Drive, a 37.5 metre right-of-way between Strandherd Drive and Chapman Mills Drive, and a 41.5 metre right-of-way south of Chapman Mills Drive. Greenbank Road is a truck route.

Longfields Drive: Longfields Drive is a City of Ottawa arterial road south of Strandherd Drive with a divided four-lane urban cross-section including bike lanes and sidewalks on both sides of the road, and a major collector road north of Strandherd Drive including sidewalks on both sides of the road and with on-street parking permitted on both sides of the road. North of Lindenshade Drive, the posted speed limit is 50 km/h, and to the south, it is 60 km/h. The City of Ottawa protects for a 37.5 metre right-of-way. Longfields Drive is a truck route.

Strandherd Drive: Strandherd Drive is a City of Ottawa arterial road with a divided four-lane urban cross-section including sidewalks on both sides of the road, and with bike lanes and on both sides of the road east of Greenbank Road. Within the study area, the posted speed limit is 70 km/h and the City protects a 44.5 metre right-of-way. Strandherd Drive is a truck route.

Jockvale Road: Jockvale Road is a City of Ottawa arterial road with a two-lane rural cross-section east of Greenbank Road including paved shoulders on both sides of the road, and a two-lane rural cross-section west of Greenbank Road within the study area. The posted speed limit is 60 km/h and the existing right-of-way within the study area is 20.5 metres. East of Greenbank Road Jockvale Road is a truck route.

Chapman Mills Drive: Chapman Mills Drive is a City of Ottawa major collector road with a divided two-lane urban cross-section including sidewalks, cycle tracks, and on-street parking in laybys on both sides of the road, and median rapid bus transit corridor. The unposted speed limit is 50 km/h outside of the large school zone surrounding the three schools fronting the road, and the right-of-way is reserved as 41.5 metres within Chapman Mills Drive Extension EA. It is noted that geoOttawa mapping shows the eastbound lanes as a local road between Leamington Way and Beatrice Drive.

Paul Metivier Drive: Paul Metivier Drive is a City of Ottawa major collector road with a two-lane urban cross-section including sidewalks, and on-street parking permitted on both sides of the road. The posted speed limit is 50 km/h and the right-of-way within the study area is 24.0 metres.

Riocan Avenue: Riocan Avenue is a City of Ottawa collector road with a two-lane urban cross-section including sidewalks, and on-street parking permitted on both sides of the road. The unposted speed limit is 50 km/h and the existing right-of-way is 20.0 metres.

Beatrice Drive: Beatrice Drive is a City of Ottawa collector road with a two-lane urban cross-section including sidewalks, and on-street parking permitted on both sides of the road. The posted speed limit is 40 km/h and the right-of-way within the study area is 21.5 metres.

Marketplace Avenue: Marketplace Avenue is a City of Ottawa collector road with a two-lane urban cross-section including sidewalks, and on-street parking permitted on both sides of the road. The posted speed limit is 50 km/h and the right-of-way within the study area is 20.5 metres. It is noted that geoOttawa mapping shows the section between Sue Holloway Drive and Longfields Drive as a local road.

Clearbrook Drive: Clearbrook Drive is a City of Ottawa collector road with a two-lane urban cross-section including sidewalks, and on-street parking permitted on both sides of the road. The posted speed limit is 50 km/h and the right-of-way within the study area is 21.5 metres.

Leamington Way: Leamington Way is a City of Ottawa local road with a two-lane urban cross-section including sidewalks, and on-street parking permitted on both sides of the road. The posted speed limit is 40 km/h and the right-of-way within the study area is 22.0 metres. It is noted that geoOttawa mapping shows the section between Chapman Mills Drive and Balinroan Crescent as a major collector road.

Mancini Way: Mancini Way is a City of Ottawa local road with a two-lane urban cross-section including sidewalks, on the east/north side of the road and on-street parking permitted on both sides of the road. The posted speed limit is 40 km/h and the right-of-way within the study area is 16.5 metres.

Glenroy Gilbert Drive: Glenroy Gilbert Drive is a City of Ottawa local road with a two-lane semi-urban cross-section, curbed with a sidewalk on the north side of the road and with on-street parking permitted on both sides of the road. The posted speed limit is 40 km/h and the existing right-of-way is 20.0 metres.

Sue Holloway Drive: Sue Holloway Drive is a City of Ottawa local road with a two-lane urban cross-section including sidewalks and on-street parking permitted on both sides of the road. The posted speed limit is 40 km/h and the existing right-of-way is 20.0 metres.

2.2.2 Existing Intersections

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

Strandherd Drive at Greenbank Road	The intersection of Strandherd Drive at Greenbank Road is a signalized intersection. The northbound approach consists of two auxiliary left-turn lanes, one through lane, a shared through/right-turn lane, and a bike lane. The southbound approach consists of two auxiliary left-turn lanes, two through lanes, a bike lane, and an auxiliary channelized right-turn lane. The eastbound approach has an auxiliary left-turn lane, two through lanes, a bike lane, and an auxiliary channelized right-turn lane. The westbound approach has an auxiliary left-turn lane, two through lanes, a bike lane, and an auxiliary channelized right-turn lane. No turn restrictions were noted.
Marketplace Avenue at Greenbank Road	The intersection of Marketplace Avenue at Greenbank Road is a signalized intersection. The northbound approach consists of an auxiliary left-turn lane, a through lane, and a shared through/right-turn lane. The southbound approach consists of dual auxiliary left-turn lanes, a through lane, a shared through/right-tun lane, and a bike lane. Both the eastbound and westbound approaches have an auxiliary left-turn lane, and a shared through/right-turn lane. No turn restrictions were noted.

Jockvale Road at Greenbank Road	The intersection of Jockvale Road at Greenbank Road is a signalized intersection. The northbound and eastbound approach each consist of a shared all-movements lane. The southbound approach consists of a left-turn lane, and a shared through/right-turn lane. The westbound approach consists of an auxiliary shared left-turn/through lane, and a right-turn lane. Trucks are prohibited on the south leg of the intersection. No other turn restrictions were noted.
Strandherd Drive at Riocan Avenue	The intersection of Strandherd Drive at Riocan Avenue is a signalized T- intersection. The northbound approach consists of an auxiliary left-turn lane, a left-turn lane, and a right-turn lane. The eastbound approach has two through lanes, a bike lane, and an auxiliary right-turn lane. The westbound approach has an auxiliary left-turn lane, two through lanes, and a bike lane. No turn restrictions were noted.
Strandherd Drive at Longfields Drive	The intersection of Strandherd Drive at Longfields Drive is a signalized intersection. The northbound approach consists of dual left-turn lanes, a through lane, a bike lane, and an auxiliary channelized right-turn lane. The southbound approach consists of an auxiliary left-turn lane, a through lane, and an auxiliary right-turn lane. The eastbound and westbound approaches each consist of dual auxiliary left-turn lanes, two through lanes, a bike lane, and an auxiliary channelized right-turn lane. No turn restrictions were noted.
Marketplace Avenue/Clearbrook Drive at Longfields Drive	The intersection of Marketplace Avenue/Clearbrook Drive at Longfields Drive is a signalized intersection. Both the northbound and southbound approaches consist of an auxiliary left-turn lane, a through lane, a shared through/right-turn lane and a bike lane. The eastbound approach consists of an auxiliary left-turn lane and a shared through/right-turn lane. The westbound approach consists of a shared all-movements lane. No turn restrictions were noted.
Chapman Mills Drive at Longfields Drive	The intersection of Chapman Mills Drive at Longfields Drive is a signalized intersection. The northbound approach consists of an auxiliary left-turn lane (currently unpainted), two through lanes, an auxiliary right-turn lane, and a separated bike lane. The southbound approach consists of an auxiliary left-turn lane, two through lanes, a bike lane and an auxiliary right-turn lane (currently unpainted). The westbound approach has an auxiliary left-turn lane, one through lane, an auxiliary right-turn lane, and a separated bike lane. The eastbound approach serves as a private access for construction activities and OC Transpo, with the cross-section reserved for an auxiliary left-turn lane, a through lane, an auxiliary right-turn lane and median bus lanes. The median BRT run is provided on Chapman Mills Drive in the east-west direction. Northbound U-turns are prohibited, and no other signed turn restrictions were noted.
Paul Metivier Drive at Longfields Drive	The intersection of Paul Metivier at Longfields Drive is a signalized intersection. The northbound approach consists of two through lanes, a bike lane, and an auxiliary right-turn lane. The southbound approach consists of an auxiliary left-turn lane, two through lanes, and a bike

	lane. The westbound approach consists of an auxiliary left-turn lane and a right-turn lane. The west leg of the intersection has been constructed but terminates just beyond the intersection with Jersey barriers, and a northbound auxiliary left-turn lane and southbound auxiliary right-turn lane have additionally been reserved for the extension of Riocan Avenue to this intersection. Northbound U-turns and left turns are prohibited, and no other turn restrictions were noted.
Chapman Mills Drive at Mancini Way/ Leamington Way	The intersection of Chapman Mills Drive at Mancini Way/Leamington Way is a signalized intersection. Both the northbound and southbound approaches consist of a shared all-movements lane. The eastbound and westbound approaches each consist of an auxiliary left-turn lane, a shared through/right-turn lane, and a separated bike lane. Separated median bus lanes run on Chapman Mills Drive in the east-west direction through the intersection. Northbound and southbound right-turns are prohibited on red. No other turn restrictions were noted.

2.2.3 Existing Driveways

Driveways to mid-rise residential land-uses exist on Glenroy Gilbert Drive, Bayrose Drive, and Lindenshade Drive. A driveway to high-rise residential land-uses exists on Lindenshade Drive, and driveways to large-scale retail developments on Riocan Avenue within 200 metres of the proposed site accesses, as illustrated in Figure 3 .

Figure 3: Existing Driveways

Source: http://maps.ottawa.ca/geoOttawa/ Accessed: May 20, 2022

2.2.4 Cycling and Pedestrian Facilities

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

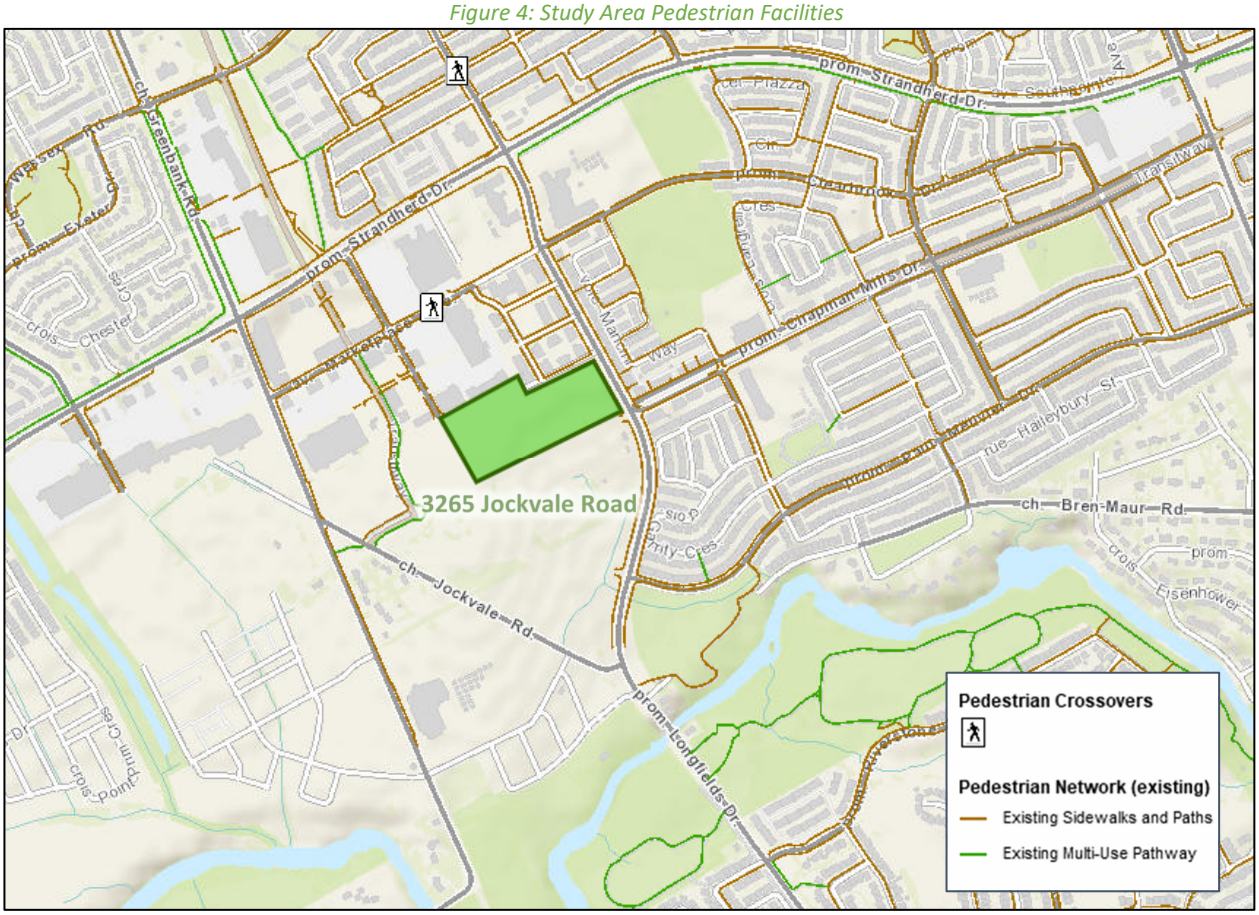
A sidewalk is provided on the east side of the Greenbank Road between Marketplace Avenue and St. Joseph Catholic High School, on the south side of Strandherd Drive west of Greenbank Road, on the north side of Strandherd Drive east of Longfields Drive, and on the east/north side of Mancini Way.

A mixed-use path (MUP) is provided on the north side and a sidewalk is provided on the south side of Strandherd Drive west of Greenbank Road, a sidewalk is provided on the east side of Greenbank Road between Marketplace Avenue and St. Joseph Catholic High School, and no sidewalks are provided on Greenbank Road to the south. A MUP is located on the east side and a sidewalk on the west side of the Transitway to the south and sidewalks are along both sides of the Transitway to the north of Marketplace Avenue. Sidewalks are provided on both sides of Greenbank Road within the study area north of Marketplace Avenue, on both sides of Strandherd Drive between Greenbank Road and Longfields Drive, and along both sides of all other study area arterial, collector, and local roads examined.

Cycling facilities include cycletracks along Chapman Mills Drive west of Langrell Crescent/Temagami Drive, curbside bike lanes along both sides of Greenbank Road north of Marketplace Avenue, along both sides of Strandherd Drive between Greenbank Road and Longfields Drive and on the north side of Strandherd Drive east of Longfields Drive, and along Longfields Drive south of Strandherd Drive. MUPs are found along the north side of Strandherd Drive west of Greenbank Road and on the south side of Strandherd Drive east of Longfields Drive, on the south side of Paul Metivier Drive, on the east side of the Transitway south of Marketplace Avenue, and

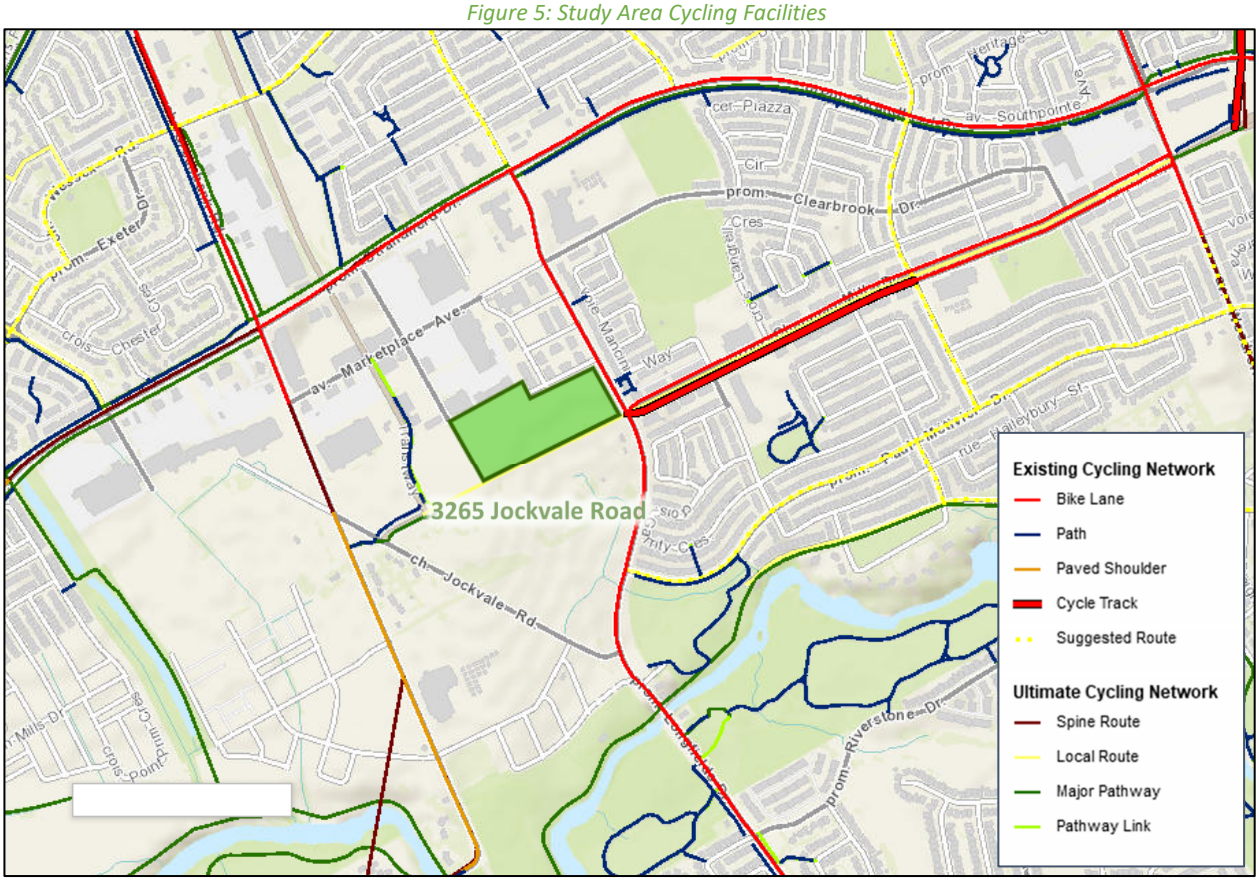
opposite Riocan Avenue north of Strandherd Drive. A paved shoulder is found along the west side of Greenbank Road south of Marketplace Drive, and a curbed bike lane is provided along the east side of Greenbank Road south of St. Joseph Catholic High School. Strandherd Drive and Greenbank Road are spine cycling routes and Chapman Mills Drive, Paul Metivier Drive, Longfields Drive, and Beatrice Drive are local routes.

Figure 4: Study Area Pedestrian Facilities



Source: http://maps.ottawa.ca/geoOttawa/ Accessed: May 17, 2022

Figure 5: Study Area Cycling Facilities



Source: http://maps.ottawa.ca/geoOttawa/ Accessed: May 17, 2022

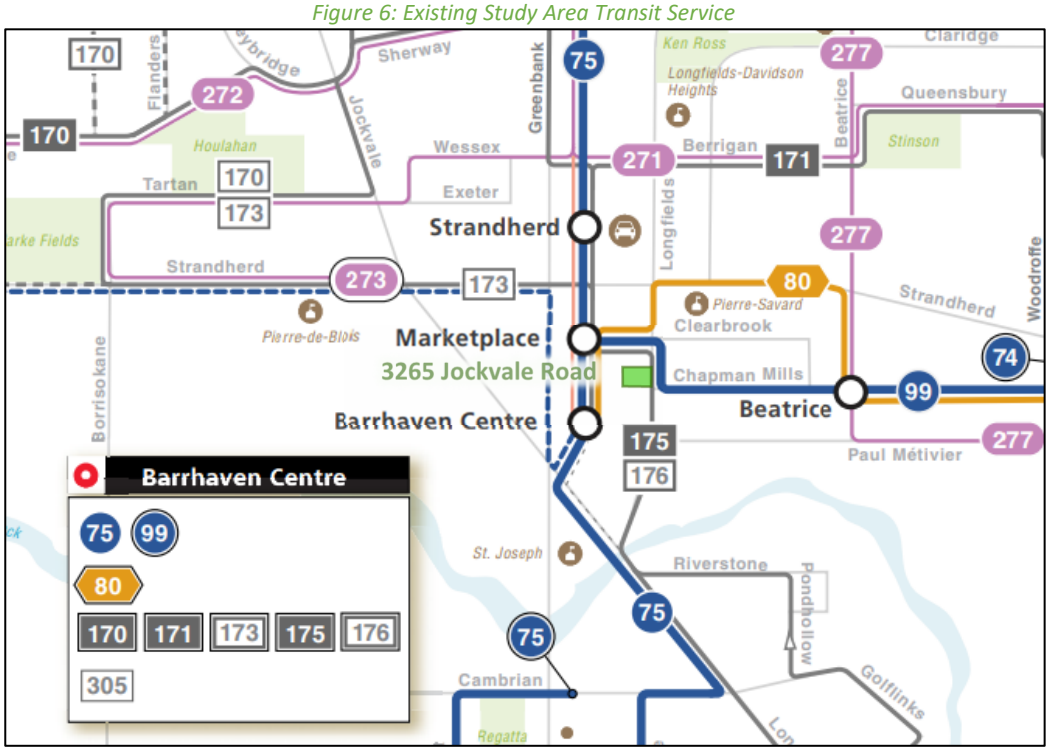
2.2.5 Existing Transit

Within the study area, the routes #75, 80, 99, 170, 171, 173, 175, 176 service the Barrhaven Centre BRT station, with routes #175 and 176 continuing along Longfields Drive, #99 along Chapman Mills Drive, and #75 continuing along Jockvale Road within proximity of the site. The frequency of these routes within proximity of the proposed site currently are (and may be influenced by pandemic conditions):

- Route #75 – 5-10 minutes in the peak direction, and 10-15 minutes in the off-peak direction and 15-30 minutes during off-peak times
- Route #80 – 30-minute service all day
- Route #99 – 15-minute service in the peak direction, 30-minute service during off-peak times
- Route #170 – 30-minute service all day
- Route #171 – 30-minute service all day
- Route #173 – 30-minute service all day
- Route #175 – one-hour service during peak hours, sporadic arrivals during off-peak times
- Route #176 – one-hour service, operating during peak times only

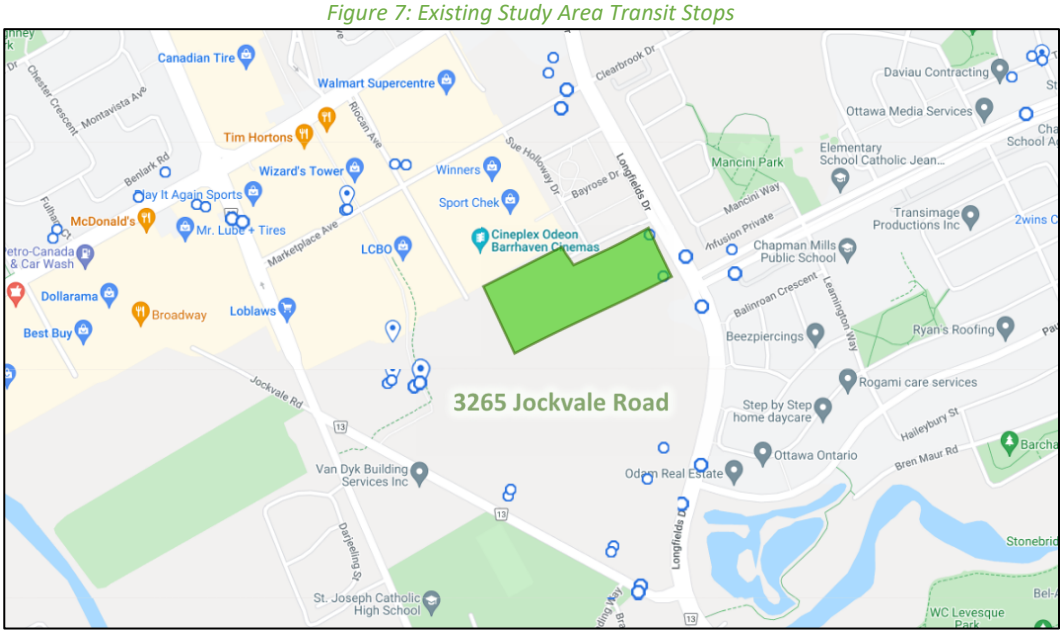
Figure 6 illustrates the transit system map in the study area and Figure 7 illustrates nearby transit stops.

Figure 6: Existing Study Area Transit Service



Source: http://www.octranspo.com/ Accessed: May 17, 2022

Figure 7: Existing Study Area Transit Stops



Source: http://www.octranspo.com/ Accessed: May 17, 2022

2.2.6 Existing Area Traffic Management Measures

Bulb-outs framing parking lanes are found on Chapman Mills Drive, Sue Holloway Drive, Lindenshade Drive, Glenroy Gilbert Drive, and Bayrose Drive and extensive use of on-street parking is found along local and collector roads throughout 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
Strandherd Drive at Greenbank Road	Thursday, January 9,2020
Marketplace Avenue at Greenbank Road	Tuesday, January 28, 2020
Jockvale Road at Greenbank Road	Wednesday, January 8, 2020
Strandherd Drive at Riocan Avenue	Thursday, January 16,2020
Strandherd Drive at Longfields Drive	Thursday, January 16,2020
Marketplace Avenue / Clearbrook Drive at Longfields Drive	Wednesday, November 21, 2018
Chapman Mills Drive at Longfields Drive	Tuesday, June 19, 2018
Paul Metivier Drive at Longfields Drive	Thursday, June 22, 2017
Chapman Mills Drive at Mancini Way / Leamington Way	Wednesday, November 21, 2018
Chapman Mills Drive at Beatrice Drive	Wednesday, January 8, 2020

Figure 8 illustrates the existing traffic counts and Table 2 summarizes the existing intersection operations. The level of service for signalized intersections is based on volume to capacity ratio (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 8: Existing Traffic Counts

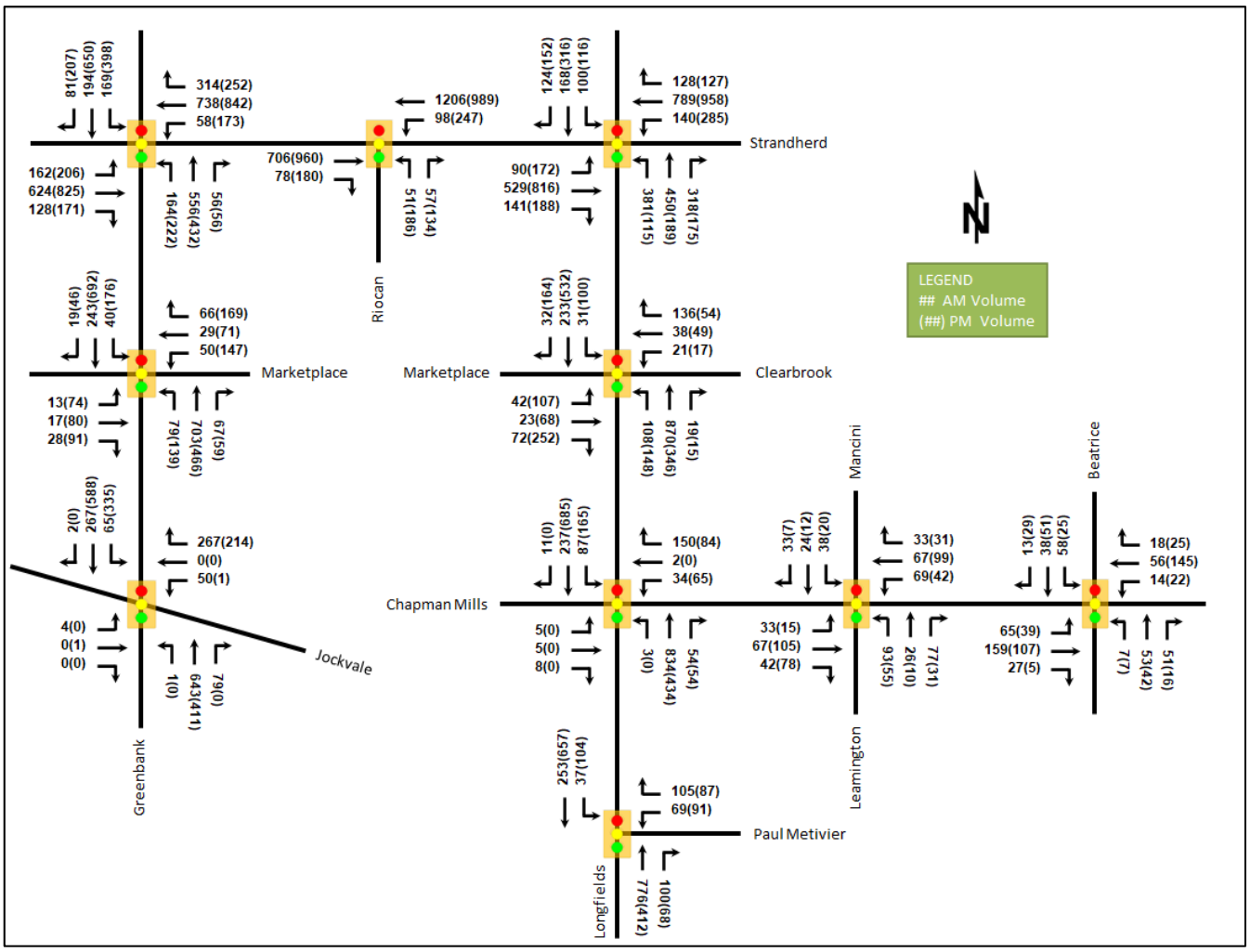


Table 2: Existing Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Strandherd Drive at Greenbank Road *Signalized*	EBL	C	0.75	42.6	**#55.1**	**F**	**1.07**	**110.9**	**#94.7**
	EBT	B	0.61	36.6	96.6	E	0.96	63.8	**#153.2**
	EBR	A	0.24	5.4	13.0	A	0.34	6.4	16.7
	WBL	A	0.25	17.3	m10.8	D	0.89	73.7	**#75.3**
	WBT	D	0.85	35.0	**#107.5**	E	0.98	58.4	**#154.4**
	WBR	A	0.52	6.7	24.3	A	0.46	8.6	22.8
	NBL	A	0.56	77.2	35.5	B	0.64	72.2	45.3
	NBT/R	C	0.71	39.5	50.7	B	0.65	34.3	64.5
	SBL	A	0.57	57.9	32.8	E	0.93	78.4	**#83.5**
	SBT	A	0.22	33.6	31.6	C	0.77	46.6	**#115.1**
	SBR	A	0.17	1.3	1.6	A	0.40	6.7	19.1
	Overall	**C**	**0.76**	**34.7**	-	**E**	**0.97**	**53.3**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Marketplace Avenue at Greenbank Road *Signalized*	EBL	A	0.07	34.7	6.9	A	0.39	35.3	24.9
	EBT/R	A	0.24	24.9	13.7	A	0.59	40.0	51.8
	WBL	A	0.26	39.5	18.6	B	0.65	47.5	45.1
	WBT/R	A	0.35	19.5	20.3	B	0.69	37.4	65.1
	NBL	A	0.59	63.8	**m#31.7**	D	0.81	**86.5**	**#72.4**
	NBT/R	A	0.43	15.9	91.1	A	0.40	21.6	47.4
	SBL	A	0.23	62.6	11.8	B	0.61	62.8	m32.3
	SBT/R	A	0.16	11.1	20.4	A	0.57	19.3	m58.5
	Overall	**C**	**0.47**	**20.7**	-	**C**	**0.64**	**33.5**	-
Jockvale Road at Greenbank Road *Signalized*	EB	A	0.03	45.5	4.0	A	0.01	51.0	2.0
	WBL/T	A	0.41	58.0	24.1	A	0.01	51.0	2.0
	WBR	D	0.81	33.7	49.0	B	0.64	13.4	18.5
	NB	B	0.68	16.7	193.0	A	0.34	6.5	77.0
	SBL	A	0.14	4.5	6.5	A	0.48	5.9	31.2
	SBT/R	A	0.21	4.1	21.0	A	0.39	1.4	34.1
	Overall	**B**	**0.68**	**18.5**	-	**A**	**0.52**	**5.5**	-
Strandherd Drive at Riocan Avenue *Signalized*	EBT	A	0.40	11.6	38.8	D	0.85	27.3	m72.9
	EBR	A	0.10	2.7	m2.4	A	0.30	5.2	m7.8
	WBL	A	0.25	2.1	m5.7	B	0.62	21.9	**m#99.4**
	WBT	A	0.56	4.1	178.7	A	0.51	6.7	161.1
	NBL	A	0.21	53.5	13.2	B	0.67	63.3	37.0
	NBR	A	0.18	8.3	8.9	A	0.32	6.4	12.4
	Overall	**A**	**0.54**	**7.6**	-	**B**	**0.69**	**19.2**	-
Strandherd Drive at Longfields Drive *Signalized*	EBL	A	0.41	32.3	15.9	C	0.76	56.9	**m#36.7**
	EBT	B	0.61	44.2	96.0	D	0.81	44.4	**#150.8**
	EBR	A	0.30	18.2	45.2	A	0.33	17.4	m37.8
	WBL	A	0.53	58.0	28.4	C	0.74	61.3	52.0
	WBT	D	0.86	49.4	**#143.4**	D	0.82	38.9	144.9
	WBR	A	0.26	5.2	12.2	A	0.21	3.7	10.2
	NBL	D	0.88	70.3	**#76.2**	A	0.49	59.0	24.7
	NBT	E	1.00	**84.4**	**#204.8**	A	0.56	47.3	66.6
	NBR	A	0.54	7.1	24.7	A	0.41	6.4	14.2
	SBL	B	0.61	64.3	42.1	D	0.84	**94.2**	**#63.7**
	SBT	A	0.43	42.0	59.4	D	0.89	69.0	**#124.9**
	SBR	A	0.29	6.1	12.8	A	0.34	3.9	8.3
	Overall	**E**	**0.93**	**47.0**	-	**D**	**0.88**	**42.8**	-
Marketplace Avenue / Clearbrook Drive at Longfields Drive *Signalized*	EBL	A	0.25	27.5	13.2	A	0.53	38.0	27.8
	EBT/T	A	0.27	9.9	13.3	C	0.75	20.7	38.7
	WB	A	0.57	22.7	34.0	B	0.70	37.8	26.1
	NBL	A	0.19	8.7	17.8	A	0.38	9.5	23.5
	NBT/R	A	0.47	10.3	71.5	A	0.18	6.7	25.1
	SBL	A	0.13	19.3	10.9	A	0.25	17.2	27.5
	SBT/R	A	0.18	14.1	26.1	A	0.48	15.9	71.8
	Overall	**A**	**0.51**	**12.9**	-	**A**	**0.50**	**17.2**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Chapman Mills Drive at Longfields Drive ***Signalized***	EBL	A	0.06	40.2	4.7	-	-	-	-
	EBT	A	0.03	30.6	3.8	-	-	-	-
	EBR	A	0.03	0.1	0.0	-	-	-	-
	WBL	A	0.26	41.7	15.2	A	0.41	44.5	24.4
	WBT	A	0.01	24.5	1.9	-	-	-	-
	WBR	A	0.42	7.7	14.0	A	0.16	0.5	0.0
	NBL	A	0.00	12.7	m0.6	-	-	-	-
	NBT	A	0.45	10.0	50.7	A	0.21	9.9	43.1
	NBR	A	0.07	10.3	10.6	A	0.06	12.4	15.5
	SBL	A	0.34	17.7	29.8	A	0.31	13.3	49.3
	SBT	A	0.13	9.7	23.4	A	0.33	9.9	75.9
	SBR	A	0.01	0.0	0.0	-	-	-	-
	Overall	**A**	**0.43**	**11.0**	**-**	**A**	**0.37**	**11.4**	**-**
Paul Metivier Drive at Longfields Drive ***Signalized***	WBL	A	0.30	34.1	19.0	A	0.38	35.5	23.8
	WBR	A	0.36	8.4	11.0	A	0.30	8.3	9.9
	NBT	A	0.37	7.2	62.5	A	0.20	6.2	30.6
	NBR	A	0.11	2.1	7.3	A	0.07	2.4	6.0
	SBL	A	0.11	6.1	6.0	A	0.20	4.1	6.2
	SBT	A	0.12	4.6	13.0	A	0.32	3.7	14.5
	Overall	**A**	**0.36**	**7.8**	**-**	**A**	**0.33**	**6.7**	**-**
Chapman Mills Drive at Mancini Way / Leamington Way ***Signalized***	EBL	A	0.23	39.8	15.9	A	0.11	34.1	8.7
	EBT/R	A	0.19	16.8	26.5	A	0.22	13.1	37.0
	WBL	A	0.39	40.5	26.8	A	0.25	34.1	17.0
	WBT/R	A	0.15	15.2	23.8	A	0.13	9.9	27.3
	NB	B	0.68	37.7	53.1	A	0.40	29.4	26.0
	SB	A	0.33	26.9	26.5	A	0.16	24.9	12.6
	Overall	**C**	**0.38**	**28.9**	**-**	**A**	**0.31**	**18.6**	**-**
Chapman Mills Drive at Beatrice Drive ***Signalized***	EBL	A	0.49	55.7	27.5	A	0.27	43.6	18.5
	EBT	A	0.19	20.8	42.1	A	0.12	17.6	29.6
	EBR	A	0.04	0.1	0.0	A	0.01	0.0	0.0
	WBL	A	0.13	45.6	9.3	A	0.16	42.5	12.2
	WBT	A	0.08	23.6	17.4	A	0.17	19.0	38.6
	WBR	A	0.03	0.1	0.0	A	0.03	0.1	0.0
	NB	A	0.13	20.5	14.1	A	0.10	21.6	9.1
	SB	A	0.15	20.8	13.8	A	0.17	22.4	13.5
	Overall	**A**	**0.25**	**24.0**	**-**	**A**	**0.21**	**21.4**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Peak Hour Factor = 0.90
Delay is measured in seconds
m = metered queue
# = volume for the 95th %ile cycle exceeds capacity

During both the AM and PM peak hours, the study area intersections generally operate well with some exceptions.

The intersection of Strandherd Drive and Greenbank Road may experience queuing on the eastbound left and westbound through movements during the AM and PM peak hours and on the eastbound through, westbound left, southbound left, and southbound through movements during the PM peak hour. Additionally, during the PM peak hour, the eastbound left movement may experience high delay and is over theoretical capacity, and the eastbound through, westbound through, and southbound left movements are approaching theoretical capacity.

The intersection of Strandherd Drive and Longfields Drive may experience queuing on the westbound through, northbound left, and northbound through movements during the AM peak hour, with the northbound through

additionally being at theoretical capacity and potentially experiencing high delays. During the PM peak hour, the eastbound left, eastbound through, southbound left and southbound through movements may exhibit extended queuing, with the southbound left movement potentially experiencing high delays.

Additional movements that may experience high delay include the northbound left movement during both peak hours at the intersection of Marketplace Avenue and Greenbank Road, with the PM peak hour potentially experiencing high delays on that movement. The westbound left movement at the intersection of Strandherd Drive and Riocan Avenue may exhibit extended queuing 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 9 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, 2016-2020

		Number	%
Total Collisions		**100**	**100%**
Classification	**Fatality**	0	0%
	Non-Fatal Injury	21	21%
	Property Damage Only	79	79%
Initial Impact Type	**Approaching**	2	2%
	Angle	27	27%
	Rear end	23	23%
	Sideswipe	12	12%
	Turning Movement	25	25%
	SMV Unattended	2	2%
	SMV Other	8	8%
	Other	1	1%
Road Surface Condition	**Dry**	64	64%
	Wet	22	22%
	Loose Snow	8	8%
	Slush	3	3%
	Ice	3	3%
Pedestrian Involved		3	3%
Cyclists Involved		1	1%

Figure 9: Study Area Collision Records – Representation of Study Area Collisions

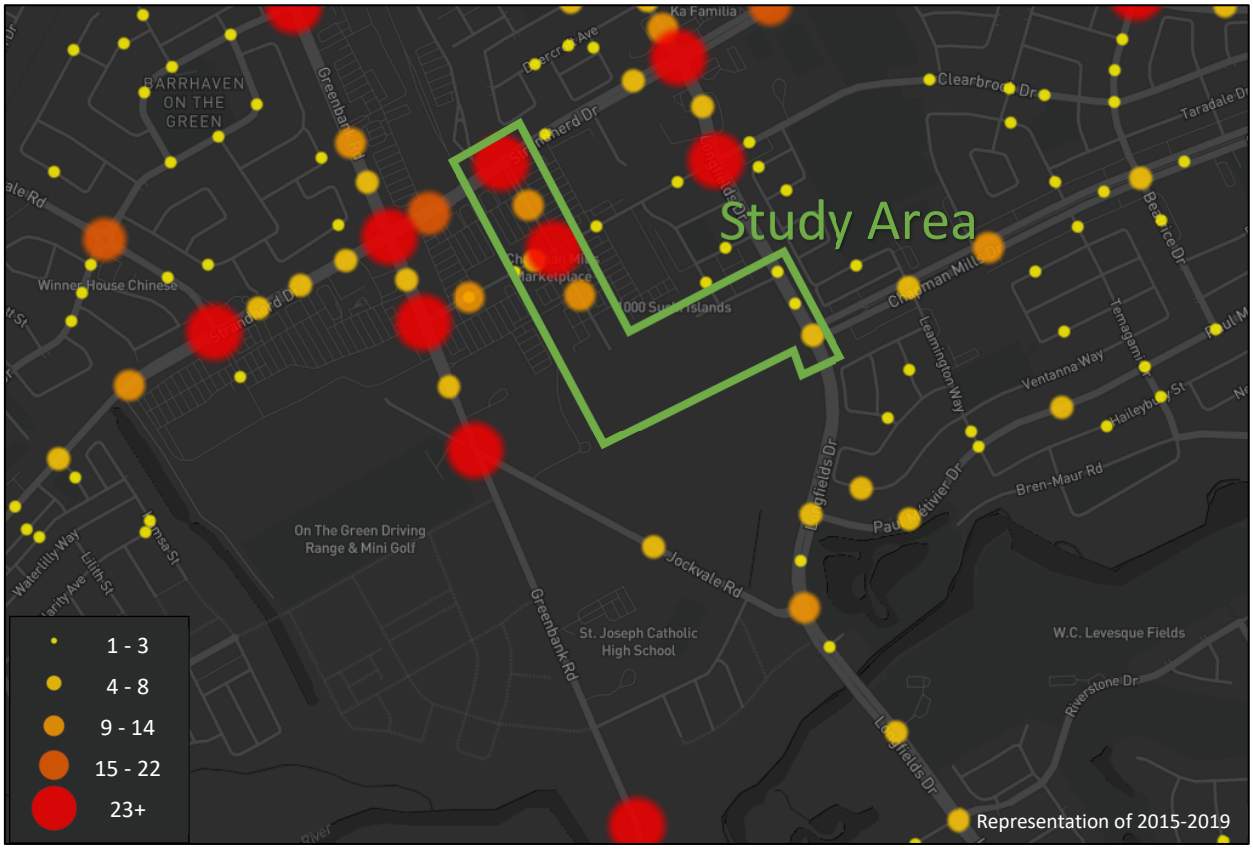


Table 4: Summary of Collision Locations, 2016-2020

	Number	%
Intersections / Segments	**100**	**100%**
Riocan Ave	90	90%
Chapman Mills Dr @ Longfields Dr	8	8%
Glenroy Gilbert Dr @ Longfields Dr	1	1%
Longfields Dr between Chapman Mills Dr & Glenroy Gilbert Dr	1	1%

Within the study area, Riocan Avenue is noted to have experienced higher collisions than other locations. Table 5 summarizes the collision types and conditions for Riocan Avenue.

Table 5: Riocan Avenue Collision Summary

		Number	%
Total Collisions		**90**	**100%**
Classification	**Fatality**	0	0%
	Non-Fatal Injury	20	22%
	Property Damage Only	70	78%
Initial Impact Type	**Approaching**	1	1%
	Angle	25	28%
	Rear end	20	22%
	Sideswipe	10	11%
	Turning Movement	25	28%
	SMV Unattended	1	1%
	SMV Other	7	8%
	Other	1	1%

		Number	%
Total Collisions		**90**	**100%**
Road Surface Condition	**Dry**	58	64%
	Wet	21	23%
	Loose Snow	5	6%
	Slush	3	3%
	Ice	3	3%
Pedestrian Involved		3	3%
Cyclists Involved		1	1%

Riocan Avenue had a total of 90 collisions during the 2016-2020 time period, with 70 involving property damage only and the remaining 20 having non-fatal injuries. The collision types are most represented by angle and turning movement each with 25 collisions, followed by rear end with 20, sideswipe with ten, seven as SMV (other), and one each as approaching, SMV (unattended) and other. Angle and turning movement collisions are proportionally more prevalent along the segments of Riocan Avenue than at the intersections with City roads (61% of the segment collisions (12 of 18), 54% of the intersection collisions (39 of 72)). These collisions on segments are likely influenced by the retail accesses along the length of Riocan Avenue. Rear end collisions are generally more represented in congested areas and are prevalent at the Riocan Avenue's intersection with Strandherd Drive. Weather conditions may contribute to the collision frequency on Riocan Avenue.

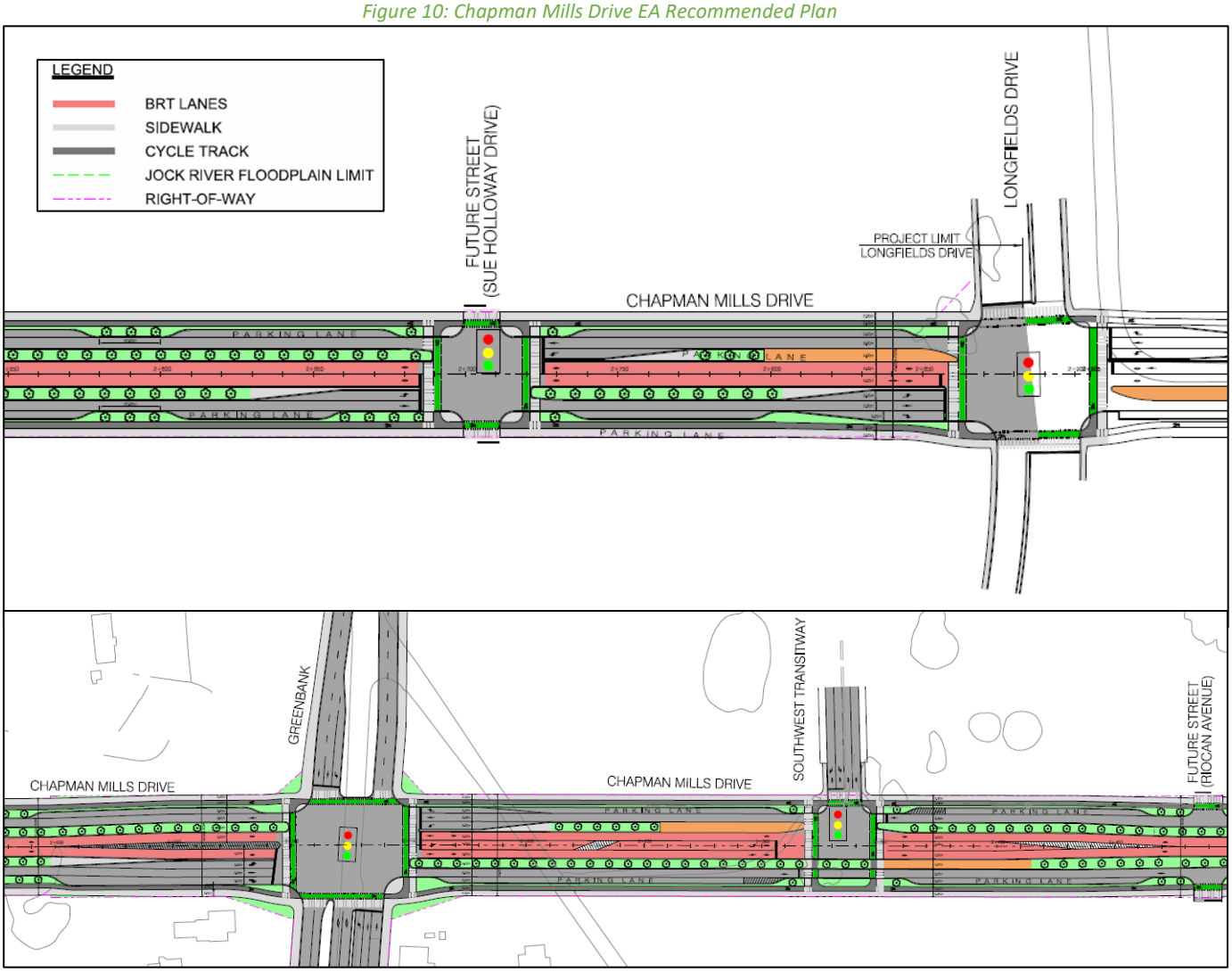
2.3 Planned Conditions

2.3.1 Changes to the Area Transportation Network

The subject development is within the Barrhaven Downtown Secondary Plan Area. As such, it is subject to the planning polices outlined in the Secondary Plan. The Secondary Plan identifies two transit lines, the east-west Chapman Mills Drive BRT and the north-south transit corridor BRT and eventual LRT, as serving the community and details that all development surrounding these facilities must follow transit-supportive design principles. In terms of consideration for active modes, the plan recommends adequate bicycle parking be provided near transit and high activity areas, proposes all streets within the Station Area, Mixed-Use Corridor and Mixed-Use Neighbourhood designations aim to have sidewalks on both sides of the street. The plan additionally identifies cycling facilities along Chapman Mills Drive and Longfields Drive within the study area.

The Chapman Mills Drive Extension EA has been given council approval and recommends the extension of the roadway between Longfields Drive and Strandherd Drive and the BRT lanes through the extension and beyond to eventually meet Borrisokane Road. The proposed standard cross section throughout the study area for a 41-metre right-of-way includes median bus rapid transit lanes, as well as a travel lane, a parking lane, a cycletrack, and a sidewalk in each direction. As discussed during the pre-consultation meeting, there is a preference to shift the signalized intersection from Sue Holloway Drive to Riocan Avenue. The proximity of Sue Holloway Drive to Longfields Drive may cause operational issues between both intersections and a signal at the Riocan Avenue location would support the new LRT station. The recommended plan for Chapman Mills Drive from the EA within the study area is illustrated in Figure 10.

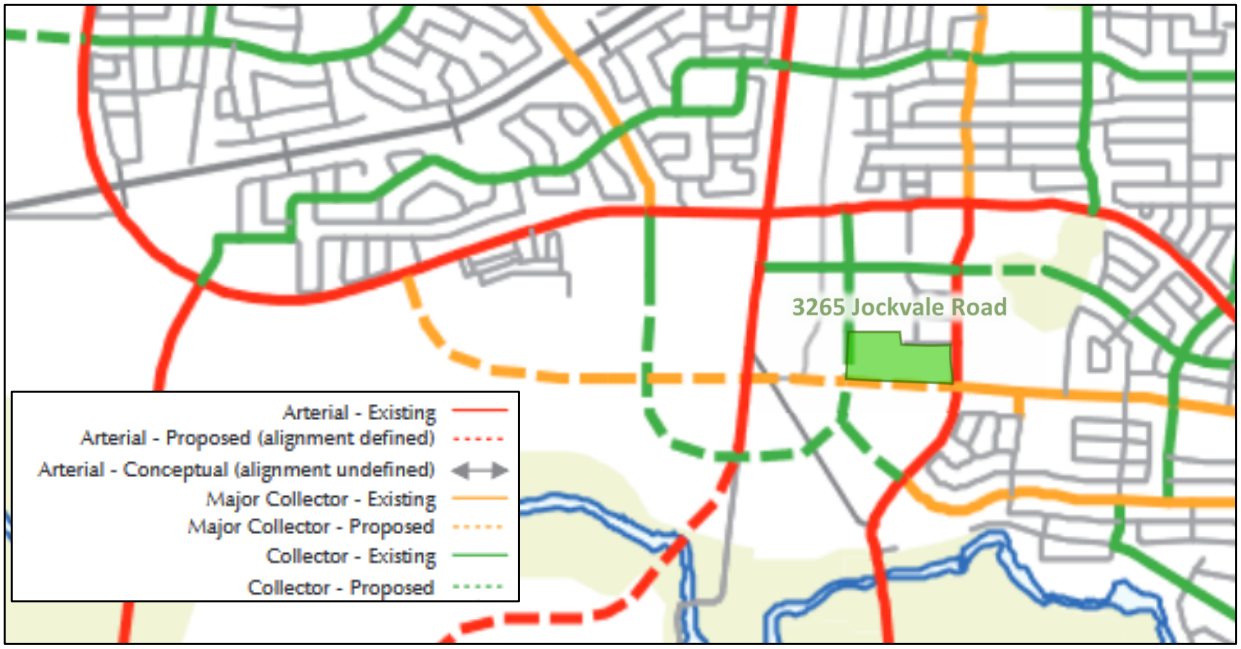
Figure 10: Chapman Mills Drive EA Recommended Plan



As part of LRT Phase 3, Barrhaven LRT will include the conversion of the BRT corridor between the Nepean Sportsplex and Barrhaven Centre Station to an LRT line. The plan proposes a new Park and Ride at Barrhaven Centre Station, which is to become a transfer station to the BRT line south along Greenbank Road and the east-west Chapman Mills Drive BRT line.

Included in secondary planning documents, and from the Urban Road Network map in the Transportation Master Plan, illustrated in Figure 11, Chapman Mills Drive is to be extended to meet Strandherd Drive at its current intersection. The current Riocan Avenue is also to be extended, past the Chapman Mills Drive extension to meet Longfields Drive at its intersection with Paul Metivier Drive. Additionally, the section of Jockvale Road between Greenbank Road and Longfields Drive is to be removed, and Jockvale Road south of Strandherd Drive is to be extended south beyond the Chapman Mills Drive extension, and loop past Greenbank Road to meet the Riocan Avenue extension west of its intersection with Longfields Drive.

Figure 11: Urban Road Network



Within the Transportation Master Plan, the Road Network's Affordable Network diagram shows the realignment of Greenbank Road south of St. Joseph High School as a phase 1 (2014-2019) new road, the extension of Chapman Mills Drive from Strandherd Drive to its current terminus at Longfields Drive as a phase 2 (2020-2025) new road, and the widening of Strandherd Drive west of Jockvale Road as a phase 2 widening. Per City feedback, the Greenbank Road Realignment is currently proceeding through detailed design.

2.3.2 Other Study Area Developments

101 Lindenshade Drive, 125 Marketplace Avenue

The application includes an official plan amendment and site plan for the construction of a retirement residence comprising 291 dwelling units, which has been constructed. The development was anticipated to generate 35 new AM and 60 new PM peak hour auto trips. (Parsons, 2016)

1000 McGarry Terrace

The application includes an over 125,700 sq. ft. self-storage facility with over 11,785 sq. ft of retail. The TIA for the application concluded that the trip generation trigger was not met. (Parsons, 2018)

1012 McGarry Terrace, 1024 McGarry Terrace

The application includes an official plan amendment, zoning by-law amendment, and site plan to permit the construction of an 18-storey apartment building comprising 228 residential units which has been constructed. The development was anticipated to generate 110 new AM and 110 new PM peak hour auto trips. (Parsons, 2017)

1034 McGarry Terrace, 1117 Longfields Drive

The application includes a site plan for two mixed-use buildings, 16 and 17 storeys in height with the first phase consisting of 290 residential units. The development application does not include a TIA.

3194 Jockvale Road

The development is proposed to be a mix of 216 stacked townhome units and approximately 200,000 sq. ft. of retail space, located between the Barrhaven Town Centre and the On The Green golf range. The development will extend Jockvale Road south of the Barrhaven Town Centre and include a new signalized intersection on Greenbank

Road. It is estimated that the development will be constructed by 2026. The development is anticipated to generate 221 new AM and 589 new PM peak hour two-way auto trips. (CGH, 2019)

3232 Jockvale Road
The application includes a zoning by law amendment and plan of subdivision to permit the construction of eight single family homes and 188 town homes built in a single phase by 2022. The development is anticipated to generate 78 new AM and 91 new PM peak hour two-way vehicle trips. (CGH, 2020)

3201 Greenbank Road
The construction of approximately 11,000 ft^2 of retail and an 8,000 ft^2 restaurant space has been completed into the existing retail development of the Loblaws and Home Sense.

3288 Greenbank Road
The development is proposed to be a mix of 310 apartment units and 602 townhome units, located between the future Chapman Mills Drive alignment on the north and the Claridge development (3370 Greenbank Road) to the south. It is estimated that the development will be constructed by 2025. Phase one of the development is anticipated to generate 62 new AM and 73 new PM peak hour two-way auto trips. (CGH, 2020)

3311 Greenbank Road
A residential subdivision has been completed south of St Joseph High School by Minto Communities, in conjunction with the City of Ottawa. A total 144 townhome units (119 Minto and 25 City), and 64 mid-rise units (City) will ultimately be constructed within the proposed lands. The development is anticipated to generate 84 new AM and 121 new PM peak hour two-way auto trips. (Parsons, 2017)

3370 Greenbank Road
The Burnett Lands are located at 3370 Greenbank Road and is proposed to include 177 townhomes in Phase 1, 70 townhomes in Phase 2 and 720 condo units in Phase 3. Originally proposed to be completed by 2020, the plan of subdivision application is currently pending, and the Official Plan and Zoning By-Law Amendment have been adopted. Phase one, initially anticipated in 2022, is estimated to generate 19 new AM and 27 new PM peak hour two-way auto trips. (Novatech, 2018)

3777 Strandherd Drive
A new retail pad is proposed for the Barrhaven Town Centre, with a total of 5,025 ft^2. This new pad is located south of the existing BMO building. The development application does not include a TIA.

3 Study Area and Time Periods

3.1 Study Area

The study area will include the intersections of:

- Strandherd Drive at:
  - Greenbank Road
  - Riocan Avenue
  - Longfields Drive
- Marketplace Avenue at:
  - Greenbank Road
  - Longfields Drive/Clearbrook Drive
- Chapman Mills Drive at:
  - Greenbank Road (future horizons)

  - Riocan Avenue (future horizons)
  - Longfields Drive
  - Mancini Way/Leamington Way
  - Beatrice Drive
- Jockvale Road at Greenbank Road (existing and 2026 horizons only)
- Paul Metivier Drive at Longfields Drive

The boundary roads will be Chapman Mills Drive, Longfields Drive, Glenroy Gilbert Drive, and Riocan Avenue and screenline 49 along the Jock River is within proximity to the site but will not be reviewed as part of this report.

3.2 Time Periods

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

3.3 Horizon Years

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

4 Exemption Review

Table 6 summarizes the exemptions for this TIA.

Table 6: Exemption Review

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

5 Development-Generated Travel Demand

5.1 Mode Shares

Examining the mode shares presented in the TRANS Trip Generation Manual (2020) for 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 South Nepean have been summarized in Table 7.

Table 7: Mode Shares – South Nepean

Travel Mode	Multi-Unit (Low-Rise)	
	AM	PM
Auto Driver	49%	49%
Auto Passenger	13%	13%
Transit	26%	24%
Cycling	2%	2%
Walking	9%	12%
Total	**100%**	**100%**

Based upon the site's context of being within 600 metres walk of the existing BRT station, within a mixed-use neighbourhood of Barrhaven Downtown, and in close proximity to Barrhaven Town Centre/Chapman Mills Marketplace retail development, modified mode share targets reflecting the Transit-Oriented Development (TOD) context are proposed and are summarized in Table 8.

Table 8: Proposed Development Mode Shares

Travel Mode	Multi-Unit (Low-Rise)	
	AM	PM
Auto Driver	20%	20%
Auto Passenger	5%	5%
Transit	55%	55%
Cycling	4%	3%
Walking	15%	17%
Total	**100%**	**100%**

5.2 Trip Generation

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

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

Land Use	Land Use Code	Peak Period	Person Trip Rates
Multi-Unit (Low-Rise)	220 (TRANS)	AM	1.35
		PM	1.58

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

Table 10: Total Residential Person Trip Generation by Peak Period

Land Use	Units	AM Peak Period			PM Peak Period		
		In	Out	Total	In	Out	Total
Multi-Unit (Low-Rise)	604	244	571	815	534	420	954

Using the above proposed development mode share targets and the person trip rates, the person trips by mode have been projected. Trip generation by peak hour has been forecasted using the prescribed peak period

conversion factors presented in the TRANS Trip Generation Manual (2020) for the residential development. Table 11 summarizes the residential trip generation by mode and peak hour.

Table 11: 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 (Low-Rise)	Auto Driver	**20%**	24	54	78	**20%**	47	37	84
	Auto Passenger	**5%**	6	14	20	**5%**	12	9	21
	Transit	**55%**	74	172	246	**55%**	138	109	247
	Cycling	**4%**	6	13	18	**3%**	8	6	14
	Walking	**15%**	21	50	71	**17%**	47	37	84
	Total	**100%**	**123**	**286**	**408**	**100%**	**235**	**185**	**420**

As shown above, a total of 78 AM and 84 PM new peak hour two-way vehicle trips are projected as a result of the proposed development.

5.3 Trip Distribution

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

Table 12: OD Survey Distribution – South Nepean

To/From	% of Trips	Via
North	55%	10% Greenbank Rd (N), 30% Strandherd Dr (W), 5% Longfields Dr (N), 10% Strandherd Dr (E)
South	5%	5% Longfields Dr (S)
East	20%	15% Strandherd Dr (E), 5% Chapman Mills Dr (E)
West	20%	15% Strandherd Dr (W), 5% Greenbank Rd (N)
Total	**100%**	**100%**

5.4 Trip Assignment

Using the distribution outlined above, turning movement splits, and access to major transportation infrastructure, the trips generated by the site have been assigned to the study area road network. Table 12 above summarizes the proportional assignment to the study area roadways. Figure 12 illustrates the new site generated volumes at the 2026 horizon prior to the construction of Chapman Mills Drive, and Figure 13 illustrates the new site generated volumes at the 2031 horizon including the build-out of Chapman Mills Drive. The site access intersections along Glenroy Gilbert Drive will not be individually examined.

Figure 12: 2026 New Site Generation Auto Volumes

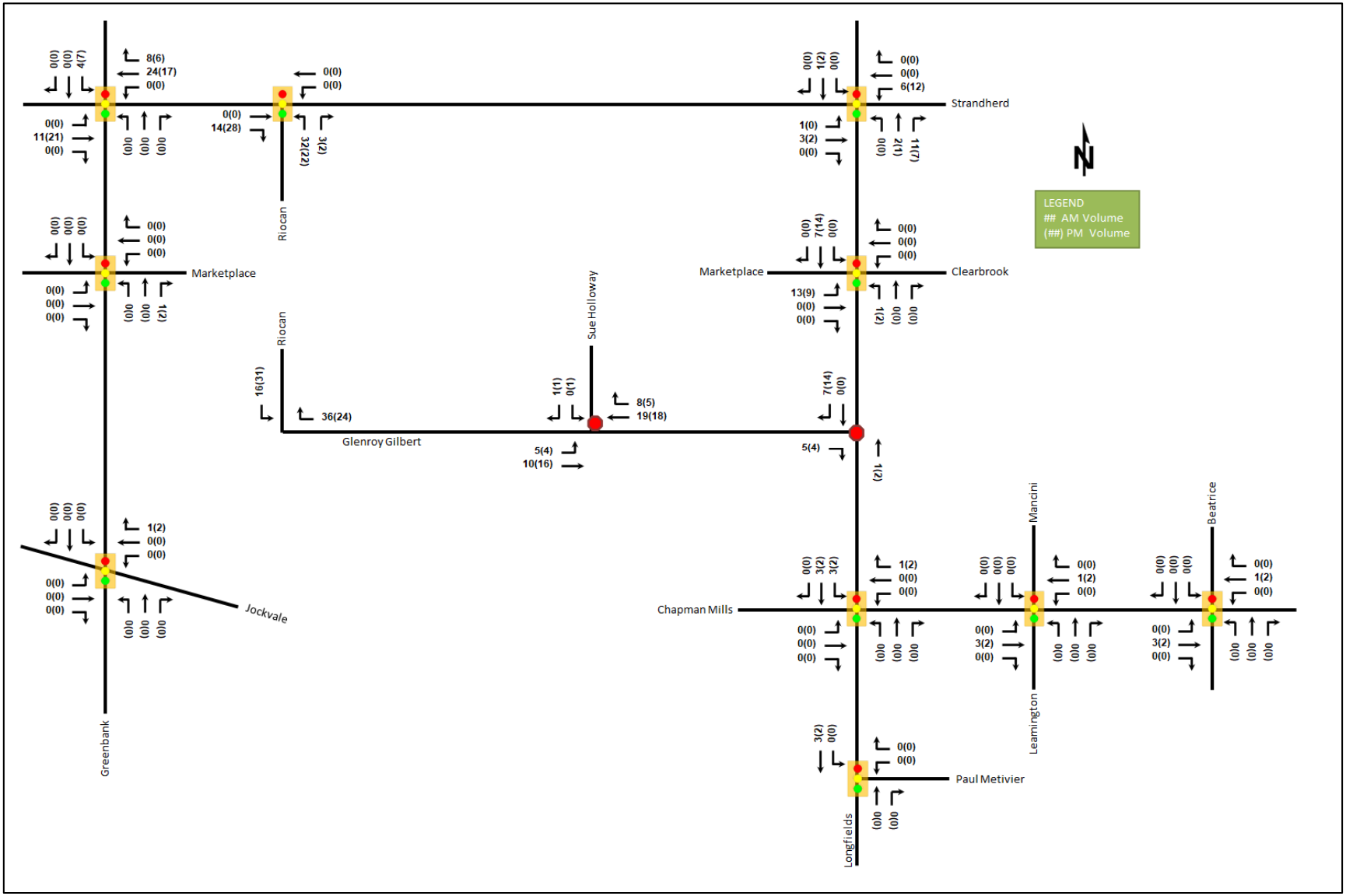
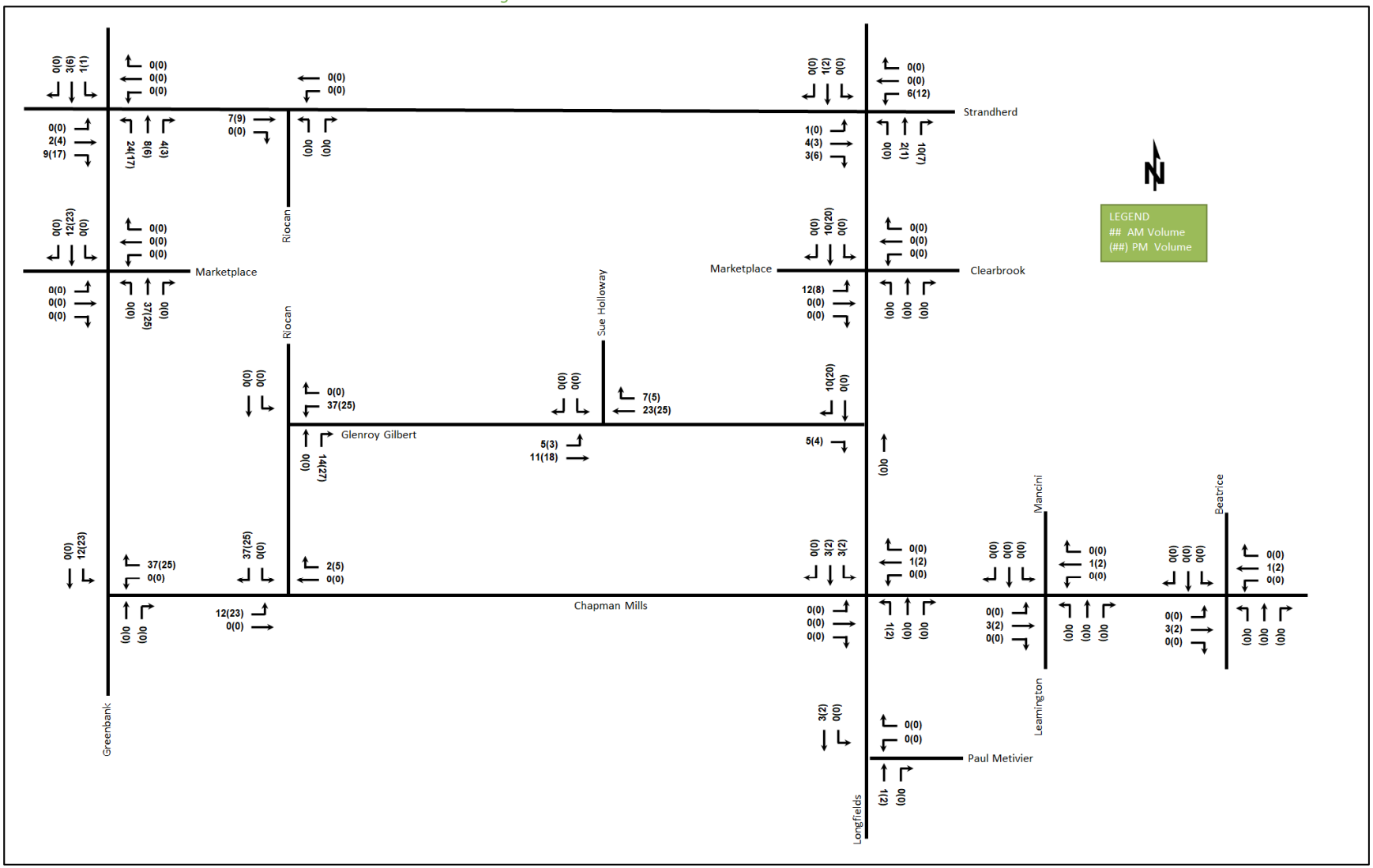


Figure 13: 2031 New Site Generation Auto Volumes



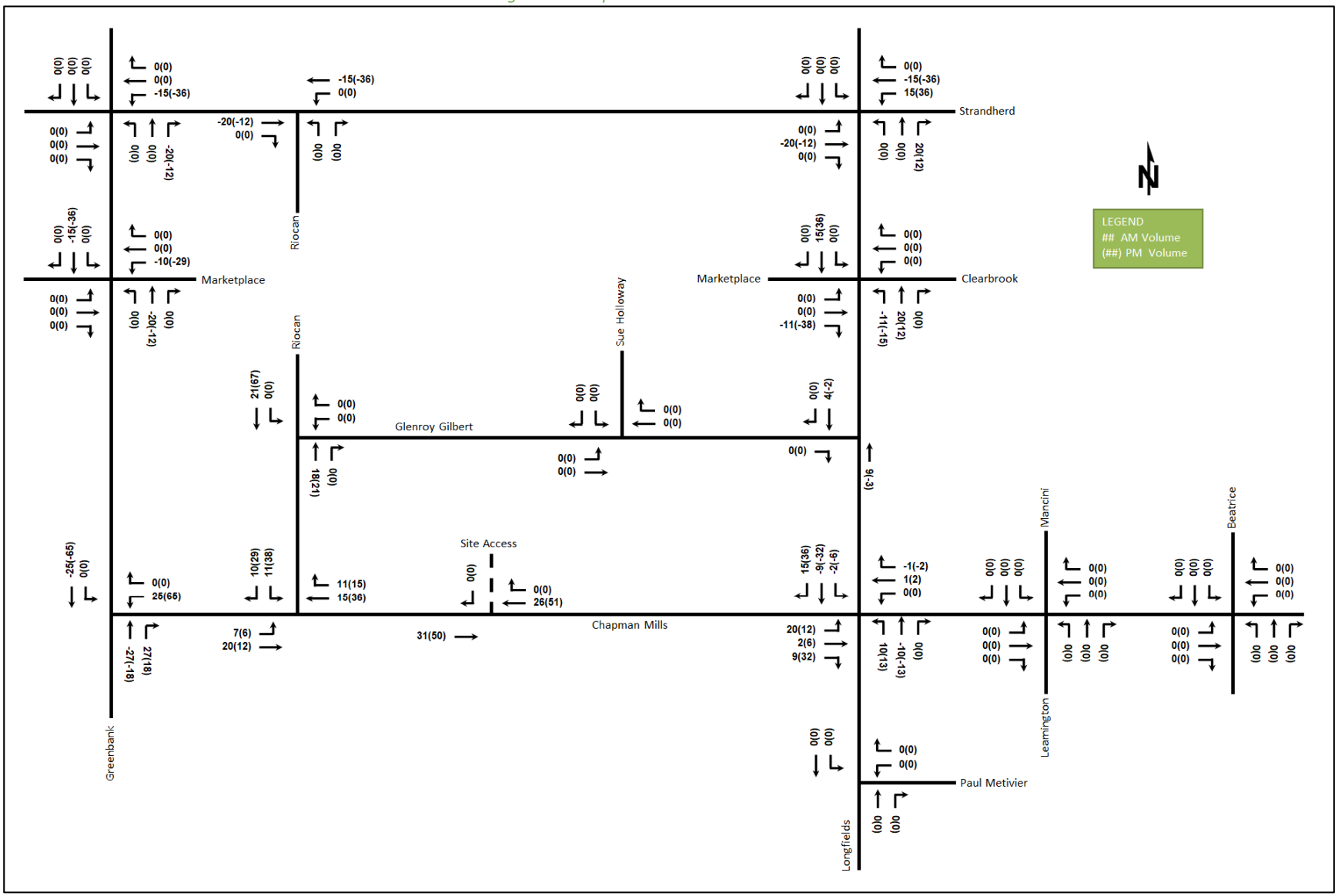
6 Background Network Travel Demands

6.1 Transportation Network Plans

The transportation network plans were discussed in Section 2.3. While occurring outside of the study area, the widening of Strandherd Drive is currently ongoing and will be complete by 2023. The extension of Chapman Mills Drive from Longfields Drive to Greenbank Road will be assumed to be in place by 2031, and the remaining section requiring additional land to complete west of Greenbank Road. No other projects are confirmed to be planned for implementation within the study horizons that would impact the traffic or conditions within the study area.

The construction of Chapman Mills Drive will result in a redistribution of a portion of the traffic travelling along Greenbank Road as an alternative is created to Greenbank Road and will additionally provide new access routes to the Chapman Mills Marketplace retail plaza. Redistribution of volumes to and from the east associated with the buildout of Chapman Mills Drive, east of Greenbank Road, was performed consistent with the other area TIAs. The projected associated redistribution of volumes is illustrated in Figure 14.

Figure 14: Chapman Mills Drive Redistribution



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. The TRANS model plots and are provided in Appendix E.

Generally, TRANS forecasted growth within the study area has been largely achieved by the existing horizon. Projected volumes from the 2031 TRANS model for Greenbank Road are considered to be low due to the ongoing development within Barrhaven South. As there is limited capacity on the existing corridor, an unconstrained growth rate is unrealistic, i.e., maintaining a historic rate of above 10%, and thus a constrained increase should be applied. As such, an approximate 15% total increase is forecasted by 2031 along Greenbank Road and annual growth along Longfields Drive of 2.5% will be applied as residual capacity remains on the corridor. Growth rates derived from the existing volumes to the projected 2031 volumes will be annually applied to all other study area arterial roadways, rounded to the nearest 0.25%. These rates will be applied in the appropriate directions identified by the TRANS model in the AM peak hour and reversed in the PM peak hour.

Table 13: Applied Study Area Growth Rates

Street	AM Peak Hour		PM Peak Hour	
	Eastbound	Westbound	Eastbound	Westbound
Strandherd Dr	1.50%	0.25%	0.25%	1.50%
Jockvale Rd	-	-	-	-
	Northbound	**Southbound**	**Northbound**	**Southbound**
Greenbank Rd	1.5%	1.5%	1.5%	1.5%
Longfields Dr	2.5%	2.5%	2.5%	2.5%

6.3 Other Developments

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

- 101 Lindenshade Drive, 125 Marketplace Avenue
- 1012 McGarry Terrace, 1024 McGarry Terrace
- 3194 Jockvale Road
- 3232 Jockvale Road
- 3288 Greenbank Road
- 3311 Greenbank Road
- 3370 Greenbank Road

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

7 Demand Rationalization

7.1 2026 Future Background Operations

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

Figure 15: 2026 Future Background Volumes

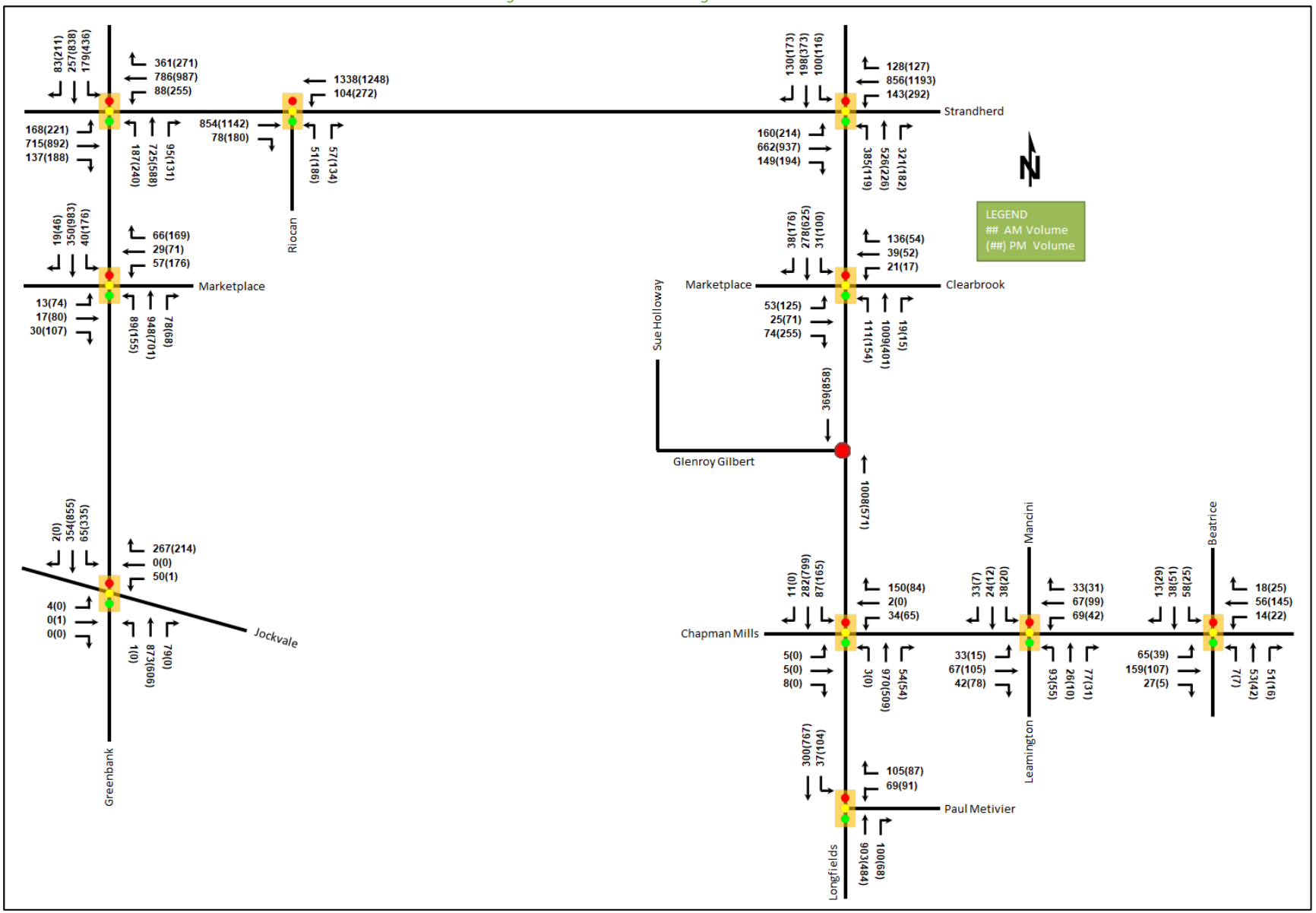


Table 14: 2026 Future Background Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Strandherd Drive at Greenbank Road *Signalized*	EBL	B	0.69	37.5	**#44.8**	**F**	**1.03**	**100.4**	**#90.2**
	EBT	B	0.69	40.6	102.4	E	0.94	59.3	**#146.5**
	EBR	A	0.25	5.3	12.2	A	0.34	6.3	16.7
	WBL	A	0.35	17.8	14.5	**F**	**1.19**	**153.8**	**#112.8**
	WBT	C	0.80	30.4	93.2	**F**	**1.04**	**69.3**	**#168.4**
	WBR	A	0.53	6.3	24.9	A	0.46	9.1	27.8
	NBL	A	0.57	77.1	36.3	B	0.64	74.3	44.2
	NBT/R	D	0.85	46.1	**#131.1**	D	0.86	40.1	**#112.5**
	SBL	A	0.56	57.9	31.6	E	0.92	76.3	**#82.0**
	SBT	A	0.27	34.3	37.2	D	0.89	54.3	**#146.3**
	SBR	A	0.16	0.6	0.0	A	0.37	6.7	18.3
	Overall	**C**	**0.78**	**35.8**	-	**F**	**1.07**	**59.6**	-
Marketplace Avenue at Greenbank Road *Signalized*	EBL	A	0.06	34.6	6.6	A	0.33	33.7	23.0
	EBT/R	A	0.23	24.6	12.9	A	0.58	37.9	49.3
	WBL	A	0.27	39.7	18.9	C	0.72	52.4	48.8
	WBT/R	A	0.32	19.5	19.2	B	0.63	33.4	56.4
	NBL	A	0.59	59.8	m26.9	D	0.81	**87.0**	**#71.3**
	NBT/R	A	0.51	18.2	107.6	A	0.51	24.4	72.1
	SBL	A	0.22	62.5	10.9	A	0.56	59.0	m25.0
	SBT/R	A	0.20	11.1	24.5	C	0.71	22.4	m68.5
	Overall	**A**	**0.52**	**20.9**	-	**C**	**0.74**	**33.0**	-
Jockvale Road at Greenbank Road *Signalized*	EB	A	0.03	46.0	4.0	A	0.01	51.0	2.0
	WBL/T	A	0.37	56.9	22.2	A	0.01	51.0	2.0
	WBR	D	0.81	41.1	53.6	A	0.60	14.5	20.6
	NB	D	0.82	23.5	**#295.7**	A	0.46	9.2	125.0
	SBL	A	0.14	4.0	4.9	A	0.50	8.8	41.4
	SBT/R	A	0.25	3.8	19.4	A	0.51	4.1	118.2
	Overall	**C**	**0.80**	**22.4**	-	**A**	**0.60**	**7.6**	-
Strandherd Drive at Riocan Avenue *Signalized*	EBT	A	0.43	12.4	m50.9	D	0.90	31.1	**m#164.6**
	EBR	A	0.09	3.6	m2.0	A	0.28	6.1	m7.0
	WBL	A	0.26	2.5	m4.5	B	0.64	26.9	**m#89.8**
	WBT	A	0.56	4.4	m180.6	A	0.58	7.5	m174.7
	NBL	A	0.19	53.2	12.1	B	0.61	60.8	33.7
	NBR	A	0.16	8.5	8.4	A	0.30	6.4	11.8
	Overall	**A**	**0.54**	**8.1**	-	**C**	**0.71**	**20.7**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Strandherd Drive at Longfields Drive ***Signalized***	EBL	A	0.53	32.5	23.0	D	0.88	66.2	**m#40.2**
	EBT	B	0.68	44.8	106.4	D	0.84	45.7	**m#148.6**
	EBR	A	0.28	16.3	40.6	A	0.31	16.8	m32.1
	WBL	A	0.50	57.9	26.5	C	0.71	59.9	48.1
	WBT	D	0.89	54.0	**#147.7**	E	0.93	48.3	**#183.1**
	WBR	A	0.24	4.1	9.4	A	0.19	2.7	7.5
	NBL	D	0.82	64.9	**#65.8**	A	0.47	58.5	23.1
	NBT	**F**	**1.03**	**91.0**	**#216.2**	A	0.57	47.1	71.5
	NBR	A	0.51	7.7	25.8	A	0.37	5.1	11.6
	SBL	A	0.58	63.8	38.8	C	0.78	**85.8**	**#55.8**
	SBT	A	0.45	42.3	63.0	E	0.91	70.5	**#136.7**
	SBR	A	0.27	5.2	10.8	A	0.34	4.1	9.5
	Overall	**E**	**0.93**	**48.7**	**-**	**E**	**0.92**	**46.1**	**-**
Marketplace Avenue / Clearbrook Drive at Longfields Drive ***Signalized***	EBL	A	0.26	28.0	14.5	A	0.55	38.6	29.0
	EBT/T	A	0.26	10.1	12.9	B	0.70	17.7	33.0
	WB	A	0.53	22.0	31.2	A	0.56	27.6	22.6
	NBL	A	0.18	8.6	16.7	A	0.37	9.3	22.2
	NBT/R	A	0.48	10.5	75.6	A	0.19	6.7	26.2
	SBL	A	0.13	19.1	10.4	A	0.22	16.6	24.8
	SBT/R	A	0.19	14.1	27.8	A	0.49	16.0	75.7
	Overall	**A**	**0.51**	**12.8**	**-**	**A**	**0.49**	**16.0**	**-**
Chapman Mills Drive at Longfields Drive ***Signalized***	EBL	A	0.05	40.0	4.1	-	-	-	-
	EBT	A	0.02	30.4	3.3	-	-	-	-
	EBR	A	0.02	0.1	0.0	-	-	-	-
	WBL	A	0.22	40.5	14.2	A	0.38	43.5	22.6
	WBT	A	0.01	28.5	1.9	-	-	-	-
	WBR	A	0.44	9.5	13.2	A	0.14	0.5	0.0
	NBL	A	0.00	12.3	m0.8	-	-	-	-
	NBT	A	0.44	9.3	54.1	A	0.22	10.8	45.5
	NBR	A	0.06	9.7	10.0	A	0.05	13.7	14.8
	SBL	A	0.30	14.8	26.8	A	0.29	13.0	44.1
	SBT	A	0.13	8.2	24.9	A	0.34	10.0	80.5
	SBR	A	0.01	0.0	0.0	-	-	-	-
	Overall	**A**	**0.43**	**10.2**	**-**	**A**	**0.38**	**11.5**	**-**
Paul Metivier Drive at Longfields Drive ***Signalized***	WBL	A	0.27	33.5	17.5	A	0.34	34.9	21.8
	WBR	A	0.33	8.5	10.4	A	0.28	8.4	9.5
	NBT	A	0.36	6.7	66.4	A	0.19	5.8	32.4
	NBR	A	0.09	2.1	6.9	A	0.06	2.5	5.8
	SBL	A	0.09	5.9	5.1	A	0.17	3.7	5.6
	SBT	A	0.12	4.2	13.1	A	0.31	3.0	14.8
	Overall	**A**	**0.37**	**7.2**	**-**	**A**	**0.33**	**6.0**	**-**

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Chapman Mills Drive at Mancini Way / Leamington Way ***Signalized***	EBL	A	0.21	39.0	14.7	A	0.10	33.8	7.9
	EBT/R	A	0.17	15.7	23.7	A	0.20	12.4	32.6
	WBL	A	0.37	39.6	24.5	A	0.23	33.9	15.6
	WBT/R	A	0.12	13.2	21.3	A	0.12	9.7	24.7
	NB	B	0.64	36.1	47.1	A	0.37	28.9	23.6
	SB	A	0.31	26.5	23.9	A	0.15	24.8	11.6
	Overall	**A**	**0.34**	**27.6**	**-**	**A**	**0.28**	**18.2**	**-**
Chapman Mills Drive at Beatrice Drive ***Signalized***	EBL	A	0.45	54.1	25.6	A	0.24	41.5	17.3
	EBT	A	0.16	18.3	38.1	A	0.11	17.9	27.0
	EBR	A	0.03	0.1	0.0	A	0.01	0.0	0.0
	WBL	A	0.11	45.4	8.6	A	0.14	41.0	11.4
	WBT	A	0.07	23.5	16.0	A	0.15	17.8	35.3
	WBR	A	0.02	0.1	0.0	A	0.03	0.1	0.0
	NB	A	0.12	20.3	12.9	A	0.09	20.2	8.5
	SB	A	0.13	20.6	12.8	A	0.15	20.8	12.3
	Overall	**A**	**0.22**	**23.0**	**-**	**A**	**0.19**	**20.5**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Peak Hour Factor = 1.00
Delay is measured in seconds
m = metered queue
# = volume for the 95th %ile cycle exceeds capacity

The study area intersection operations at the 2026 future background conditions are forecasted to degrade primarily at the intersection of Strandherd Drive and Greenbank Road.

At the intersection of Strandherd Drive and Greenbank Road, the overall intersection is forecasted to be over theoretical capacity, the westbound left-turn and, through, and eastbound left-turn movements are forecasted to be over theoretical capacity and may experience high delays during the PM peak hour.

The Strandherd Drive at Longfields Drive intersection is noted to become over capacity in the northbound through movement during the AM peak, including high delays and extended queuing.

7.2 2031 Future Background Operations

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

Figure 16: 2031 Future Background Volumes

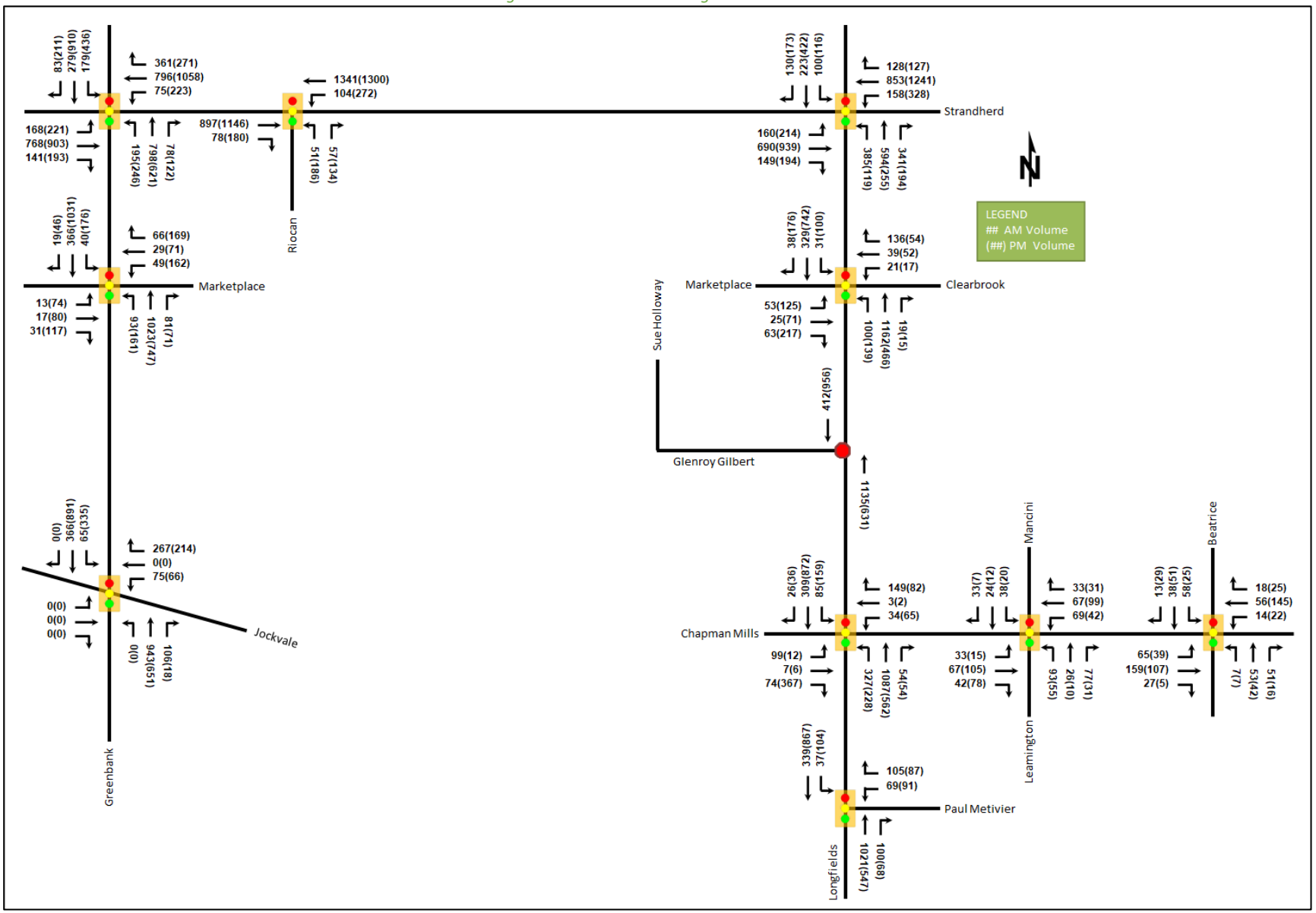


Table 15: 2031 Future Background Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Strandherd Drive at Greenbank Road *Signalized*	EBL	B	0.69	36.8	**#44.3**	**F**	**1.03**	**100.4**	**#90.2**
	EBT	B	0.68	39.0	110.3	E	0.95	61.2	**#149.6**
	EBR	A	0.24	5.4	12.9	A	0.35	6.4	16.7
	WBL	A	0.31	17.5	m12.6	**F**	**1.04**	**106.9**	**#94.5**
	WBT	D	0.81	31.1	95.6	**F**	**1.11**	**93.6**	**#187.8**
	WBR	A	0.53	6.3	25.0	A	0.47	9.9	30.9
	NBL	A	0.58	75.6	37.4	B	0.64	70.5	45.3
	NBT/R	E	0.91	51.3	**#147.2**	D	0.89	59.6	**#120.2**
	SBL	A	0.56	57.9	31.6	E	0.92	76.3	**#82.0**
	SBT	A	0.29	34.8	40.2	E	0.97	66.4	**#165.7**
	SBR	A	0.16	0.6	0.0	A	0.38	6.8	18.3
	Overall	**D**	**0.82**	**37.0**	-	**F**	**1.06**	**66.7**	-
Marketplace Avenue at Greenbank Road *Signalized*	EBL	A	0.06	34.6	6.6	A	0.33	33.7	23.0
	EBT/R	A	0.24	24.4	12.9	B	0.61	38.4	51.3
	WBL	A	0.23	38.6	16.8	B	0.68	49.7	45.1
	WBT/R	A	0.32	19.5	19.2	B	0.63	33.4	56.4
	NBL	A	0.60	61.6	**#48.6**	D	0.83	**86.2**	**#75.0**
	NBT/R	A	0.55	21.9	116.3	A	0.55	21.8	67.3
	SBL	A	0.22	63.1	11.0	A	0.56	59.5	m24.3
	SBT/R	A	0.21	10.3	23.6	C	0.75	23.1	m65.4
	Overall	**A**	**0.54**	**22.9**	-	**C**	**0.75**	**32.0**	-
Chapman Mills Drive at Greenbank Road *Signalized*	WBL	A	0.15	27.8	22.6	A	0.13	27.3	20.3
	WBR	A	0.52	23.1	53.4	A	0.29	11.9	29.1
	NBT/R	A	0.56	19.2	108.5	A	0.51	33.9	92.9
	SBL	A	0.31	12.5	5.6	C	0.77	44.7	**m#111.3**
	SBT	A	0.19	6.9	11.2	A	0.44	29.0	111.6
	Overall	**A**	**0.52**	**17.5**	-	**B**	**0.63**	**31.2**	-
Strandherd Drive at Riocan Avenue *Signalized*	EBT	A	0.45	12.5	m52.6	D	0.90	30.6	**m#162.6**
	EBR	A	0.09	3.8	m2.3	A	0.28	6.0	m6.7
	WBL	A	0.27	2.6	m4.6	B	0.64	27.2	**m#85.0**
	WBT	A	0.56	4.4	184.4	A	0.60	7.8	m176.8
	NBL	A	0.19	53.2	12.1	B	0.61	60.8	33.7
	NBR	A	0.16	8.5	8.4	A	0.30	6.4	11.8
	Overall	**A**	**0.55**	**8.3**	-	**C**	**0.72**	**20.5**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Strandherd Drive at Longfields Drive ***Signalized***	EBL	A	0.53	32.4	23.3	**F**	**1.22**	**162.6**	**m#39.7**
	EBT	C	0.72	46.8	110.7	E	0.92	52.7	**m#148.1**
	EBR	A	0.28	16.4	41.1	A	0.32	17.4	m31.9
	WBL	A	0.53	57.9	28.6	C	0.76	62.0	53.9
	WBT	D	0.89	53.7	**#146.6**	E	0.96	54.1	**#195.5**
	WBR	A	0.24	4.1	9.4	A	0.19	2.7	7.5
	NBL	D	0.82	64.9	**#65.8**	A	0.47	58.5	23.1
	NBT	**F**	**1.17**	**133.3**	**#251.9**	A	0.59	46.6	80.8
	NBR	A	0.55	10.6	37.4	A	0.38	5.9	14.2
	SBL	A	0.58	63.8	38.8	C	0.78	**85.8**	**#55.8**
	SBT	A	0.51	43.8	70.7	E	0.94	74.5	**#163.1**
	SBR	A	0.27	5.2	10.8	A	0.33	3.8	9.5
	Overall	**E**	**0.98**	**56.3**	-	**E**	**0.97**	**55.0**	-
Marketplace Avenue / Clearbrook Drive at Longfields Drive ***Signalized***	EBL	A	0.25	27.4	14.5	A	0.55	38.6	29.0
	EBT/T	A	0.23	10.5	12.3	B	0.65	17.3	30.7
	WB	A	0.55	26.1	34.9	A	0.48	23.5	21.4
	NBL	A	0.17	8.8	15.2	A	0.38	9.7	20.3
	NBT/R	A	0.56	11.7	92.4	A	0.22	6.8	30.4
	SBL	A	0.15	20.0	10.8	A	0.24	16.9	25.2
	SBT/R	A	0.22	14.6	32.6	A	0.56	17.4	91.5
	Overall	**A**	**0.59**	**14.0**	-	**A**	**0.53**	**16.1**	-
Chapman Mills Drive at Longfields Drive ***Signalized***	EBL	**F**	**1.10**	**172.0**	**#55.9**	A	0.14	46.7	7.7
	EBT	A	0.02	36.0	4.6	A	0.02	27.3	3.9
	EBR	A	0.17	0.8	0.0	D	0.86	36.3	62.0
	WBL	A	0.44	66.0	**#17.7**	C	0.75	**90.9**	**#34.0**
	WBT	A	0.01	36.0	2.9	A	0.00	23.5	1.9
	WBR	A	0.40	4.4	4.2	A	0.16	0.6	0.0
	NBL	C	0.75	49.6	**#140.2**	D	0.83	69.3	**#110.1**
	NBT	B	0.69	25.6	131.0	A	0.48	25.8	57.4
	NBR	A	0.08	17.6	15.0	A	0.11	21.9	14.8
	SBL	A	0.54	59.5	**#45.4**	B	0.65	57.9	**#80.8**
	SBT	A	0.30	28.9	36.6	C	0.78	34.4	98.1
	SBR	A	0.04	0.2	0.0	A	0.06	0.2	0.0
	Overall	**C**	**0.66**	**35.2**	-	**D**	**0.83**	**37.1**	-
Paul Metivier Drive at Longfields Drive ***Signalized***	WBL	A	0.27	33.5	17.5	A	0.34	34.9	21.8
	WBR	A	0.36	14.0	14.0	A	0.28	8.4	9.5
	NBT	A	0.41	7.1	78.4	A	0.22	5.9	36.8
	NBR	A	0.09	2.1	6.9	A	0.06	2.5	5.8
	SBL	A	0.11	7.9	8.7	A	0.18	7.6	19.3
	SBT	A	0.14	5.5	22.6	A	0.35	6.8	63.0
	Overall	**A**	**0.41**	**8.0**	-	**A**	**0.37**	**7.9**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Chapman Mills Drive at Mancini Way / Leamington Way ***Signalized***	EBL	A	0.21	39.0	14.7	A	0.10	33.8	7.9
	EBT/R	A	0.17	15.7	23.7	A	0.20	12.4	32.6
	WBL	A	0.37	39.6	24.5	A	0.23	33.9	15.6
	WBT/R	A	0.12	13.2	21.3	A	0.12	9.7	24.7
	NB	B	0.64	36.1	47.1	A	0.37	28.9	23.6
	SB	A	0.31	26.5	23.9	A	0.15	24.8	11.6
	Overall	**A**	**0.34**	**27.6**	**-**	**A**	**0.28**	**18.2**	**-**
Chapman Mills Drive at Beatrice Drive ***Signalized***	EBL	A	0.45	54.1	25.6	A	0.24	41.5	17.3
	EBT	A	0.16	18.3	38.1	A	0.11	17.9	27.0
	EBR	A	0.03	0.1	0.0	A	0.01	0.0	0.0
	WBL	A	0.11	45.4	8.6	A	0.14	41.0	11.4
	WBT	A	0.07	23.5	16.0	A	0.15	17.8	35.3
	WBR	A	0.02	0.1	0.0	A	0.03	0.1	0.0
	NB	A	0.12	20.3	12.9	A	0.09	20.2	8.5
	SB	A	0.13	20.6	12.8	A	0.15	20.8	12.3
	Overall	**A**	**0.22**	**23.0**	**-**	**A**	**0.19**	**20.5**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Peak Hour Factor = 1.00
Delay is measured in seconds
m = metered queue
# = volume for the 95th %ile cycle exceeds capacity

During both the AM and PM peak hours, the study area intersections at the 2031 future background horizon operate similarly to the 2026 future background conditions with further degradation of the conditions due to background growth.

The Strandherd Drive at Longfields Drive intersection is anticipated to see the eastbound left-turn become over capacity with high delays and extended queuing during the PM peak.

The Chapman Mills Drive at Longfields Drive intersection is anticipated to see the eastbound left-turn become over capacity during the AM peak with high delays and extended queuing.

7.3 Modal Share Sensitivity and Demand Rationalization Conclusions

7.3.1 Demand Rationalization

Capacity issues have been noted at the Greenbank Road at Strandherd Drive intersection as the continued approval of Barrhaven South developments funnel to limited connections at Strandherd Drive. Given the demand generated by the Barrhaven South community, City implementation of transit infrastructure and additional road connectivity, such as the Barnsdale interchange, are needed to generate a shift in existing travel from the auto mode to transit and decrease reliance on Greenbank Road. No rationalization of site travel demand is required, however, as the site auto traffic is anticipated to primarily rely on movements with residual capacity at study area intersections.

7.3.2 Modal Shares

The mode share splits applied to the subject development are reflective of the TOD context and the traffic constraints noted above. With respect to active transportation, the presented rationale for the mode share selection is further supported by the planning context in the Downtown Barrhaven Secondary Plan which explicitly states a focus on sustainable transportation. With the proximity to the retail plazas to the north, the active mode shares are considered to be achievable.

8 Development Design

8.1 Design for Sustainable Modes

The proposed development includes residential buildings with surface parking north of Glenroy Gilbert Drive and surface lots and four underground garages south of Glenroy Gilbert Drive. On-street parking will be permitted along Riocan Avenue and Glenroy Gilbert Drive. The approved cross-section for Chapman Mills Drive will also permit on-street parking. Bicycle parking is to be provided by surface spaces for the units north of Glenroy Gilbert Drive and in the underground parking garage for the units to the south.

Entrances to each unit connect directly to a network of walkways that in turn connect to the surrounding pedestrian facilities including sidewalks along both sides of Glenroy Gilbert Drive and the frontage on Riocan Avenue, and the future Chapman Mills Drive.

8.2 Circulation and Access

Vehicle accesses are provided on both sides of Glenroy Gilbert Drive. The accesses on the north side of Glenroy Gilbert Drive are all proposed as 6.0 metres-wide, and the accesses on the south side of Glenroy Gilbert Drive are approximately 8.6-metres wide and permit short term parking along the east side of the aisle. All underground garage ramps are proposed as being 6.0 metres in width.

Emergency services are proposed as ultimately as accessing the site via the four public road frontages, the drive aisles on the south side of Glenroy Gilbert Drive, and a firetruck access on Riocan Avenue. Interim turnarounds will be provided on Riocan Avenue and at the terminus of each drive aisle within the southern block within the future Chapman Mills corridor. Garbage collection is proposed to take place in the one-way loop on the north side of Glenroy Gilbert Drive and within the drive aisles for the south block.

9 Parking

9.1 Parking Supply

The site proposes 604 vehicle parking spaces for residents, 58 vehicle parking spaces for visitors, and 302 bicycle parking spaces. On the north side of Glenroy Gilbert Drive, 60 surface vehicle parking spaces for residents for residents and six surface vehicle parking spaces for visitors are provided. South of Glenroy Gilbert Drive, 544 underground vehicle parking spaces are provided for residents and 52 vehicle surface parking spaces for visitors.

It is estimated that under the proposed framed parking along the site frontages, Riocan Avenue can provide on-street parking for up to 14 vehicles, Glenroy Gilbert Drive can provide on-street parking for up to 20 vehicles, and Chapman Mills Drive can provide on-street parking for up to 39 vehicles. Therefore, an approximate total of 73 on-street parking spaces may be provided on the site frontages.

The zoning by-law prescribes 302 parking spaces for residents given the building entrances are within 600 metres of Barrhaven Centre Station, which is being met by the proposed development, and 121 vehicle parking spaces for visitors. With the proposed on-site visitor parking and street parking, available parking for site visitors is 131, and thus the required rate is being met.

10 Boundary Street Design

Table 16 summarizes the MMLOS analysis for the boundary streets of Riocan Avenue, Longfields Drive, Glenroy Gilbert Drive, and Chapman Mills Drive. The boundary street analysis is based on the policy area of “Within 600m

of a rapid transit station". Table 16 summarizes the results of the MMLOS analysis, and indicates which horizon was examined for each roadway. The MMLOS worksheets has been provided in Appendix I.

Table 16: Boundary Street MMLOS Analysis

Segment	Pedestrian LOS		Bicycle LOS		Transit LOS		Truck LOS	
	PLOS	Target	BLOS	Target	TLOS	Target	TrLOS	Target
Riocan Avenue	A	A	A	D	-	-	-	-
Longfields Drive	**F**	A	**C**	B	-	-	C	D
Glenroy Gilbert Drive	**B**	A	D	D	-	-	-	-
Chapman Mills Drive	A	A	A	B	A	B	-	-

Glenroy Gilbert Drive will not meet pedestrian LOS targets, and Longfields Drive does not meet pedestrian and bicycle LOS targets.

Meeting pedestrian LOS targets on Glenroy Gilbert Drive would require a boulevard of 0.5 metres in width or greater. Pedestrian LOS targets cannot be met on Longfields drive due to the volumes and operating speeds of adjacent traffic.

Meeting pedestrian LOS targets on Glenroy Gilbert Drive would trade-off with the servicing and streetscaping considerations on the street. Meeting bicycle LOS targets on Longfields Drive would require separated facilities. While the responsibility of the City, no local improvements on the site frontage are recommended on Longfields Drive, consistent with the remainder of the arterial corridor.

11 Access Intersections Design

11.1 Location and Design of Access

Two (2) two-way 6.0-metre-wide full-movements accesses and two (2) one-way accesses are proposed to the surface parking lots north of Glenroy Gilbert Drive, each with the first parking space offset 8.75 metres from the Glenroy Gilbert Drive roadway. Two two-way are approximately 8.6-metres-wide full movements accesses are proposed to the surface and underground parking to the units south of Glenroy Gilbert Drive, each with the first parking space offset at least 10.0 metres from the Glenroy Gilbert Drive roadway.

The site accesses on Glenroy Gilbert Drive have adequate throat length for the local road context and meet the provisions from the private approach by-law.

11.2 Intersection Control

The site accesses along Glenroy Gilbert Drive are proposed as being stop-controlled on the minor approaches of the site accesses with Glenroy Gilbert Drive operating under free flow conditions.

The intersection of Glenroy Gilbert Drive at Riocan Avenue is proposed to be minor stop controlled on Glenroy Gilbert Drive with Riocan Avenue operating under free flow conditions. The intersection of Glenroy Gilbert Drive at Sue Holloway Drive is proposed to be minor stop controlled on Sue Holloway Drive with Glenroy Gilbert Drive operating under free flow conditions.

11.3 Access Intersection Design

11.3.1 2026 Future Total Access Intersection Operations

The 2026 future total intersection volumes are illustrated in Figure 17 and the access intersection operations are summarized below in Table 17. For Sue Holloway Drive and Glenroy Gilbert Drive, no representative existing volumes were able to be collected due to pandemic-related traffic disruption. Further, no adjacent traffic studies included these roadway volumes. As such, a conservative assumption of 50 background vehicles per direction are

assumed to travel to/from Longfields Drive from/to Sue Holloway Drive via Glenroy Gilbert Drive. Additionally, as a new connection to Longfields Drive from Riocan Avenue will be made, the eastbound right-turn volumes redistributed from the Marketplace Avenue at Longfields Drive to Chapman Mills Drive at Longfields Drive previously illustrated in Figure 14 will be assigned on Glenroy Gilbert Drive at this horizon. As the intersection of Glenroy Gilbert Drive at Riocan Avenue effectively constitutes a bend in the road at this horizon, it will not be analyzed. The level of service is based on HCM average delay for unsignalized intersections. The synchro worksheets have been provided in Appendix J.

Figure 17: 2026 Future Total Volumes

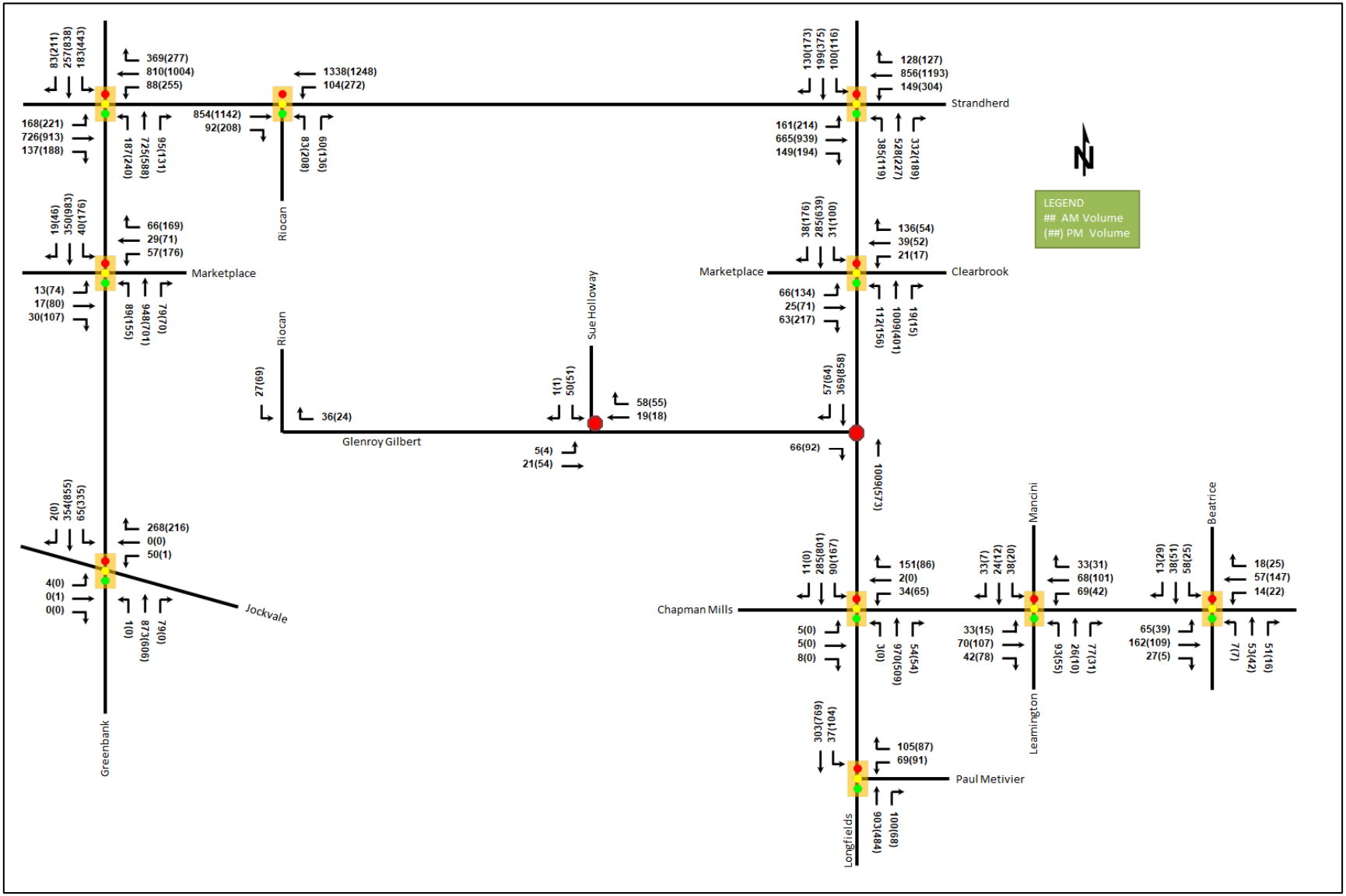


Table 17: 2026 Future Total Access Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Glenroy Gilbert Drive at Sue Holloway Drive ***Unsignalized***	EBL/T	A	0.00	7.4	0.0	A	0.00	7.4	0.0
	WBT/R	-	-	-	-	-	-	-	-
	SBL/R	A	0.06	9.1	1.5	A	0.06	9.3	1.5
	Overall	**A**	**-**	**3.2**	**-**	**A**	**-**	**2.8**	**-**
Glenroy Gilbert Drive at Longfields Drive ***Unsignalized***	EBR	B	0.08	10.0	2.3	B	0.17	12.9	4.5
	NBT	-	-	-	-	-	-	-	-
	SBT/R	-	-	-	-	-	-	-	-
	Overall	**A**	**-**	**0.4**	**-**	**A**	**-**	**0.7**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Peak Hour Factor = 1.00
Delay is measured in seconds
m = metered queue
# = volume for the 95th %ile cycle exceeds capacity

The access intersections at the 2026 future total horizon operate well with forecasted site traffic and the assumed background volumes. No capacity issues are noted.

11.3.2 2031 Future Total Access Intersection Operations

The 2031 future total intersection volumes are illustrated in Figure 18 and the access intersection operations are summarized below in Table 18. As in the 2026 future total conditions, 50 background vehicles per direction are assumed to travel to/from Longfields Drive from/to Sue Holloway Drive via Glenroy Gilbert Drive. The level of service is based on HCM average delay for unsignalized intersections. The synchro worksheets have been provided in Appendix K.

Figure 18: 2031 Future Total Volumes

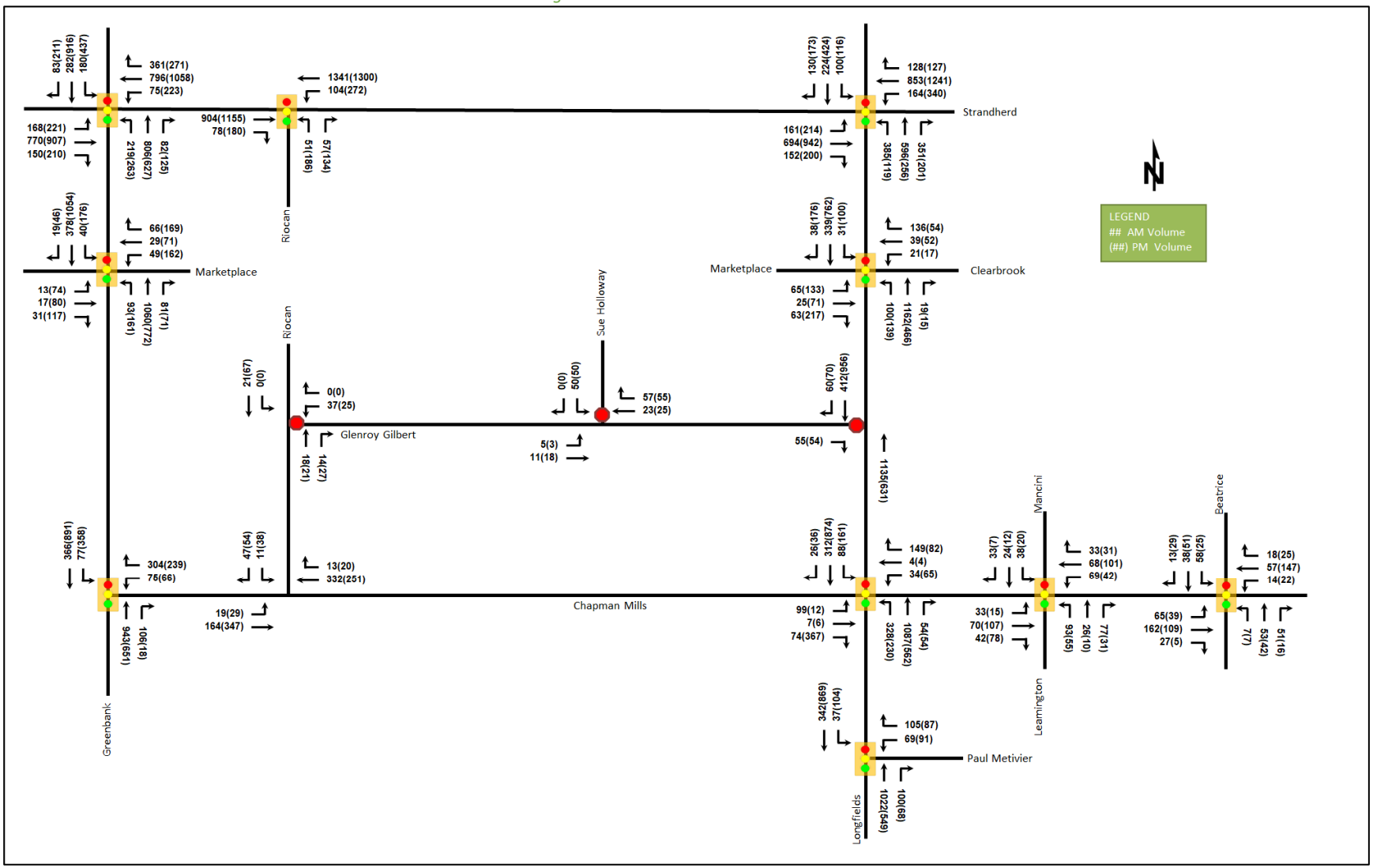


Table 18: 2031 Future Total Access Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Glenroy Gilbert Drive at Sue Holloway Drive ***Unsignalized***	EBL/T	A	0.00	7.4	0.0	A	0.00	7.4	0.0
	WBT/R	-	-	-	-	-	-	-	-
	SBL/R	A	0.05	9.1	1.5	A	0.05	9.1	1.5
	Overall	**A**	**-**	**3.4**	**-**	**A**	**-**	**3.2**	**-**
Glenroy Gilbert Drive at Riocan Avenue ***Unsignalized***	WBL/R	A	0.04	8.9	0.8	A	0.03	9.1	0.8
	NBT/R	-	-	-	-	-	-	-	-
	SBL/T	-	-	-	-	-	-	-	-
	Overall	**A**	**-**	**3.7**	**-**	**A**	**-**	**1.6**	**-**
Glenroy Gilbert Drive at Longfields Drive ***Unsignalized***	EBR	B	0.07	10.1	1.5	B	0.11	13.0	3.0
	NBT	-	-	-	-	-	-	-	-
	SBT/R	-	-	-	-	-	-	-	-
	Overall	**A**	**-**	**0.3**	**-**	**A**	**-**	**0.4**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Peak Hour Factor = 1.00
Delay is measured in seconds
m = metered queue
# = volume for the 95th %ile cycle exceeds capacity

The access intersections at the 2031 future total horizon are anticipated to continue to operate well. No new capacity issues are noted.

11.3.3 Access Intersection MMLOS

The access intersections are not signalized and therefore no analysis is required.

11.3.4 Recommended Design Elements

No additional design elements are proposed for the access intersections beyond the typical private approach standards.

12 Transportation Demand Management

12.1 Context for TDM

The mode shares used within the TIA represent a shift from auto modes to transit modes, consistent with the TOD context. Overall, the mode shares are likely to be achieved and supporting TDM measures should be provided.

The subject site is within the South Nepean Town Centre design priority area.

The total bedroom count within the development is subject to the final unit breakdown and/or layout selections by purchasers. No age restrictions are noted.

12.2 Need and Opportunity

The subject site has been assumed to rely predominantly on transit ridership through the proximity to the existing Barrhaven Centre station on the BRT corridor. This mode share is further supported by the future proximity to the existing and future extended Chapman Mills Drive BRT corridor. These assumptions have been carried through the analysis, and the increase in transit ridership is achievable. Ultimately, transit adoption may increase once the LRT line is extended to Barrhaven Centre Station which will serve as a transfer station, however such an increase would be outside of the study horizons.

The risks associated with not meeting the target mode shares are increasing impacts to the study area intersection operations, although as previously stated, the site is anticipated to rely primarily on movements with residual

capacity. Further network constraints, however, are considered to be a further driver of transit adoption for the proposed development.

12.3 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 L. The key TDM measures recommended include:

- Contract with a provider to install on-site carshare spaces
- Contract with a provider to install on-site bikeshare stations (or other micromobility options available at time of construction, e.g. scootershare)
- Provide a multimodal travel option information package to new residents
- Inclusion of a 1-year Presto card for first time new townhome purchase and apartment rental, with a set time frame for this offer (e.g. 6-months) from the initial opening of the site

13 Neighbourhood Traffic Management

The proposed development will connect to the arterial road network at Strandherd Drive via Glenroy Gilbert Drive (a local road) and Riocan Avenue (a collector road), and at Longfields Drive via Glenroy Gilbert Drive (a local road), and via Marketplace Avenue (a collector road) and Sue Holloway Drive (a local road). In the ultimate conditions, with the build out of Chapman Mills Drive (a major collector road), the development will also access Greenbank Road and Longfields Drive via this newly extended roadway.

The TIA Guidelines prescribe volume thresholds for classifications of roadways at 120 vehicles per peak hour for local roads, 300 vehicles per peak hour for collector roads, and 600 vehicles per peak hour for major collector roads. These volumes are to be considered two-way, per City direction.

Two-way site traffic on Glenroy Gilbert Drive west of Sue Holloway Drive constitutes 33% of the AM peak hour classification threshold and 38% of the PM peak hour classification threshold, and on Glenroy Gilbert Drive east of Sue Holloway Drive constitutes 34% of the AM peak hour classification threshold and 40% of the PM peak hour classification threshold.

The forecasted two-way volumes on Riocan Avenue immediately south of Strandherd Drive are 339 AM peak hour vehicles (of which site traffic comprises less than 14%) and 824 PM peak hour vehicles (of which site traffic comprises less than 6%) in the interim network conditions, which are over the collector road thresholds.

Forecasted volumes on Chapman Mills Drive are 562 AM peak hour vehicles and 681 PM peak hour vehicles (of which site traffic comprises less than 9%), and the PM volumes are over the major collector road thresholds in the PM peak hour.

The forecasted two-way volumes on Marketplace Avenue just west of Longfields Drive are 330 AM peak hour vehicles (of which site traffic comprises less than 4%) and 790 PM peak hour vehicles (of which site traffic comprises less than 2%), which are over the collector road thresholds.

The volumes on the collector roadways in the area are expected to carry more than double the threshold volumes. This is consistent with the density of surrounding retail development and envisioned residential densities planned for the Barrhaven Towncentre area. The forecasted new site volumes do not impact these expected volumes, nor the function, or classification of study area local and collector roads.

14 Transit

14.1 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 19 summarizes the transit trip generation.

Table 19: Trip Generation by Transit Mode

Travel Mode	Mode Share	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Transit	55%	74	172	246	138	109	247

The proposed development is anticipated to generate an additional 246 transit trips in each peak hour. Of these trips, 172 outbound AM trips and 138 inbound PM trips are anticipated. From the trip distribution found in Section 5.3, these values can be further broken down. The forecasted transit trips generated by the site are summarized in Table 20.

Trips north may be made via Barrhaven Centre Station along the existing BRT and future LRT corridor, trips south may be made via the routes #75, #175, and #176. Local trips east may be made via the routes #80 and #99 and local west may be made via the routes #99, #170, and #173, where regional trips east may be made via the route #99, and regional trips both east and west may be made via connections served by BRT.

Table 20: Forecasted Site Transit Ridership

To/From	% of Trips	Outbound AM Trips	Inbound PM Trips	Routes	Total Buses/hr	Add'l Riders/Bus AM(PM)
North	55%	95	75	BRT	20	5(4)
South	5%	9	7	75, 175, 176	8	2(1)
East	20%	34	28	80, 99, BRT	6+	6(5)
West	20%	34	28	99, 170, 173, BRT	8+	5(4)

Averaged increases in ridership amount to no more than approximately 10% of a standard bus capacity. Examining total ridership increases, as many as three additional standard buses may be required site-generated demand for local trips north and regional trips north, west, and east, and a half load of a standard bus may be anticipated across the routes #80, #99, #170, and #173.

14.2 Transit Priority

Minimal impacts are anticipated from the subject development traffic on area transit turning movements.

15 Network Intersection Design

15.1 Network Intersection Control

No change to the existing signalized control is recommended for the network intersections. During the pre-consultation meeting, preference was stated for the signalization of the future intersection of Riocan Avenue at Chapman Mills Drive, and this condition has been modeled at the 2031 future horizon.

15.2 Network Intersection Design

15.2.1 2026 Future Total Network Intersection Operations

The 2026 future total network intersection operations are summarized below in Table 21. The level of service for signalized intersections is based on 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 J.

Table 21: 2026 Future Total Network Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Strandherd Drive at Greenbank Road *Signalized*	EBL	C	0.71	39.6	**#48.1**	**F**	**1.03**	**100.4**	**#90.2**
	EBT	B	0.70	40.9	104.4	E	0.96	63.0	**#152.2**
	EBR	A	0.25	5.3	12.2	A	0.34	6.3	16.7
	WBL	A	0.36	18.4	m14.6	**F**	**1.19**	**153.4**	**#113.3**
	WBT	D	0.83	32.8	**#102.1**	**F**	**1.05**	**74.9**	**#172.8**
	WBR	A	0.53	6.3	24.7	A	0.47	9.4	28.7
	NBL	A	0.57	77.0	36.3	B	0.64	74.2	44.2
	NBT/R	D	0.86	46.4	**#131.8**	D	0.86	40.1	**#112.4**
	SBL	A	0.56	57.9	32.1	E	0.93	78.8	**#84.0**
	SBT	A	0.27	34.3	37.2	D	0.89	54.3	**#146.3**
	SBR	A	0.16	0.6	0.0	A	0.37	6.7	18.3
	Overall	**C**	**0.79**	**36.4**	-	**F**	**1.07**	**61.4**	-
Marketplace Avenue at Greenbank Road *Signalized*	EBL	A	0.06	34.6	6.6	A	0.33	33.7	23.0
	EBT/R	A	0.23	24.6	12.9	A	0.58	37.9	49.3
	WBL	A	0.27	39.7	18.9	C	0.72	52.4	48.8
	WBT/R	A	0.32	19.5	19.2	B	0.63	33.4	56.4
	NBL	A	0.59	59.7	m26.9	D	0.81	**87.1**	**#71.2**
	NBT/R	A	0.51	18.2	107.8	A	0.52	24.5	72.4
	SBL	A	0.22	62.5	10.9	A	0.56	59.0	m25.0
	SBT/R	A	0.20	11.2	24.6	C	0.71	22.4	m68.5
	Overall	**A**	**0.52**	**21.0**	-	**C**	**0.74**	**33.0**	-
Jockvale Road at Greenbank Road *Signalized*	EB	A	0.03	46.0	4.0	A	0.01	51.0	2.0
	WBL/T	A	0.37	56.9	22.2	A	0.01	51.0	2.0
	WBR	D	0.81	41.3	53.8	A	0.60	14.8	21.1
	NB	D	0.82	23.6	**#296.1**	A	0.46	9.2	125.0
	SBL	A	0.14	4.0	4.9	A	0.50	8.8	41.4
	SBT/R	A	0.25	3.8	19.4	A	0.51	4.1	118.2
	Overall	**C**	**0.80**	**22.5**	-	**A**	**0.60**	**7.6**	-
Strandherd Drive at Riocan Avenue *Signalized*	EBT	A	0.45	13.3	m51.8	D	0.90	30.7	**m#158.6**
	EBR	A	0.11	3.6	m2.5	A	0.31	5.9	m7.8
	WBL	A	0.27	2.6	m4.5	B	0.64	26.8	**m#89.8**
	WBT	A	0.59	4.6	m184.0	A	0.58	7.5	m174.7
	NBL	A	0.31	55.0	17.6	B	0.67	63.4	37.2
	NBR	A	0.16	8.1	8.5	A	0.30	6.4	12.0
	Overall	**A**	**0.55**	**9.2**	-	**C**	**0.72**	**20.9**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Strandherd Drive at Longfields Drive ***Signalized***	EBL	A	0.53	32.4	23.5	D	0.89	67.9	**m#39.8**
	EBT	B	0.69	47.5	106.8	D	0.85	46.1	**m#147.8**
	EBR	A	0.28	16.4	40.6	A	0.31	16.7	m31.8
	WBL	A	0.51	57.9	27.3	C	0.73	60.6	50.1
	WBT	D	0.89	54.2	**#148.0**	E	0.93	48.3	**#183.1**
	WBR	A	0.24	4.2	9.4	A	0.19	2.7	7.5
	NBL	D	0.82	64.9	**#65.8**	A	0.47	58.5	23.1
	NBT	**F**	**1.04**	**92.0**	**#217.1**	A	0.57	47.1	72.0
	NBR	A	0.52	7.7	26.4	A	0.38	5.8	13.2
	SBL	A	0.58	63.8	38.8	C	0.78	**85.8**	**#55.8**
	SBT	A	0.45	42.3	63.0	E	0.91	70.8	**#137.7**
	SBR	A	0.27	5.2	10.8	A	0.34	4.0	9.5
	Overall	**E**	**0.93**	**49.3**	**-**	**E**	**0.93**	**46.4**	**-**
Marketplace Avenue / Clearbrook Drive at Longfields Drive ***Signalized***	EBL	A	0.33	29.8	17.4	A	0.57	39.3	30.7
	EBT/T	A	0.24	10.7	12.3	B	0.64	16.8	30.7
	WB	A	0.53	22.0	31.2	A	0.46	22.5	21.3
	NBL	A	0.18	8.6	16.8	A	0.38	9.6	22.5
	NBT/R	A	0.48	10.5	75.6	A	0.19	6.8	26.2
	SBL	A	0.13	19.1	10.4	A	0.23	16.9	24.8
	SBT/R	A	0.19	14.1	28.5	A	0.50	16.4	77.5
	Overall	**A**	**0.51**	**13.1**	**-**	**A**	**0.50**	**15.9**	**-**
Chapman Mills Drive at Longfields Drive ***Signalized***	EBL	A	0.05	40.0	4.1	-	-	-	-
	EBT	A	0.02	30.4	3.3	-	-	-	-
	EBR	A	0.02	0.1	0.0	-	-	-	-
	WBL	A	0.22	40.5	14.2	A	0.38	43.5	22.6
	WBT	A	0.01	28.5	1.9	-	-	-	-
	WBR	A	0.44	9.5	13.4	A	0.15	0.5	0.0
	NBL	A	0.00	12.3	m0.8	-	-	-	-
	NBT	A	0.44	9.3	54.1	A	0.22	10.8	45.5
	NBR	A	0.06	9.7	10.0	A	0.05	13.7	14.8
	SBL	A	0.31	15.0	27.8	A	0.29	13.0	44.6
	SBT	A	0.13	8.2	25.2	A	0.34	10.0	80.7
	SBR	A	0.01	0.0	0.0	-	-	-	-
	Overall	**A**	**0.43**	**10.2**	**-**	**A**	**0.38**	**11.5**	**-**
Paul Metivier Drive at Longfields Drive ***Signalized***	WBL	A	0.27	33.5	17.5	A	0.34	34.9	21.8
	WBR	A	0.33	8.5	10.4	A	0.28	8.4	9.5
	NBT	A	0.36	6.7	66.4	A	0.19	5.8	32.4
	NBR	A	0.09	2.1	6.9	A	0.06	2.5	5.8
	SBL	A	0.09	5.9	5.1	A	0.17	3.8	5.7
	SBT	A	0.12	4.2	13.2	A	0.31	3.0	15.0
	Overall	**A**	**0.37**	**7.2**	**-**	**A**	**0.33**	**6.0**	**-**

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Chapman Mills Drive at Mancini Way / Leamington Way ***Signalized***	EBL	A	0.21	39.0	14.7	A	0.10	33.8	7.9
	EBT/R	A	0.17	16.1	24.5	A	0.20	12.5	33.1
	WBL	A	0.37	39.6	24.5	A	0.23	33.9	15.6
	WBT/R	A	0.12	13.3	21.8	A	0.12	9.7	25.0
	NB	B	0.64	36.1	47.1	A	0.37	28.9	23.6
	SB	A	0.31	26.5	23.9	A	0.15	24.8	11.6
	Overall	**A**	**0.35**	**27.6**	-	**A**	**0.28**	**18.2**	-
Chapman Mills Drive at Beatrice Drive ***Signalized***	EBL	A	0.45	54.1	25.6	A	0.24	41.5	17.3
	EBT	A	0.17	18.3	38.6	A	0.11	17.9	27.4
	EBR	A	0.03	0.1	0.0	A	0.01	0.0	0.0
	WBL	A	0.11	45.4	8.6	A	0.14	41.0	11.4
	WBT	A	0.07	23.5	16.4	A	0.15	17.8	35.7
	WBR	A	0.02	0.1	0.0	A	0.03	0.1	0.0
	NB	A	0.12	20.3	12.9	A	0.09	20.2	8.5
	SB	A	0.13	20.6	12.8	A	0.15	20.8	12.3
	Overall	**A**	**0.22**	**23.0**	-	**A**	**0.20**	**20.5**	-

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Peak Hour Factor = 1.00
Delay is measured in seconds
m = metered queue
# = volume for the 95th %ile cycle exceeds capacity

The network intersection operations for the 2026 future total horizon operate similarly to the 2026 future background conditions. The westbound through movement at the intersection of Strandherd Drive at Greenbank Road may exhibit extended queues during the AM peak hour at this horizon.

15.2.2 2031 Future Total Network Intersection Operations

The 2031 future total network intersection operations are summarized below in Table 22. The level of service for signalized intersections is based on 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.

Table 22: 2031 Future Total Network Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Strandherd Drive at Greenbank Road ***Signalized***	EBL	B	0.69	36.8	**#44.3**	**F**	**1.03**	**100.4**	**#90.2**
	EBT	B	0.68	39.1	110.7	E	0.95	61.9	**#150.4**
	EBR	A	0.25	6.0	14.8	A	0.37	6.3	17.4
	WBL	A	0.31	17.5	m12.6	**F**	**1.04**	**106.9**	**#94.5**
	WBT	D	0.81	31.1	95.6	**F**	**1.11**	**93.6**	**#187.8**
	WBR	A	0.53	6.3	25.0	A	0.47	9.9	30.9
	NBL	B	0.61	75.1	41.1	B	0.67	71.3	47.9
	NBT/R	E	0.92	52.3	**#150.5**	D	0.90	59.6	**#122.7**
	SBL	A	0.56	58.0	31.8	E	0.92	76.6	**#82.3**
	SBT	A	0.30	35.6	41.2	E	0.99	71.1	**#167.2**
	SBR	A	0.16	0.7	0.0	A	0.38	6.8	18.3
	Overall	**D**	**0.83**	**37.5**	-	**F**	**1.06**	**67.4**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Marketplace Avenue at Greenbank Road ***Signalized***	EBL	A	0.06	34.6	6.6	A	0.33	33.7	23.0
	EBT/R	A	0.24	24.4	12.9	B	0.61	38.4	51.3
	WBL	A	0.23	38.6	16.8	B	0.68	49.7	45.1
	WBT/R	A	0.32	19.5	19.2	B	0.63	33.4	56.4
	NBL	A	0.60	62.6	**#48.7**	D	0.83	**85.8**	**#74.9**
	NBT/R	A	0.57	21.7	121.8	A	0.56	22.3	71.1
	SBL	A	0.22	62.0	10.9	A	0.56	59.2	m24.0
	SBT/R	A	0.22	10.5	24.9	C	0.76	23.7	m66.6
	Overall	**A**	**0.55**	**22.7**	-	**C**	**0.76**	**32.2**	-
Chapman Mills Drive at Greenbank Road ***Signalized***	WBL	A	0.15	27.7	22.6	A	0.13	27.3	20.3
	WBR	A	0.58	26.3	64.3	A	0.32	12.9	33.4
	NBT/R	A	0.56	19.4	108.5	A	0.51	34.0	92.9
	SBL	A	0.37	14.2	6.0	D	0.81	47.9	**m#122.9**
	SBT	A	0.19	6.8	10.9	A	0.44	29.1	111.6
	Overall	**A**	**0.55**	**18.2**	-	**B**	**0.67**	**31.8**	-
Strandherd Drive at Riocan Avenue ***Signalized***	EBT	A	0.46	12.6	m53.5	E	0.91	31.0	**m#163.4**
	EBR	A	0.09	3.9	m2.3	A	0.28	6.0	m6.7
	WBL	A	0.27	2.6	m4.5	B	0.64	27.2	**m#85.0**
	WBT	A	0.56	4.4	184.5	A	0.60	7.8	m176.8
	NBL	A	0.19	53.2	12.1	B	0.61	60.8	33.7
	NBR	A	0.16	8.5	8.4	A	0.30	6.4	11.8
	Overall	**A**	**0.54**	**8.3**	-	**C**	**0.72**	**20.6**	-
Strandherd Drive at Longfields Drive ***Signalized***	EBL	A	0.53	32.4	23.4	**F**	**1.25**	**173.8**	**m#39.4**
	EBT	C	0.73	47.3	110.9	E	0.93	53.9	**m#147.2**
	EBR	A	0.29	16.8	42.5	A	0.34	17.9	m33.0
	WBL	A	0.54	57.9	29.4	C	0.78	63.2	55.7
	WBT	D	0.89	53.9	**#147.0**	E	0.96	54.1	**#195.5**
	WBR	A	0.24	4.2	9.4	A	0.19	2.7	7.5
	NBL	D	0.82	64.9	**#65.8**	A	0.47	58.5	23.1
	NBT	**F**	**1.17**	**134.7**	**#252.4**	A	0.59	46.5	81.1
	NBR	A	0.56	10.9	39.0	A	0.39	6.5	16.0
	SBL	A	0.58	63.8	38.8	C	0.78	**85.8**	**#55.8**
	SBT	A	0.51	43.8	71.0	E	0.94	74.2	**#164.6**
	SBR	A	0.27	5.2	10.8	A	0.33	3.8	9.5
	Overall	**E**	**0.98**	**56.5**	-	**E**	**0.97**	**55.8**	-
Marketplace Avenue / Clearbrook Drive at Longfields Drive ***Signalized***	EBL	A	0.31	28.9	17.0	A	0.57	39.2	30.4
	EBT/T	A	0.23	10.5	12.3	B	0.64	16.9	30.7
	WB	A	0.55	26.1	34.9	A	0.46	22.7	21.3
	NBL	A	0.17	8.8	15.2	A	0.39	10.0	20.3
	NBT/R	A	0.56	11.7	92.4	A	0.22	7.0	30.4
	SBL	A	0.15	20.0	10.8	A	0.24	17.1	25.2
	SBT/R	A	0.23	14.7	33.6	A	0.57	18.0	**#96.2**
	Overall	**A**	**0.59**	**14.1**	-	**A**	**0.55**	**16.4**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Chapman Mills Drive at Longfields Drive ***Signalized***	EBL	**F**	**1.10**	**172.0**	**#55.9**	A	0.14	46.7	7.7
	EBT	A	0.02	36.0	4.6	A	0.02	27.3	3.9
	EBR	A	0.17	0.8	0.0	D	0.86	36.3	62.0
	WBL	A	0.44	66.0	**#17.7**	C	0.75	**90.9**	**#34.0**
	WBT	A	0.02	36.2	3.3	A	0.01	23.5	3.0
	WBR	A	0.40	4.4	4.2	A	0.16	0.6	0.0
	NBL	C	0.76	49.7	**#140.6**	D	0.84	70.1	**#111.2**
	NBT	B	0.70	25.9	131.0	A	0.48	25.9	57.4
	NBR	A	0.08	17.7	15.0	A	0.11	21.9	14.8
	SBL	A	0.54	59.0	**#46.7**	B	0.65	57.9	**#81.5**
	SBT	A	0.31	28.9	37.0	C	0.79	34.5	98.2
	SBR	A	0.04	0.2	0.0	A	0.06	0.2	0.0
	Overall	**B**	**0.67**	**35.4**	-	**D**	**0.83**	**37.3**	-
Paul Metivier Drive at Longfields Drive ***Signalized***	WBL	A	0.27	33.5	17.5	A	0.34	34.9	21.8
	WBR	A	0.36	14.0	14.0	A	0.28	8.4	9.5
	NBT	A	0.41	7.1	78.5	A	0.22	5.9	37.0
	NBR	A	0.09	2.1	6.9	A	0.06	2.5	5.8
	SBL	A	0.11	7.9	8.7	A	0.18	7.6	19.3
	SBT	A	0.14	5.5	22.8	A	0.35	6.8	63.2
	Overall	**A**	**0.41**	**8.0**	-	**A**	**0.37**	**7.9**	-
Chapman Mills Drive at Mancini Way / Leamington Way ***Signalized***	EBL	A	0.21	39.0	14.7	A	0.10	33.8	7.9
	EBT/R	A	0.17	16.1	24.5	A	0.20	12.5	33.1
	WBL	A	0.37	39.6	24.5	A	0.23	33.9	15.6
	WBT/R	A	0.12	13.3	21.8	A	0.12	9.7	25.0
	NB	B	0.64	36.1	47.1	A	0.37	28.9	23.6
	SB	A	0.31	26.5	23.9	A	0.15	24.8	11.6
	Overall	**A**	**0.35**	**27.6**	-	**A**	**0.28**	**18.2**	-
Chapman Mills Drive at Beatrice Drive ***Signalized***	EBL	A	0.45	54.1	25.6	A	0.24	41.5	17.3
	EBT	A	0.17	18.3	38.6	A	0.11	17.9	27.4
	EBR	A	0.03	0.1	0.0	A	0.01	0.0	0.0
	WBL	A	0.11	45.4	8.6	A	0.14	41.0	11.4
	WBT	A	0.07	23.5	16.4	A	0.15	17.8	35.7
	WBR	A	0.02	0.1	0.0	A	0.03	0.1	0.0
	NB	A	0.12	20.3	12.9	A	0.09	20.2	8.5
	SB	A	0.13	20.6	12.8	A	0.15	20.8	12.3
	Overall	**A**	**0.22**	**23.0**	-	**A**	**0.20**	**20.5**	-
Chapman Mills Drive at Riocan Avenue ***Signalized***	EBL	A	0.03	4.5	2.7	A	0.04	4.4	3.6
	EBT	A	0.12	4.2	13.0	A	0.27	5.3	28.4
	WBT	A	0.25	4.7	27.4	A	0.21	4.8	21.3
	SBL	A	0.21	13.0	10.1	A	0.35	18.5	16.8
	Overall	**A**	**0.26**	**5.4**	-	**A**	**0.28**	**6.7**	-

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Peak Hour Factor = 1.00
Delay is measured in seconds
m = metered queue
# = volume for the 95th %ile cycle exceeds capacity

The network intersection operations for the 2031 future total horizon operate similarly to the 2031 future background conditions. No new capacity issues are noted.

15.2.3 Network Intersection MMLOS

Table 23 summarizes the MMLOS analysis for the network intersections. Where the existing and future conditions for an intersection, they will be the same and are considered in one row. The intersection analysis is based on the policy area of "Within 600m of a rapid transit station". The MMLOS worksheets has been provided in Appendix I.

Table 23: 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
Strandherd Dr at Greenbank Rd	F	A	F	C	F	D	B	D	F	E
Marketplace Ave at Greenbank Rd	F	A	F	C	F	D	-	-	C	E
Jockvale Rd at Greenbank Rd (Ex.)	F	A	C	C	F	D	E	D	C	E
Strandherd Dr at Riocan Ave	F	A	F	C	-	-	-	-	C	E
Strandherd Dr at Longfields Dr	F	A	F	B	F	D	B	D	E	E
Marketplace Ave / Clearbrook Dr at Longfields Dr	F	A	F	B	E	D	-	-	A	E
Chapman Mills Dr at Longfields Dr	F	A	A	B	F	C	-	-	D	E
Paul Metivier Dr at Longfields Dr	F	A	F	B	B	C	-	-	A	E
Chapman Mills Dr at Mancini Way / Leamington Way	F	A	B	B	C	C	-	-	A	E
Chapman Mills Dr at Beatrice Dr	F	A	E	B	D	C	-	-	A	E
Chapman Mills Dr at Greenbank Rd (Fut.)	F	A	A	B	F	C	-	-	B	E
Chapman Mills Dr at Riocan Ave (Fut.)	F	A	A	B	B	C	-	-	A	E

The MMLOS targets will not be met for the pedestrian LOS at all network intersections, bicycle LOS at all but the intersections of Jockvale Road at Greenbank Road, Chapman Mills Drive at Longfields Drive, Chapman Mills Drive at Mancini Way/Leamington Way, the future Chapman Mills Drive at Riocan Avenue, and the future Chapman Mills Drive at Greenbank Road. Transit LOS will not be met at all but the intersections of Strandherd Drive at Riocan Avenue, Paul Metivier Drive at Longfields Drive, Chapman Mills Drive at Mancini Way/Leamington Way, and Chapman Mills Drive at Riocan Avenue. Truck LOS will not be met at the intersection of Jockvale Road at Greenbank Road and auto LOS will not be met at the intersection of Strandherd Drive at Greenbank Road.

To meet pedestrian LOS targets, crossing distances would need to be less than two lane-widths on all crossings. Given the nature of arterial roadways, it is not feasible to meet the given targets.

To meet bicycle targets, segregated facilities would be required on all approaches at the intersection of Greenbank Road at Strandherd Drive, the eastbound approach at the intersection of Strandherd Drive at Riocan Avenue, all approaches at the intersection of Strandherd Drive at Longfields Drive, the eastbound and westbound approaches at the intersection of Chapman Mills Drive at Beatrice Drive. Two-stage left turns or left-turn boxes would be required on the southbound approach at the intersection of Greenbank Road at Marketplace Avenue, the

westbound approach at the intersection of Strandherd Drive at Riocan Avenue, all approaches at the intersection of Strandherd Drive at Longfields Drive, the northbound and southbound approaches at the intersection of Longfields Drive at Marketplace Avenue/Clearbrook Drive, the southbound and westbound approaches at the intersection of Longfields Drive at Paul Metivier Drive, and the eastbound and westbound approaches at the intersection of Chapman Mills Drive at Beatrice Drive.

Transit LOS in the study area was limited by delays on transit approaches and would need to be reduced to less than 30 seconds at the intersections of Strandherd Drive at Greenbank Road, Marketplace Avenue at Greenbank Road, Jockvale Road at Greenbank Road, Strandherd Drive at Longfields Drive, Marketplace Avenue/Clearbrook Drive at Longfields Drive, and less than 20 seconds at the intersections of Chapman Mills Drive at Longfields Drive and Chapman Mills Drive at Beatrice Drive. At the future intersection of Chapman Mills Drive at Greenbank Road, failure to meet transit LOS is considered temporary until the west leg of the intersection is built out and connected to the westerly transit corridor.

15.2.4 Recommended Design Elements

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

16 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 604 stacked townhome units
- Accesses will be provided on Glenroy Gilbert Drive which will be extended to the extension of Riocan Avenue
- The development is proposed to be completed as a single phase by 2026
- The Trip Generation, Location, and Safety Triggers were met for the TIA Screening
- This report accompanies a site plan application

Existing Conditions

- Greenbank Road, Longfields Drive, Strandherd Drive, and Jockvale Roads are arterial roads, Chapman Mills Drive and Paul Metivier Drive are major collector roads, and is a collector road in the study area, Riocan Avenue, Beatrice Drive, Marketplace Avenue, and Clearbrook Drive are collector roads in the study area
- Sidewalks/MUPS are generally provided on both sides of the study area arterial and collector roadways
- Cycletracks are provided along both sides of Chapman Mills Drive, bike lanes are provided on both sides of Greenbank Road north of Marketplace Avenue, on both sides of Strandherd Drive between Greenbank Road and Longfields Drive, on Longfields Avenue, MUPs are provided on one side of Strandherd Drive east of Longfields Drive and west of Greenbank Road, Paul Metivier Drive, and of the Transitway south of Marketplace Avenue
- Strandherd Drive and Greenbank Road are spine cycling routes and Chapman Mills Drive, Paul Metivier Drive, Longfields Drive, and Beatrice Drive are local routes
- The high volumes roadways have produced a high number of collisions within the study area, mainly along Riocan Avenue
- The collisions are predominantly angle and turning movement collisions indicating that they may be influenced by the retail accesses along Riocan Avenue

- Queueing and delays are primarily noted at the intersections of Strandherd Drive at Greenbank Road and Strandherd Drive at Longfields Drive, with the former intersection's eastbound left movement operating over theoretical capacity

Development Generated Travel Demand

- The proposed development is forecasted produce 408 two-way people trips during the AM peak hour and 420 two-way people trips during the PM peak hour
- Of the forecasted people trips, 78 two-way trips will be vehicle trips during the AM peak hour and 84 two-way trips will be vehicle trips during the PM peak hour based on a 20% auto modal share target
- Of the forecasted trips, 55% are anticipated to travel north, 5% to travel east, and 20% to each travel east and west
- The mode share selection is responsive to the TOD context and the proximity to large-scale retail development with increases to transit and walking mode shares

Background Conditions

- The background developments were explicitly included in the background conditions, along with annual background growth applied to Strandherd Drive, Greenbank Road, and Longfields Drive
- The study area intersections at the future background horizons will degrade primarily at the intersection of Strandherd Drive and Greenbank Road, and Strandherd Drive at Longfields Drive
- Transit infrastructure and projects such as the Highway 416 interchange at Barnsdale Road would help to improve conditions along Greenbank Road, but the site-generated traffic is anticipated to primarily rely on movements with residual capacity

Development Design

- The auto parking will be via surface lots and four underground garages, and bicycle parking is to be provided on the surface for units north of Glenroy Gilbert Drive and underground for units to the south
- Pedestrian connections will be made along all frontages to area sidewalk facilities with the individual units connected via a series of walkways
- Vehicle access is proposed via driveways on both sides of Glenroy Gilbert Drive
- Emergency services may access all four public road frontages, fire lanes along the south side driveways and a fire truck access on the west side of the development on a future extension of Riocan Avenue
- Interim turnarounds will be provided to ensure access for these routes
- Garbage collection is proposed as taking place on the public roadways

Parking

- 604 vehicles parking spaces are proposed for residents, and 58 for visitors within the on-site parking facilities, and approximately 73 on-street parking spaces may be provided in framed parking on the site frontages, and 302 bicycle parking spaces are proposed
- Minimum parking rates from the zoning by-law are met by the proposed parking provision

Boundary Street Design

- Glenroy Gilbert Drive will not meet pedestrian LOS targets due to lack of boulevard, which must be balanced with servicing and streetscaping needs
- Longfields Drive will not meet pedestrian MMLOS targets, due to the high volumes and operating speed on the adjacent roadway and will not meet bicycle LOS due to the corridor's cycling facilities comprising curbside bike lanes
- No local changes to Longfields Drive are recommended, which are the responsibility of the City

Access Intersections Design

- Access intersections on the north side of Glenroy Gilbert Drive are 6.0 metres-wide and the first parking space is offset 8.75 metres from the public roadway, where two two-way and two one-way accesses are proposed
- Access intersections on the south side of Glenroy Gilbert Drive and the future Chapman Mills Drive are approximately 8.6-metres-wide with short-term parking on the east side of the drive aisles and the first parking space is offset at least 10 metres from the public roadway
- Proposed throat lengths are considered adequate given the local road context of Glenroy Gilbert Drive
- Site accesses meet the provisions from the private approach by-law
- All site access intersections and the intersections of Glenroy Gilbert Drive at Riocan Avenue, Sue Holloway Drive, and Longfields Drive are proposed as being minor stop-controlled
- Assumed volumes will be included as part of the background traffic for analysis on Glenroy Gilbert Drive and Sue Holloway Drive where valid data cannot be collected, and the subset of these volumes reduced from the eastbound right movement at the intersection of Marketplace Avenue and Longfields Drive are to be assigned to Glenroy Gilbert Drive in the interim condition given the new connection
- All site access intersections are forecasted to operate well
- No specific recommendations or design elements are required outside of typical site design standards

TDM

- The site is in close proximity to the Barrhaven Centre BRT Station and high transit uptake is likely
- Supportive TDM measures to be included within the proposed development should include:
  - Contract with a provider to install on-site carshare spaces
  - Contract with a provider to install on-site bikeshare stations (or other micromobility options available at time of construction, e.g. scootershare)
  - Provide a multimodal travel option information package to new residents
  - Inclusion of a 1-year Presto card for first time new townhome purchase and apartment rental, with a set time frame for this offer (e.g. 6-months) from the initial opening of the site

NTM

- Existing site collector roads are forecasted to be over their classification thresholds in the background conditions given the density of existing and planned development
- Site traffic is not considered to impact these thresholds, the function, or the classification of these roads

Transit

- Site-generated transit demand is forecasted to be 246 AM peak hour transit trips and 247 PM peak hour transit trips
- Forecasted averaged increases in loads are on the order of three standard buses on the BRT line, and a half of a standard bus on the routes east and west of the site
- No impacts on transit priority are anticipated from the addition of site traffic to the network

Network Intersection Design

- The network intersections at the future total horizons will operate similarly to the intersections at the future background horizons
- The MMLOS targets will not be met for the pedestrian LOS at all network intersections, bicycle LOS at all but five network intersections, transit LOS at all but three network intersections, truck LOS at the intersection of Jockvale Road and Greenbank Road, and Auto LOS at the intersection of Strandherd Drive at Greenbank Road
- Pedestrian LOS targets cannot be met at crossings of more than two lanes, improved cycling facilities, including left-turn configurations out of mixed flow and separated facilities would be required to meet the bicycle LOS targets
- No additional study area intersection design elements are proposed as part of this study

17 Conclusion

It is recommended that, from a transportation perspective, the proposed development application proceed.

Prepared By:

John Kingsley, EIT
Transportation Engineering-Intern

Reviewed By:

Andrew Harte, P.Eng.
Senior Transportation Engineer

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-Sep-20
Project Number: 2020-85
Project Reference: Minto Barrhaven Towncentre

1.1 Description of Proposed Development	
Municipal Address	3265 Jockvale Drive
Description of Location	Portion of the property east of Riocan Avenue, greenfield and construction site office
Land Use Classification	Residential Fifth Density (R5AA & R5AA[1728]), Mixed-Use Centre (MC[1726]), and Development Reserve (DR)
Development Size	784 Townhomes and Stackedhomes
Accesses	Extensions of Riocan, Chapman Mills and Glenroy Gilbert
Phase of Development	Two Phases
Buildout Year	2026 and 2028
TIA Requirement	Full TIA Required

1.2 Trip Generation Trigger		
Land Use Type	Townhomes or apartments	
Development Size	784	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	Chapman Mills BRT
Is the development in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone?	Yes	South Nepean Towncentre
Location Trigger	Yes	

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

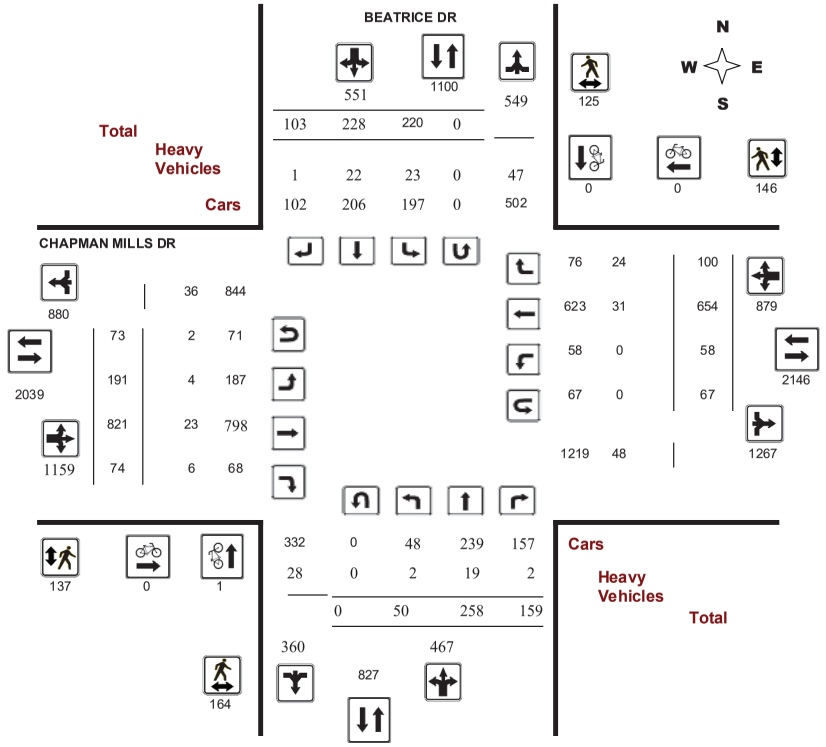
Turning Movement Count - Study Results

CHAPMAN MILLS DR @ BEATRICE DR

Survey Date: Wednesday, January 08, 2020 **WO No:** 39264

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

Full Study Diagram



5469205 - WED JAN 08, 2020 - 8HRS - LORETTA

Transportation Services - Traffic Services

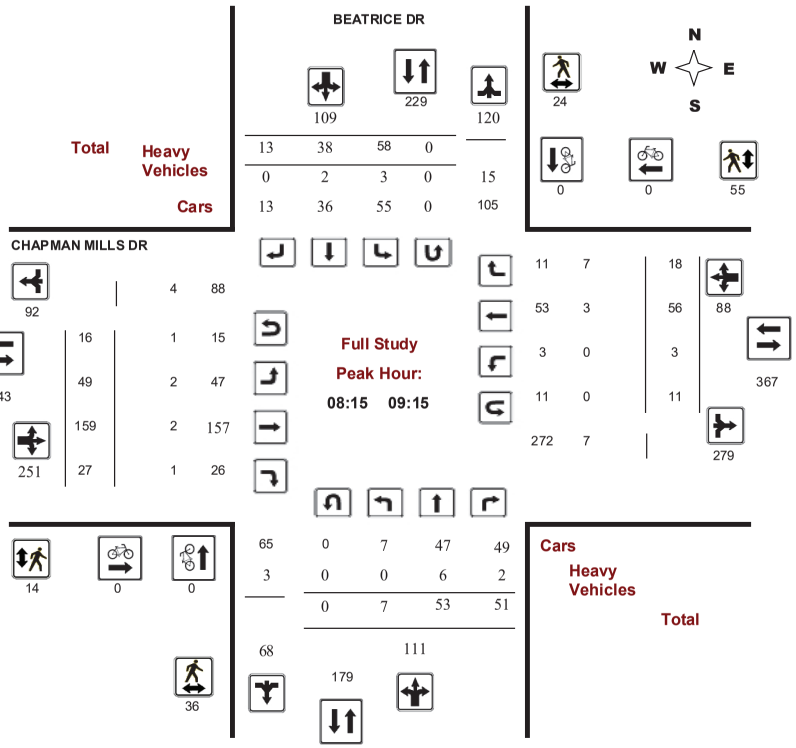
Turning Movement Count - Study Results

CHAPMAN MILLS DR @ BEATRICE DR

Survey Date: Wednesday, January 08, 2020 **WO No:** 39264

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

Full Study Peak Hour Diagram



5469205 - WED JAN 08, 2020 - 8HRS - LORETTA

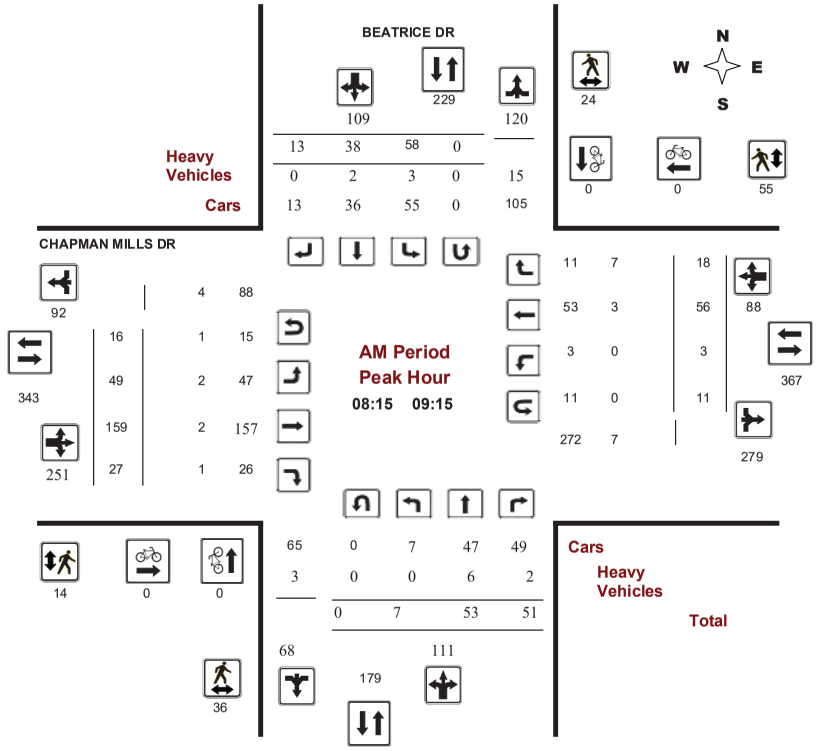
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CHAPMAN MILLS DR @ BEATRICE DR

Survey Date: Wednesday, January 08, 2020 **WO No:** 39264

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



Comments 5469205 - WED JAN 08, 2020 - 8HRS - LORETTA

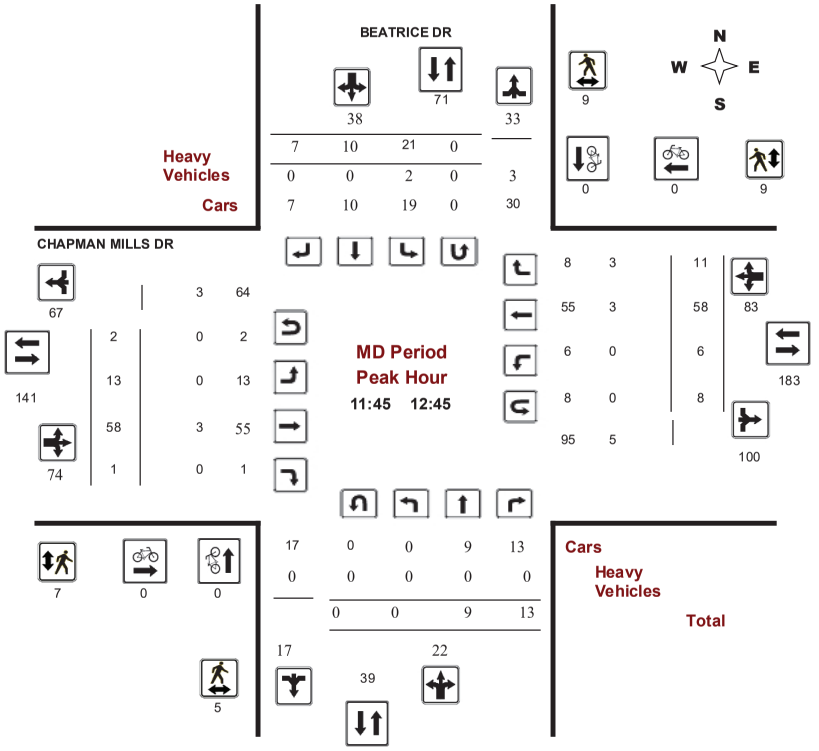
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CHAPMAN MILLS DR @ BEATRICE DR

Survey Date: Wednesday, January 08, 2020 **WO No:** 39264

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



Comments 5469205 - WED JAN 08, 2020 - 8HRS - LORETTA

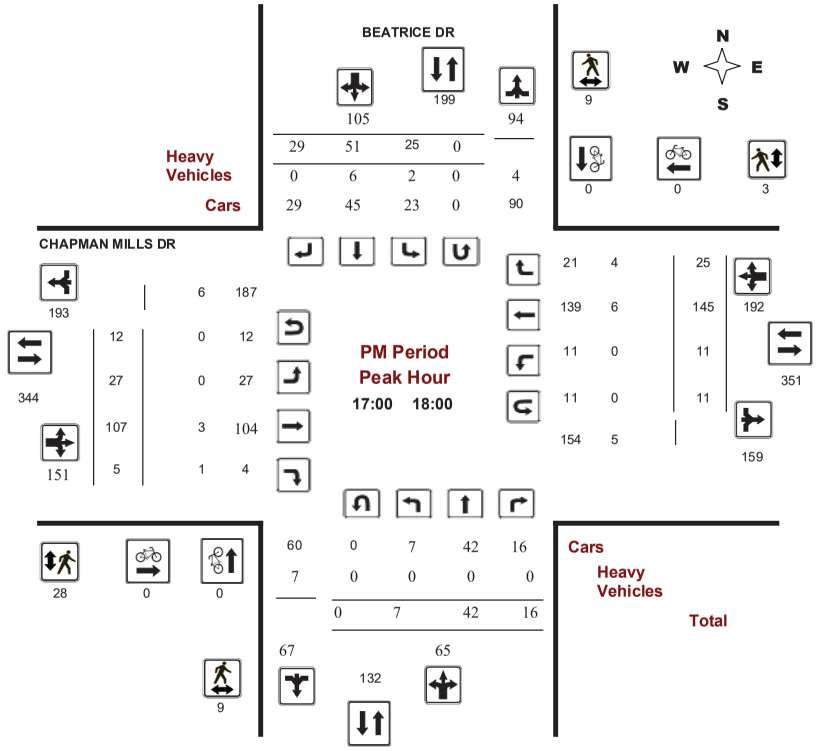
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CHAPMAN MILLS DR @ BEATRICE DR

Survey Date: Wednesday, January 08, 2020 **WO No:** 39264

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



Comments 5469205 - WED JAN 08, 2020 - 8HRS - LORETTA

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHAPMAN MILLS DR @ BEATRICE DR

Survey Date: Wednesday, January 08, 2020 **WO No:** 39264

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

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, January 08, 202

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 73 Westbound: 67

AADT Factor 1.00

	BEATRICE DR								CHAPMAN MILLS 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	10	51	19	**80**	20	19	13	**52**	**132**	24	157	7	**188**	4	67	9	**80**	**268**	**400**
08:00 09:00	10	55	30	**95**	44	37	15	**96**	**191**	50	158	19	**227**	6	65	17	**88**	**315**	**506**
09:00 10:00	7	27	37	**71**	25	21	5	**51**	**122**	14	91	14	**119**	6	45	10	**61**	**180**	**302**
11:30 12:30	0	8	11	**19**	19	8	2	**29**	**48**	10	58	1	**69**	6	52	12	**70**	**139**	**187**
12:30 13:30	1	13	5	**19**	13	9	10	**32**	**51**	9	54	3	**66**	3	52	5	**60**	**126**	**177**
15:00 16:00	6	21	26	**53**	44	42	10	**96**	**149**	35	113	10	**158**	10	108	12	**130**	**288**	**437**
16:00 17:00	9	41	15	**65**	30	41	19	**90**	**155**	22	83	15	**120**	12	120	10	**142**	**262**	**417**
17:00 18:00	7	42	16	**65**	25	51	29	**105**	**170**	27	107	5	**139**	11	145	25	**181**	**320**	**490**
Sub Total	50	258	159	**467**	220	228	103	**551**	**1018**	191	821	74	**1086**	58	654	100	**812**	**1898**	**2916**
U Turns	0			**0**	0			**0**	**0**	**73**			**73**	67			**67**	**140**	**140**
Total	50	258	159	**467**	220	228	103	**551**	**1018**	264	821	74	**1159**	125	654	100	**879**	**2038**	**3056**
EQ 12Hr	70	359	221	**650**	306	317	143	**766**	**1416**	367	1141	103	**1611**	174	909	139	**1222**	**2833**	**4249**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	70	359	221	**650**	306	317	143	**766**	**1416**	367	1141	103	**1611**	174	909	139	**1222**	**2833**	**4249**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1.00**					
AVG 24Hr	92	470	290	**852**	401	415	187	**1003**	**1855**	481	1495	135	**2111**	228	1191	182	**1601**	**3712**	**5567**
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

CHAPMAN MILLS DR @ BEATRICE DR

Survey Date: Wednesday, January 08, 2020 **WO No:** 39264

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

Full Study 15 Minute Increments

		BEATRICE DR									CHAPMAN MILLS 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	10	3	15	5	3	4	12	**27**	5	35	1	41	0	17	1	18	**59**	**86**
07:15	07:30	2	9	2	13	5	3	4	12	**25**	7	45	1	53	3	19	2	24	**77**	**102**
07:30	07:45	2	17	5	24	6	6	3	15	**39**	11	37	3	51	5	16	2	23	**74**	**113**
07:45	08:00	4	15	9	28	4	7	2	13	**41**	10	40	2	52	2	15	4	21	**73**	**114**
08:00	08:15	5	14	7	26	7	11	5	23	**49**	7	29	1	37	5	25	2	32	**69**	**118**
08:15	08:30	4	13	7	24	12	8	6	26	**50**	32	45	7	84	4	11	7	22	**106**	**156**
08:30	08:45	0	18	7	25	8	8	2	18	**43**	16	49	4	69	1	21	5	27	**96**	**139**
08:45	09:00	1	10	9	20	17	10	2	29	**49**	12	35	7	54	2	8	3	13	**67**	**116**
09:00	09:15	2	12	28	42	21	12	3	36	**78**	5	30	9	44	7	16	3	26	**70**	**148**
09:15	09:30	2	5	6	13	2	2	2	6	**19**	6	26	3	35	3	9	1	13	**48**	**67**
09:30	09:45	2	5	3	10	2	5	0	7	**17**	5	21	0	26	3	9	3	15	**41**	**58**
09:45	10:00	1	5	0	6	0	2	0	2	**8**	2	14	2	18	2	11	3	16	**34**	**42**
11:30	11:45	0	2	3	5	5	1	0	6	**11**	4	11	1	16	0	7	2	9	**25**	**36**
11:45	12:00	0	2	4	6	6	1	2	9	**15**	2	23	0	25	6	18	2	26	**51**	**66**
12:00	12:15	0	3	4	7	6	4	0	10	**17**	4	8	0	12	6	13	4	23	**35**	**52**
12:15	12:30	0	1	0	1	2	2	0	4	**5**	4	16	0	20	1	14	4	19	**39**	**44**
12:30	12:45	0	3	5	8	7	3	5	15	**23**	5	11	1	17	1	13	1	15	**32**	**55**
12:45	13:00	0	2	0	2	3	1	4	8	**10**	5	11	1	17	1	12	1	14	**31**	**41**
13:00	13:15	1	6	0	7	2	3	0	5	**12**	3	13	1	17	1	13	1	15	**32**	**44**
13:15	13:30	0	2	0	2	1	2	1	4	**6**	3	19	0	22	4	14	2	20	**42**	**48**
15:00	15:15	1	6	2	9	12	7	6	25	**34**	24	37	3	64	4	22	0	26	**90**	**124**
15:15	15:30	1	4	8	13	9	14	1	24	**37**	8	31	3	42	4	25	2	31	**73**	**110**
15:30	15:45	0	5	13	18	18	11	2	31	**49**	8	28	2	38	6	21	2	29	**67**	**116**
15:45	16:00	4	6	3	13	5	10	1	16	**29**	5	17	2	24	10	40	8	58	**82**	**111**
16:00	16:15	0	11	3	14	6	13	5	24	**38**	8	21	1	30	6	35	2	43	**73**	**111**
16:15	16:30	2	9	3	14	8	5	5	18	**32**	8	24	6	38	8	28	2	38	**76**	**108**
16:30	16:45	5	11	6	22	6	14	3	23	**45**	5	14	2	21	6	32	2	40	**61**	**106**
16:45	17:00	2	10	3	15	10	9	6	25	**40**	11	24	6	41	2	25	4	31	**72**	**112**
17:00	17:15	0	7	4	11	1	15	3	19	**30**	12	25	0	37	8	34	9	51	**88**	**118**
17:15	17:30	4	11	6	21	11	14	12	37	**58**	15	31	1	47	3	35	3	41	**88**	**146**
17:30	17:45	1	14	5	20	7	10	5	22	**42**	9	21	1	31	5	45	7	57	**88**	**130**
17:45	18:00	2	10	1	13	6	12	9	27	**40**	3	30	3	36	6	31	6	43	**79**	**119**
Total:		50	258	159	467	220	228	103	551	**1018**	264	821	74	1159	125	654	100	879	**1018**	**3,056**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHAPMAN MILLS DR @ BEATRICE DR

Survey Date: Wednesday, January 08, 2020 **WO No:** 39264

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

Full Study Cyclist Volume

		BEATRICE DR			CHAPMAN MILLS 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**	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**	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	1	0	**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		1	0	**1**	0	0	**0**	**1**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHAPMAN MILLS DR @ BEATRICE DR

Survey Date: Wednesday, January 08, 2020 **WO No:** 39264

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

Full Study Pedestrian Volume

	BEATRICE DR			CHAPMAN MILLS 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	4	5	**9**	4	9	**13**	**22**
07:15 07:30	3	4	**7**	0	3	**3**	**10**
07:30 07:45	7	3	**10**	6	9	**15**	**25**
07:45 08:00	1	1	**2**	5	4	**9**	**11**
08:00 08:15	12	10	**22**	5	4	**9**	**31**
08:15 08:30	7	3	**10**	5	6	**11**	**21**
08:30 08:45	4	8	**12**	2	19	**21**	**33**
08:45 09:00	8	4	**12**	1	12	**13**	**25**
09:00 09:15	17	9	**26**	6	18	**24**	**50**
09:15 09:30	11	1	**12**	3	3	**6**	**18**
09:30 09:45	0	4	**4**	1	0	**1**	**5**
09:45 10:00	0	2	**2**	0	5	**5**	**7**
11:30 11:45	2	2	**4**	1	3	**4**	**8**
11:45 12:00	1	1	**2**	1	2	**3**	**5**
12:00 12:15	3	5	**8**	3	3	**6**	**14**
12:15 12:30	1	1	**2**	2	2	**4**	**6**
12:30 12:45	0	2	**2**	1	2	**3**	**5**
12:45 13:00	0	3	**3**	1	0	**1**	**4**
13:00 13:15	0	1	**1**	1	1	**2**	**3**
13:15 13:30	0	4	**4**	0	1	**1**	**5**
15:00 15:15	12	3	**15**	1	1	**2**	**17**
15:15 15:30	2	11	**13**	14	3	**17**	**30**
15:30 15:45	9	8	**17**	6	13	**19**	**36**
15:45 16:00	33	1	**34**	21	4	**25**	**59**
16:00 16:15	12	9	**21**	3	9	**12**	**33**
16:15 16:30	5	4	**9**	7	1	**8**	**17**
16:30 16:45	1	5	**6**	5	6	**11**	**17**
16:45 17:00	0	2	**2**	4	0	**4**	**6**
17:00 17:15	5	3	**8**	7	1	**8**	**16**
17:15 17:30	1	1	**2**	14	0	**14**	**16**
17:30 17:45	2	3	**5**	6	2	**8**	**13**
17:45 18:00	1	2	**3**	1	0	**1**	**4**
Total	164	125	**289**	137	146	**283**	**572**

5469205 - WED JAN 08, 2020 - 8HRS - LORETTA

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHAPMAN MILLS DR @ BEATRICE DR

Survey Date: Wednesday, January 08, 2020 **WO No:** 39264

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

Full Study Heavy Vehicles

		BEATRICE DR									CHAPMAN MILLS 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	1	0	**1**	1	0	0	**1**	**2**	0	1	0	**1**	0	1	0	**1**	**2**	**4**
07:15	07:30	0	2	0	**2**	0	1	0	**1**	**3**	0	1	0	**1**	0	2	1	**3**	**4**	**7**
07:30	07:45	0	2	0	**2**	1	0	0	**1**	**3**	1	3	0	**4**	0	1	0	**1**	**5**	**9**
07:45	08:00	0	0	0	**0**	0	1	0	**1**	**1**	0	1	0	**1**	0	1	1	**2**	**3**	**4**
08:00	08:15	1	3	0	**4**	1	0	0	**1**	**5**	0	0	0	**0**	0	1	0	**1**	**1**	**6**
08:15	08:30	0	0	0	**0**	1	0	0	**1**	**1**	0	0	0	**0**	0	0	3	**3**	**3**	**4**
08:30	08:45	0	2	0	**2**	1	0	0	**1**	**3**	0	1	0	**1**	0	2	2	**4**	**5**	**8**
08:45	09:00	0	2	0	**2**	0	1	0	**1**	**3**	2	0	1	**3**	0	0	2	**2**	**5**	**9**
09:00	09:15	0	2	2	**4**	1	1	0	**2**	**6**	0	1	0	**1**	0	1	0	**1**	**2**	**8**
09:15	09:30	0	1	0	**1**	0	0	0	**0**	**1**	0	0	1	**1**	0	0	1	**1**	**2**	**3**
09:30	09:45	0	1	0	**1**	1	0	0	**1**	**2**	0	1	0	**1**	0	2	0	**2**	**3**	**5**
09:45	10:00	0	0	0	**0**	0	0	0	**0**	**0**	0	1	0	**1**	0	0	1	**1**	**2**	**2**
11:30	11:45	0	0	0	**0**	1	0	0	**1**	**1**	0	1	0	**1**	0	1	1	**2**	**3**	**4**
11:45	12:00	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**2**	0	0	1	**1**	**3**	**3**
12:00	12:15	0	0	0	**0**	1	0	0	**1**	**1**	0	0	0	**0**	0	2	0	**2**	**2**	**3**
12:15	12:30	0	0	0	**0**	0	0	0	**0**	**0**	0	0	0	**0**	0	0	1	**1**	**1**	**1**
12:30	12:45	0	0	0	**0**	1	0	0	**1**	**1**	0	1	0	**1**	0	1	1	**2**	**3**	**4**
12:45	13:00	0	0	0	**0**	0	0	1	**1**	**1**	0	1	0	**1**	0	0	1	**1**	**2**	**3**
13:00	13:15	0	0	0	**0**	1	0	0	**1**	**1**	0	2	0	**2**	0	1	0	**1**	**3**	**4**
13:15	13:30	0	0	0	**0**	0	0	0	**0**	**0**	0	0	0	**0**	0	0	1	**1**	**1**	**1**
15:00	15:15	0	0	0	**0**	1	1	0	**2**	**2**	0	1	0	**1**	0	1	0	**1**	**2**	**4**
15:15	15:30	0	0	0	**0**	1	0	0	**1**	**1**	0	0	1	**1**	0	0	1	**1**	**2**	**3**
15:30	15:45	0	0	0	**0**	5	3	0	**8**	**8**	0	1	0	**1**	0	0	0	**0**	**1**	**9**
15:45	16:00	1	2	0	**3**	0	3	0	**3**	**6**	0	0	0	**0**	0	2	0	**2**	**2**	**8**
16:00	16:15	0	0	0	**0**	1	2	0	**3**	**3**	1	0	1	**2**	0	3	1	**4**	**6**	**9**
16:15	16:30	0	1	0	**1**	0	1	0	**1**	**2**	0	1	0	**1**	0	1	1	**2**	**3**	**5**
16:30	16:45	0	0	0	**0**	1	1	0	**2**	**2**	0	0	1	**1**	0	1	0	**1**	**2**	**4**
16:45	17:00	0	0	0	**0**	1	1	0	**2**	**2**	0	0	0	**0**	0	1	0	**1**	**1**	**3**
17:00	17:15	0	0	0	**0**	0	2	0	**2**	**2**	0	1	0	**1**	0	2	1	**3**	**4**	**6**
17:15	17:30	0	0	0	**0**	1	2	0	**3**	**3**	0	0	0	**0**	0	1	0	**1**	**1**	**4**
17:30	17:45	0	0	0	**0**	1	1	0	**2**	**2**	0	2	1	**3**	0	2	2	**4**	**7**	**9**
17:45	18:00	0	0	0	**0**	0	1	0	**1**	**1**	0	0	0	**0**	0	1	1	**2**	**2**	**3**
Total:	None	2	19	2	**23**	23	22	1	**46**	**69**	4	23	6	**33**	0	31	24	**55**	**88**	**159**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHAPMAN MILLS DR @ BEATRICE DR

Survey Date: Wednesday, January 08, 2020 **WO No:** 39264

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

Full Study 15 Minute U-Turn Total

Time Period		BEATRICE DR Northbound U-Turn Total	BEATRICE DR Southbound U-Turn Total	CHAPMAN MILLS DR Eastbound U-Turn Total	CHAPMAN MILLS DR Westbound U-Turn Total	Total
07:00	07:15	0	0	2	0	**2**
07:15	07:30	0	0	2	3	**5**
07:30	07:45	0	0	3	3	**6**
07:45	08:00	0	0	2	0	**2**
08:00	08:15	0	0	2	2	**4**
08:15	08:30	0	0	7	3	**10**
08:30	08:45	0	0	5	1	**6**
08:45	09:00	0	0	3	0	**3**
09:00	09:15	0	0	1	7	**8**
09:15	09:30	0	0	2	1	**3**
09:30	09:45	0	0	1	0	**1**
09:45	10:00	0	0	0	1	**1**
11:30	11:45	0	0	2	0	**2**
11:45	12:00	0	0	0	3	**3**
12:00	12:15	0	0	0	4	**4**
12:15	12:30	0	0	2	0	**2**
12:30	12:45	0	0	0	1	**1**
12:45	13:00	0	0	3	1	**4**
13:00	13:15	0	0	3	1	**4**
13:15	13:30	0	0	1	1	**2**
15:00	15:15	0	0	4	2	**6**
15:15	15:30	0	0	2	3	**5**
15:30	15:45	0	0	4	3	**7**
15:45	16:00	0	0	0	6	**6**
16:00	16:15	0	0	3	2	**5**
16:15	16:30	0	0	1	4	**5**
16:30	16:45	0	0	1	3	**4**
16:45	17:00	0	0	5	1	**6**
17:00	17:15	0	0	1	4	**5**
17:15	17:30	0	0	5	3	**8**
17:30	17:45	0	0	4	3	**7**
17:45	18:00	0	0	2	1	**3**
Total		0	0	73	67	**140**

Transportation Services - Traffic Services

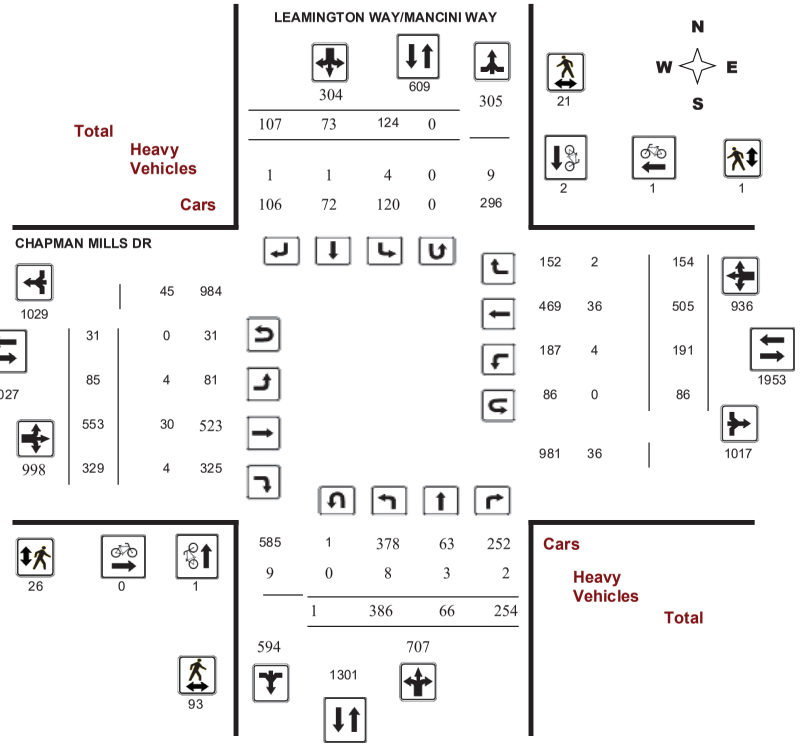
Turning Movement Count - Study Results

CHAPMAN MILLS DR @ LEAMINGTON WAY/MANCINI WAY

Survey Date: Wednesday, November 21, 2018 **WO No:** 38154

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

Full Study Diagram



Transportation Services - Traffic Services

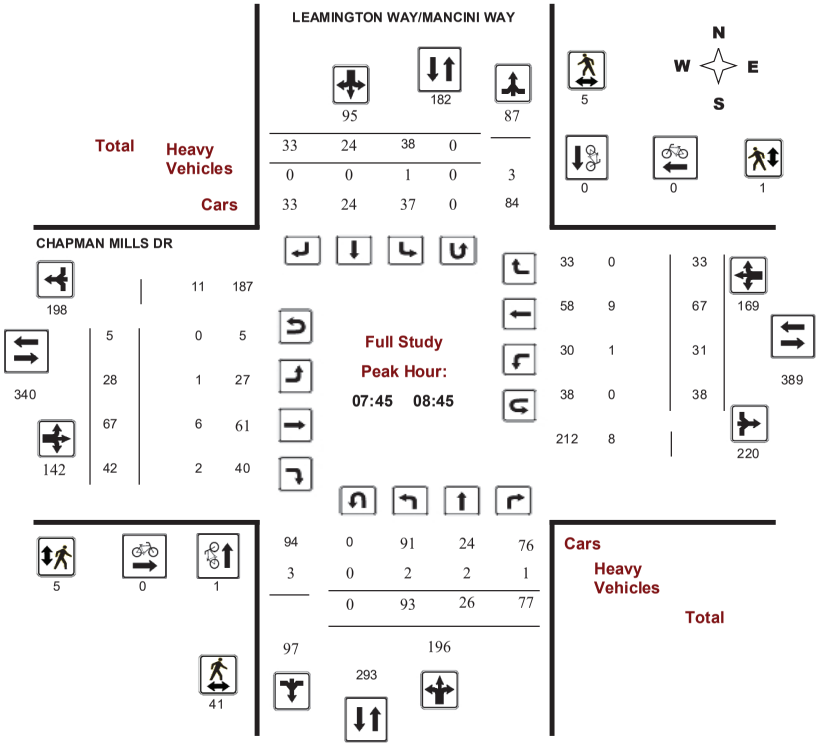
Turning Movement Count - Study Results

CHAPMAN MILLS DR @ LEAMINGTON WAY/MANCINI WAY

Survey Date: Wednesday, November 21, 2018 **WO No:** 38154

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

Full Study Peak Hour Diagram



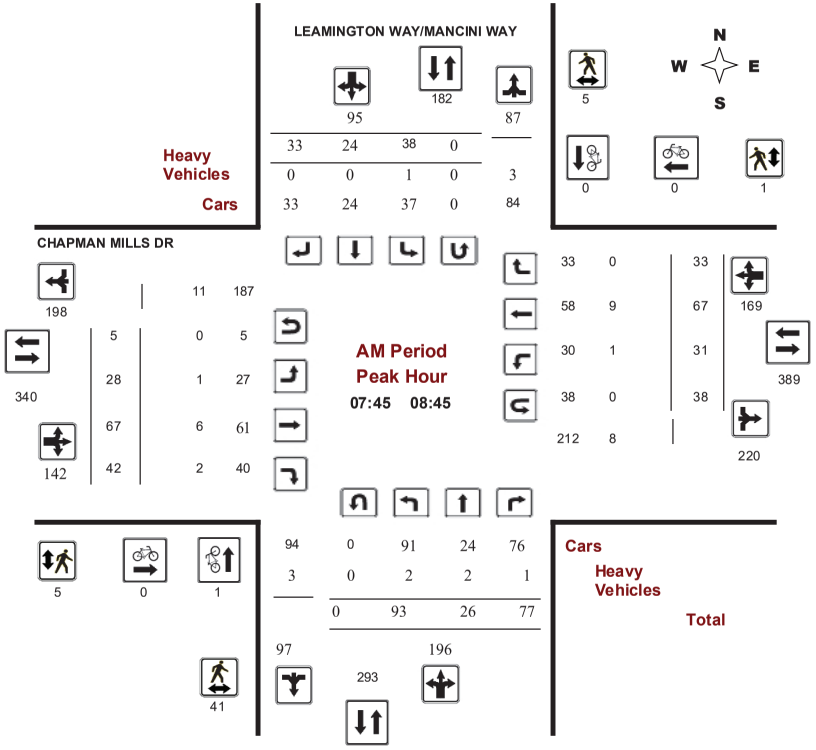
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CHAPMAN MILLS DR @ LEAMINGTON WAY/MANCINI WAY

Survey Date: Wednesday, November 21, 2018 **WO No:** 38154

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



Comments

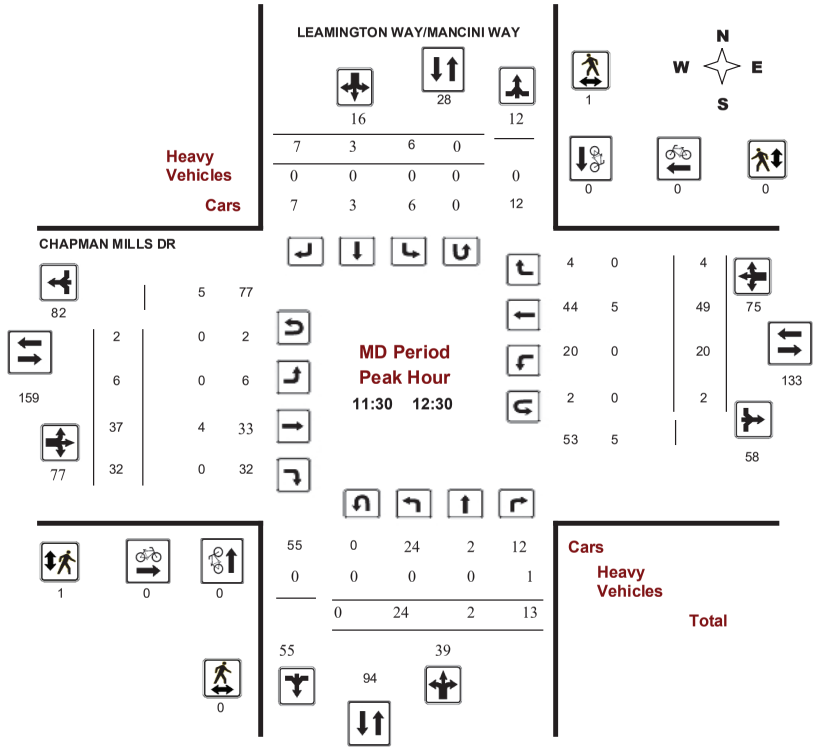
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CHAPMAN MILLS DR @ LEAMINGTON WAY/MANCINI WAY

Survey Date: Wednesday, November 21, 2018 **WO No:** 38154

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



Comments

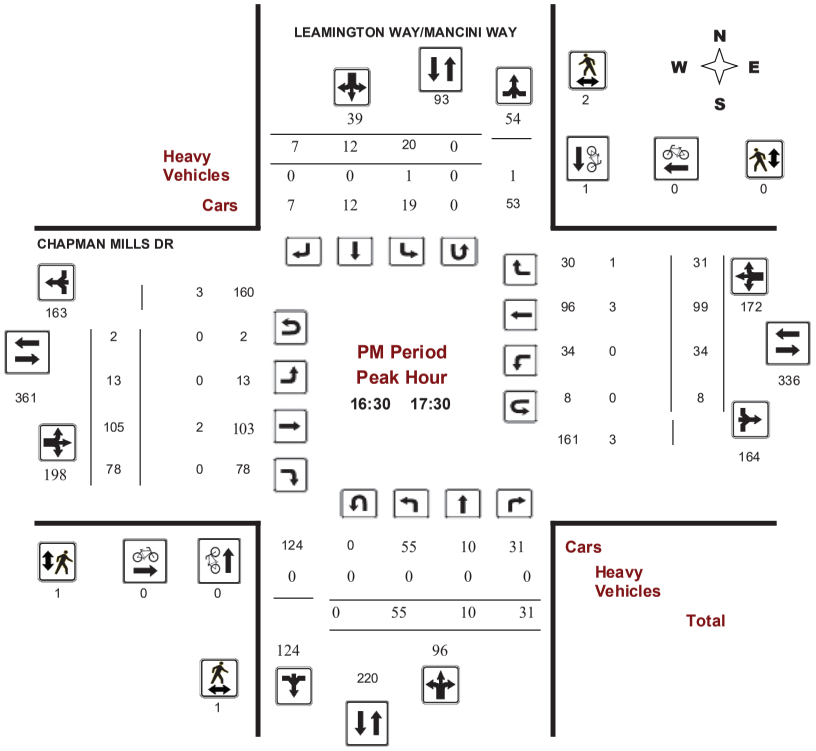
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CHAPMAN MILLS DR @ LEAMINGTON WAY/MANCINI WAY

Survey Date: Wednesday, November 21, 2018 **WO No:** 38154

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



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHAPMAN MILLS DR @ LEAMINGTON WAY/MANCINI WAY

Survey Date: Wednesday, November 21, 2018 **WO No:** 38154

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

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, November 21, 2018

Total Observed U-Turns

Northbound: 1 Southbound: 0

Eastbound: 31 Westbound: 86

AADT Factor

.90

	LEAMINGTON WAY/MANCINI WAY								CHAPMAN MILLS 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	71	11	38	**120**	22	11	21	**54**	**174**	15	62	40	**117**	21	44	30	**95**	**212**	**386**
08:00 09:00	83	20	76	**179**	36	21	27	**84**	**263**	22	71	33	**126**	26	69	23	**118**	**244**	**507**
09:00 10:00	29	2	23	**54**	5	3	7	**15**	**69**	6	59	21	**86**	5	44	7	**56**	**142**	**211**
11:30 12:30	24	2	13	**39**	6	3	7	**16**	**55**	6	37	32	**75**	20	49	4	**73**	**148**	**203**
12:30 13:30	21	0	11	**32**	5	1	5	**11**	**43**	5	39	23	**67**	19	39	4	**62**	**129**	**172**
15:00 16:00	64	12	37	**113**	15	10	15	**40**	**153**	4	88	34	**126**	34	74	25	**133**	**259**	**412**
16:00 17:00	44	13	33	**90**	20	16	7	**43**	**133**	11	95	66	**172**	33	90	32	**155**	**327**	**460**
17:00 18:00	50	6	23	**79**	15	8	18	**41**	**120**	16	102	80	**198**	33	96	29	**158**	**356**	**476**
Sub Total	386	66	254	**706**	124	73	107	**304**	**1010**	85	553	329	**967**	191	505	154	**850**	**1817**	**2827**
U Turns	1			**1**	0			**0**	**1**	**31**			**31**	86			**86**	**117**	**118**
Total	387	66	254	**707**	124	73	107	**304**	**1011**	116	553	329	**998**	277	505	154	**936**	**1934**	**2945**
EQ 12Hr	538	92	353	**983**	172	101	149	**422**	**1405**	161	769	457	**1387**	385	702	214	**1301**	**2688**	**4093**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	484	83	318	**885**	155	91	134	**380**	**1265**	145	692	411	**1248**	346	632	193	**1171**	**2419**	**3684**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**.90**					
AVG 24Hr	634	109	417	**1160**	203	119	176	**498**	**1658**	190	907	538	**1635**	453	828	253	**1534**	**3169**	**4827**
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

CHAPMAN MILLS DR @ LEAMINGTON WAY/MANCINI WAY

Survey Date: Wednesday, November 21, 2018 **WO No:** 38154

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

Full Study 15 Minute Increments

		LEAMINGTON WAY/MANCINI WAY									CHAPMAN MILLS 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	9	1	12	22	2	3	3	8	**30**	3	24	5	32	9	11	7	27	**59**	**89**
07:15	07:30	20	3	11	34	10	2	5	17	**51**	2	13	11	26	4	12	4	20	**46**	**97**
07:30	07:45	20	0	9	29	5	2	4	11	**40**	5	7	7	19	8	10	6	24	**43**	**83**
07:45	08:00	22	7	6	35	5	4	9	18	**53**	8	18	17	43	9	11	13	33	**76**	**129**
08:00	08:15	17	9	15	41	13	11	16	40	**81**	11	16	10	37	18	25	12	55	**92**	**173**
08:15	08:30	32	0	38	70	12	6	4	22	**92**	6	17	9	32	31	19	2	52	**84**	**176**
08:30	08:45	22	10	18	50	8	3	4	15	**65**	8	16	6	30	11	12	6	29	**59**	**124**
08:45	09:00	12	1	5	18	3	1	3	7	**25**	3	22	8	33	4	13	3	20	**53**	**78**
09:00	09:15	8	0	4	12	2	1	4	7	**19**	3	25	7	35	1	20	2	23	**58**	**77**
09:15	09:30	9	1	4	14	0	2	0	2	**16**	4	12	6	22	5	12	1	18	**40**	**56**
09:30	09:45	5	1	11	17	2	0	2	4	**21**	3	11	3	17	1	6	3	10	**27**	**48**
09:45	10:00	8	0	4	12	1	0	1	2	**14**	3	11	5	19	2	6	1	9	**28**	**42**
11:30	11:45	8	1	6	15	2	2	2	6	**21**	4	15	9	28	4	17	1	22	**50**	**71**
11:45	12:00	7	0	2	9	2	0	3	5	**14**	1	7	7	15	3	9	1	13	**28**	**42**
12:00	12:15	7	0	2	9	0	1	2	3	**12**	1	9	9	19	6	9	2	17	**36**	**48**
12:15	12:30	2	1	3	6	2	0	0	2	**8**	2	6	7	15	9	14	0	23	**38**	**46**
12:30	12:45	7	0	2	9	1	0	2	3	**12**	2	12	8	22	2	11	1	14	**36**	**48**
12:45	13:00	3	0	5	8	0	0	1	1	**9**	1	8	7	16	7	9	1	17	**33**	**42**
13:00	13:15	4	0	2	6	3	1	0	4	**10**	0	10	2	12	5	13	0	18	**30**	**40**
13:15	13:30	7	0	2	9	1	0	2	3	**12**	3	9	6	18	6	6	2	14	**32**	**44**
15:00	15:15	28	5	17	50	6	2	5	13	**63**	3	23	7	33	20	13	1	34	**67**	**130**
15:15	15:30	15	3	6	24	2	0	1	3	**27**	4	26	6	36	10	14	5	29	**65**	**92**
15:30	15:45	16	1	8	25	4	1	5	10	**35**	2	20	13	35	9	18	7	34	**69**	**104**
15:45	16:00	5	3	6	14	3	7	4	14	**28**	3	19	8	30	10	29	12	51	**81**	**109**
16:00	16:15	7	3	8	18	5	3	1	9	**27**	3	21	14	38	9	24	6	39	**77**	**104**
16:15	16:30	13	4	6	23	4	5	3	12	**35**	4	23	17	44	7	18	10	35	**79**	**114**
16:30	16:45	8	5	10	23	5	4	1	10	**33**	4	32	17	53	13	24	5	42	**95**	**128**
16:45	17:00	16	1	9	26	6	4	2	12	**38**	2	19	18	39	10	24	11	45	**84**	**122**
17:00	17:15	9	3	3	15	5	4	1	10	**25**	5	24	24	53	9	21	6	36	**89**	**114**
17:15	17:30	22	1	9	32	4	0	3	7	**39**	4	30	19	53	10	30	9	49	**102**	**141**
17:30	17:45	8	2	3	13	4	3	6	13	**26**	6	24	18	48	10	24	4	38	**86**	**112**
17:45	18:00	11	0	8	19	2	1	8	11	**30**	3	24	19	46	15	21	10	46	**92**	**122**
Total:		387	66	254	707	124	73	107	304	**1011**	116	553	329	998	277	505	154	936	**1011**	**2,945**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHAPMAN MILLS DR @ LEAMINGTON WAY/MANCINI WAY

Survey Date: Wednesday, November 21, 2018 **WO No:** 38154

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

Full Study Cyclist Volume

Time Period		LEAMINGTON WAY/MANCINI WAY			CHAPMAN MILLS DR			
		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	1	0	**1**	0	0	**0**	**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	0	**0**	**0**
13:00	13:15	0	0	**0**	0	0	**0**	**0**
13:15	13:30	0	0	**0**	0	0	**0**	**0**
15:00	15:15	0	0	**0**	0	0	**0**	**0**
15:15	15:30	0	0	**0**	0	0	**0**	**0**
15:30	15:45	0	1	**1**	0	0	**0**	**1**
15:45	16:00	0	0	**0**	0	1	**1**	**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	1	**1**	0	0	**0**	**1**
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**	0	1	**1**	**4**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHAPMAN MILLS DR @ LEAMINGTON WAY/MANCINI WAY

Survey Date: Wednesday, November 21, 2018 **WO No:** 38154

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

Full Study Pedestrian Volume

Time Period		LEAMINGTON WAY/MANCINI WAY			CHAPMAN MILLS DR			
		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	2	**3**	0	0	**0**	**3**
07:15	07:30	4	0	**4**	3	0	**3**	**7**
07:30	07:45	0	0	**0**	2	0	**2**	**2**
07:45	08:00	1	0	**1**	2	1	**3**	**4**
08:00	08:15	6	1	**7**	1	0	**1**	**8**
08:15	08:30	17	3	**20**	2	0	**2**	**22**
08:30	08:45	17	1	**18**	0	0	**0**	**18**
08:45	09:00	4	0	**4**	0	0	**0**	**4**
09:00	09:15	2	1	**3**	0	0	**0**	**3**
09:15	09:30	0	0	**0**	0	0	**0**	**0**
09:30	09:45	2	1	**3**	0	0	**0**	**3**
09:45	10:00	0	3	**3**	0	0	**0**	**3**
11:30	11:45	0	0	**0**	0	0	**0**	**0**
11:45	12:00	0	0	**0**	1	0	**1**	**1**
12:00	12:15	0	1	**1**	0	0	**0**	**1**
12:15	12:30	0	0	**0**	0	0	**0**	**0**
12:30	12:45	1	0	**1**	0	0	**0**	**1**
12:45	13:00	0	0	**0**	0	0	**0**	**0**
13:00	13:15	1	1	**2**	0	0	**0**	**2**
13:15	13:30	1	0	**1**	0	0	**0**	**1**
15:00	15:15	16	0	**16**	5	0	**5**	**21**
15:15	15:30	7	2	**9**	3	0	**3**	**12**
15:30	15:45	5	0	**5**	0	0	**0**	**5**
15:45	16:00	4	0	**4**	1	0	**1**	**5**
16:00	16:15	0	2	**2**	1	0	**1**	**3**
16:15	16:30	2	0	**2**	0	0	**0**	**2**
16:30	16:45	0	0	**0**	0	0	**0**	**0**
16:45	17:00	1	2	**3**	1	0	**1**	**4**
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	1	**1**	1	0	**1**	**2**
17:45	18:00	1	0	**1**	3	0	**3**	**4**
Total		93	21	**114**	26	1	**27**	**141**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHAPMAN MILLS DR @ LEAMINGTON WAY/MANCINI WAY

Survey Date: Wednesday, November 21, 2018 **WO No:** 38154

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

Full Study Heavy Vehicles

LEAMINGTON WAY/MANCINI WAY **CHAPMAN MILLS DR**

Time Period		Northbound				Southbound					Eastbound				Westbound						Grand Total
		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	
07:00	07:15	0	0	0	**0**	0	0	0	**0**	**0**	0	1	0	**1**	0	0	0	**0**	**1**	**1**
07:15	07:30	2	1	0	**3**	0	0	0	**0**	**3**	0	1	0	**1**	0	1	0	**1**	**2**	**5**
07:30	07:45	1	0	0	**1**	0	0	0	**0**	**1**	0	1	0	**1**	0	0	1	**1**	**2**	**3**
07:45	08:00	0	0	0	**0**	1	0	0	**1**	**1**	0	1	0	**1**	0	1	0	**1**	**2**	**3**
08:00	08:15	0	1	0	**1**	0	0	0	**0**	**1**	0	1	0	**1**	0	6	0	**6**	**7**	**8**
08:15	08:30	2	0	0	**2**	0	0	0	**0**	**2**	1	2	1	**4**	0	2	0	**2**	**6**	**8**
08:30	08:45	0	1	1	**2**	0	0	0	**0**	**2**	0	2	1	**3**	1	0	0	**1**	**4**	**6**
08:45	09:00	1	0	0	**1**	0	0	0	**0**	**1**	0	0	0	**0**	0	1	0	**1**	**1**	**2**
09:00	09:15	0	0	0	**0**	0	0	0	**0**	**0**	0	1	0	**1**	0	2	0	**2**	**3**	**3**
09:15	09:30	0	0	0	**0**	0	0	0	**0**	**0**	0	1	1	**2**	0	0	0	**0**	**2**	**2**
09:30	09:45	0	0	0	**0**	0	0	0	**0**	**0**	0	1	0	**1**	0	0	0	**0**	**1**	**1**
09:45	10:00	0	0	0	**0**	0	0	0	**0**	**0**	0	0	0	**0**	0	1	0	**1**	**1**	**1**
11:30	11:45	0	0	0	**0**	0	0	0	**0**	**0**	0	1	0	**1**	0	2	0	**2**	**3**	**3**
11:45	12:00	0	0	1	**1**	0	0	0	**0**	**1**	0	2	0	**2**	0	0	0	**0**	**2**	**3**
12:00	12:15	0	0	0	**0**	0	0	0	**0**	**0**	0	1	0	**1**	0	1	0	**1**	**2**	**2**
12:15	12:30	0	0	0	**0**	0	0	0	**0**	**0**	0	0	0	**0**	0	2	0	**2**	**2**	**2**
12:30	12:45	0	0	0	**0**	0	0	0	**0**	**0**	0	1	0	**1**	0	0	0	**0**	**1**	**1**
12:45	13:00	1	0	0	**1**	0	0	0	**0**	**1**	0	0	0	**0**	0	1	0	**1**	**1**	**2**
13:00	13:15	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**2**	0	1	0	**1**	**3**	**3**
13:15	13:30	0	0	0	**0**	1	0	0	**1**	**1**	2	2	0	**4**	0	2	0	**2**	**6**	**7**
15:00	15:15	1	0	0	**1**	0	0	0	**0**	**1**	0	1	0	**1**	0	0	0	**0**	**1**	**2**
15:15	15:30	0	0	0	**0**	1	0	0	**1**	**1**	0	0	0	**0**	1	1	0	**2**	**2**	**3**
15:30	15:45	0	0	0	**0**	0	0	0	**0**	**0**	0	1	0	**1**	0	1	0	**1**	**2**	**2**
15:45	16:00	0	0	0	**0**	0	0	1	**1**	**1**	0	0	0	**0**	0	3	0	**3**	**3**	**4**
16:00	16:15	0	0	0	**0**	0	0	0	**0**	**0**	0	2	1	**3**	1	2	0	**3**	**6**	**6**
16:15	16:30	0	0	0	**0**	0	1	0	**1**	**1**	1	1	0	**2**	1	1	0	**2**	**4**	**5**
16:30	16:45	0	0	0	**0**	0	0	0	**0**	**0**	0	1	0	**1**	0	1	0	**1**	**2**	**2**
16:45	17:00	0	0	0	**0**	1	0	0	**1**	**1**	0	0	0	**0**	0	0	1	**1**	**1**	**2**
17:00	17:15	0	0	0	**0**	0	0	0	**0**	**0**	0	1	0	**1**	0	1	0	**1**	**2**	**2**
17:15	17:30	0	0	0	**0**	0	0	0	**0**	**0**	0	0	0	**0**	0	1	0	**1**	**1**	**1**
17:30	17:45	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**2**	0	1	0	**1**	**3**	**3**
17:45	18:00	0	0	0	**0**	0	0	0	**0**	**0**	0	0	0	**0**	0	1	0	**1**	**1**	**1**
Total:	None	8	3	2	**13**	4	1	1	**6**	**19**	4	30	4	**38**	4	36	2	**42**	**80**	**99**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHAPMAN MILLS DR @ LEAMINGTON WAY/MANCINI WAY

Survey Date: Wednesday, November 21, 2018 **WO No:** 38154

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

Full Study 15 Minute U-Turn Total

LEAMINGTON WAY/MANCINI WAY **CHAPMAN MILLS DR**

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	1	6	**7**
07:15	07:30	0	0	0	1	**1**
07:30	07:45	0	0	2	1	**3**
07:45	08:00	0	0	0	1	**1**
08:00	08:15	0	0	0	7	**7**
08:15	08:30	0	0	2	26	**28**
08:30	08:45	0	0	3	4	**7**
08:45	09:00	0	0	1	1	**2**
09:00	09:15	0	0	2	1	**3**
09:15	09:30	1	0	2	3	**6**
09:30	09:45	0	0	1	0	**1**
09:45	10:00	0	0	2	0	**2**
11:30	11:45	0	0	0	0	**0**
11:45	12:00	0	0	0	0	**0**
12:00	12:15	0	0	1	0	**1**
12:15	12:30	0	0	1	2	**3**
12:30	12:45	0	0	1	0	**1**
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	0	**0**
15:00	15:15	0	0	3	10	**13**
15:15	15:30	0	0	1	2	**3**
15:30	15:45	0	0	1	3	**4**
15:45	16:00	0	0	3	0	**3**
16:00	16:15	0	0	2	1	**3**
16:15	16:30	0	0	0	1	**1**
16:30	16:45	0	0	0	4	**4**
16:45	17:00	0	0	0	0	**0**
17:00	17:15	0	0	1	3	**4**
17:15	17:30	0	0	1	1	**2**
17:30	17:45	0	0	0	3	**3**
17:45	18:00	0	0	0	4	**4**
Total		1	0	31	86	**118**

Transportation Services - Traffic Services

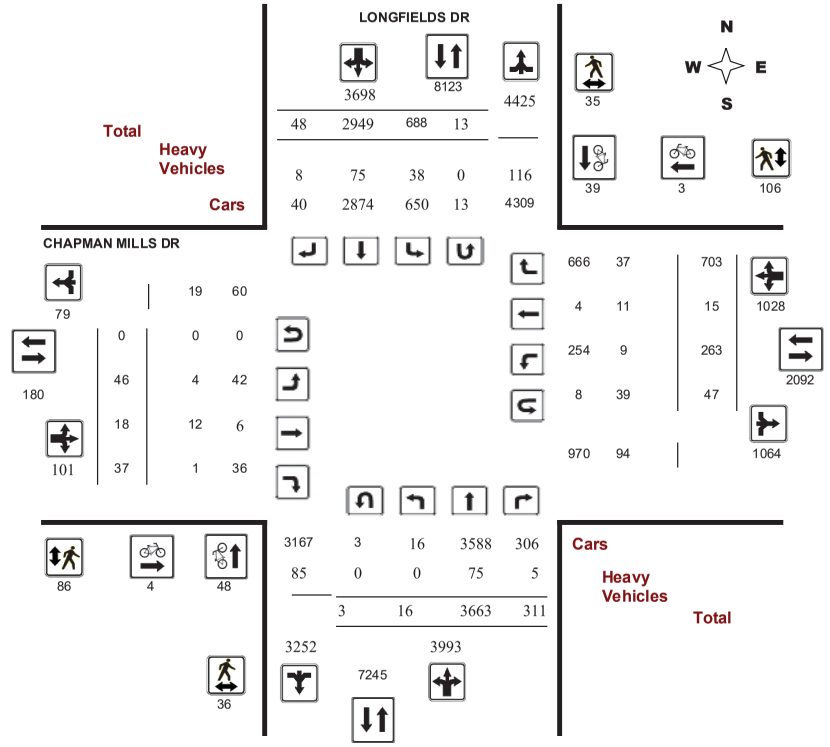
Turning Movement Count - Study Results

CHAPMAN MILLS DR @ LONGFIELDS DR

Survey Date: Tuesday, June 19, 2018 **WO No:** 37883

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

Full Study Diagram



Transportation Services - Traffic Services

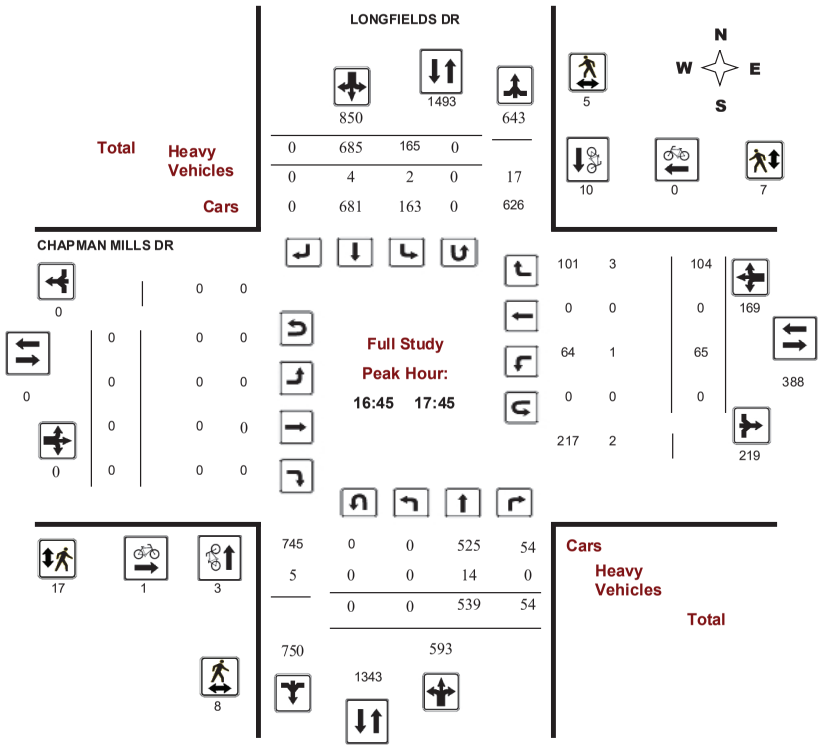
Turning Movement Count - Study Results

CHAPMAN MILLS DR @ LONGFIELDS DR

Survey Date: Tuesday, June 19, 2018 **WO No:** 37883

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

Full Study Peak Hour Diagram



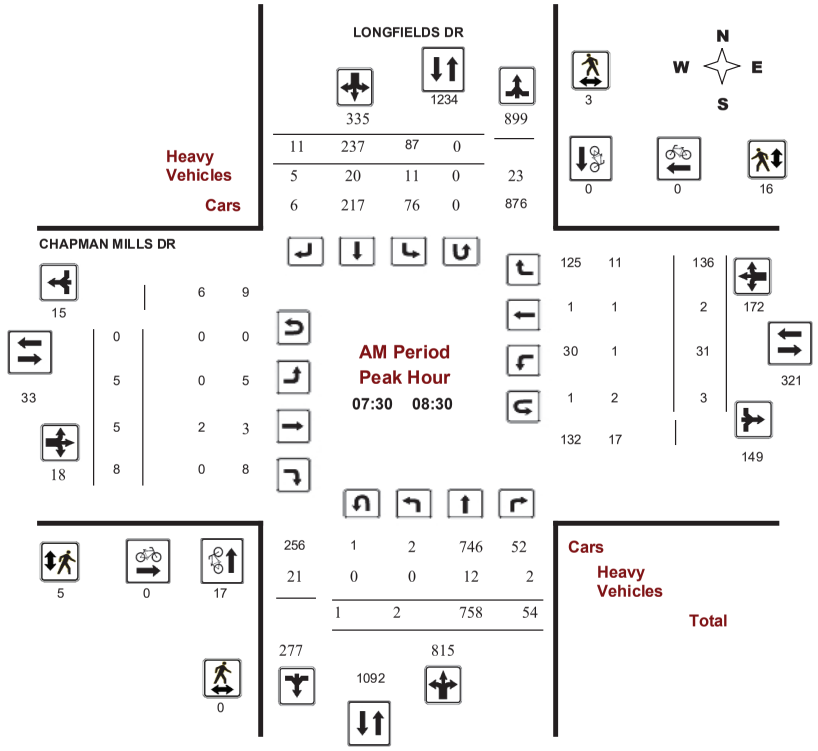
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CHAPMAN MILLS DR @ LONGFIELDS DR

Survey Date: Tuesday, June 19, 2018 **WO No:** 37883

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



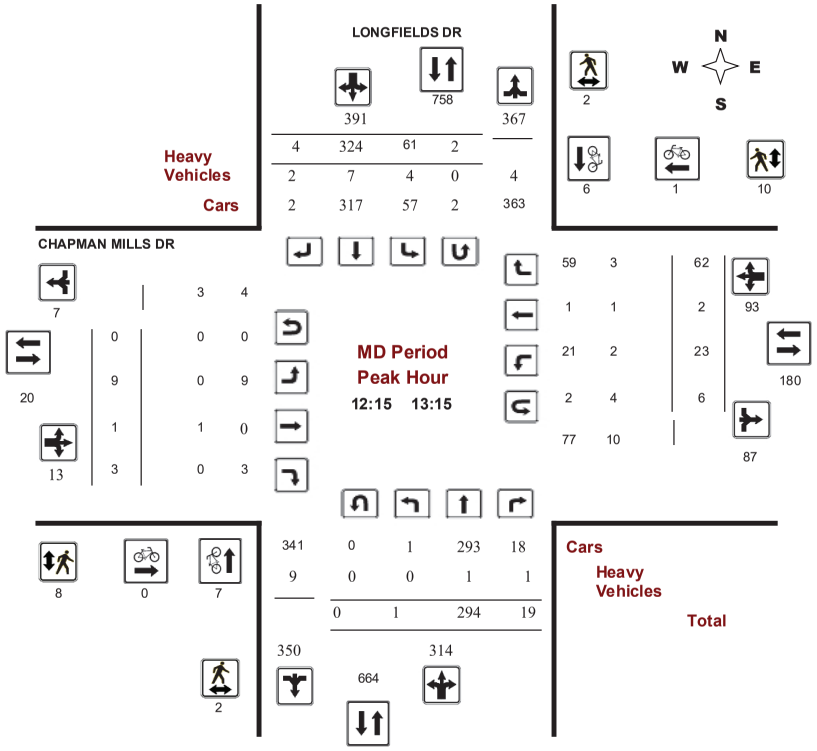
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CHAPMAN MILLS DR @ LONGFIELDS DR

Survey Date: Tuesday, June 19, 2018 **WO No:** 37883

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



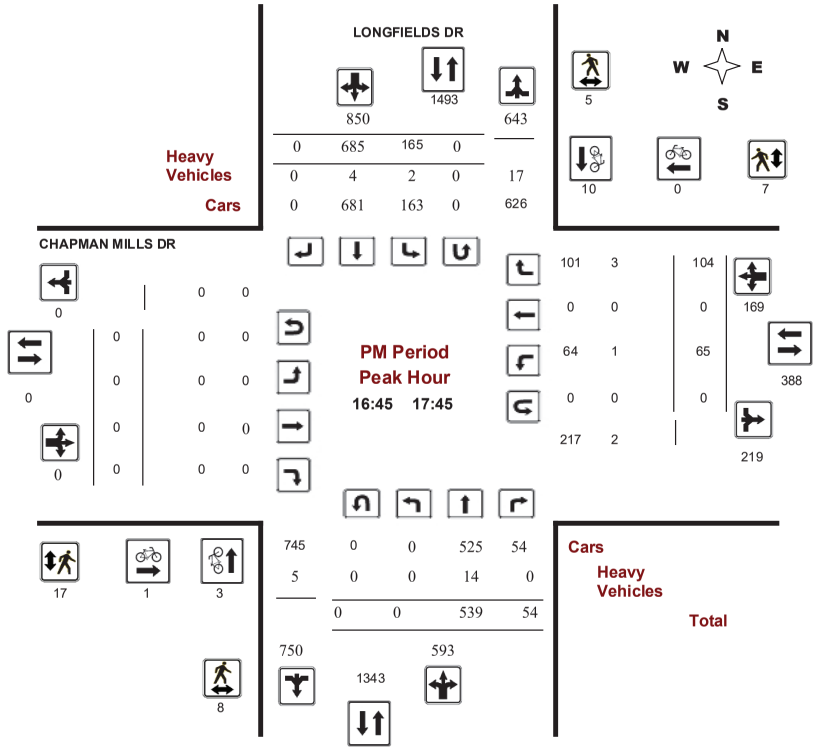
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CHAPMAN MILLS DR @ LONGFIELDS DR

Survey Date: Tuesday, June 19, 2018 **WO No:** 37883

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



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHAPMAN MILLS DR @ LONGFIELDS DR

Survey Date: Tuesday, June 19, 2018 **WO No:** 37883

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

Full Study Summary (8 HR Standard)

Survey Date: Tuesday, June 19, 2018

Total Observed U-Turns

Northbound: 3 Southbound: 13

Eastbound: 0 Westbound: 47

AADT Factor .90

	LONGFIELDS DR								CHAPMAN MILLS 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	1	708	54	**763**	66	197	16	**279**	**1042**	6	3	9	**18**	18	1	110	**129**	**147**	**1189**
08:00 09:00	2	650	57	**709**	72	241	6	**319**	**1028**	6	3	6	**15**	31	1	139	**171**	**186**	**1214**
09:00 10:00	5	400	38	**443**	49	201	5	**255**	**698**	8	2	5	**15**	28	5	69	**102**	**117**	**815**
11:30 12:30	4	313	20	**337**	44	273	10	**327**	**664**	8	2	4	**14**	28	2	53	**83**	**97**	**761**
12:30 13:30	2	318	17	**337**	61	309	4	**374**	**711**	5	1	2	**8**	22	0	57	**79**	**87**	**798**
15:00 16:00	2	337	29	**368**	106	480	5	**591**	**959**	8	5	6	**19**	27	5	89	**121**	**140**	**1099**
16:00 17:00	0	431	53	**484**	122	569	2	**693**	**1177**	5	2	5	**12**	43	1	102	**146**	**158**	**1335**
17:00 18:00	0	506	43	**549**	168	679	0	**847**	**1396**	0	0	0	**0**	66	0	84	**150**	**150**	**1546**
Sub Total	16	3663	311	**3990**	688	2949	48	**3685**	**7675**	46	18	37	**101**	263	15	703	**981**	**1082**	**8757**
U Turns	3			**3**	13			**13**	**16**	**0**			**0**	47			**47**	**47**	**63**
Total	19	3663	311	**3993**	701	2949	48	**3698**	**7691**	46	18	37	**101**	310	15	703	**1028**	**1129**	**8820**
EQ 12Hr	26	5092	432	**5550**	974	4099	67	**5140**	**10690**	64	25	51	**140**	431	21	977	**1429**	**1569**	**12259**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	23	4583	389	**4995**	877	3689	60	**4626**	**9621**	58	22	46	**126**	388	19	879	**1286**	**1412**	**11033**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**.90**					
AVG 24Hr	30	6004	510	**6544**	1149	4833	79	**6061**	**12605**	76	29	60	**165**	508	25	1151	**1684**	**1849**	**14454**
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

CHAPMAN MILLS DR @ LONGFIELDS DR

Survey Date: Tuesday, June 19, 2018 **WO No:** 37883

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

Full Study 15 Minute Increments

		LONGFIELDS DR									CHAPMAN MILLS 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	1	150	9	160	7	38	2	47	**207**	3	0	2	5	2	0	30	32	**37**	**244**
07:15	07:30	0	161	11	172	8	43	4	55	**227**	1	0	1	2	6	0	26	32	**34**	**261**
07:30	07:45	0	187	11	198	18	43	5	66	**264**	1	3	1	5	4	1	27	32	**37**	**301**
07:45	08:00	0	210	23	233	33	73	5	111	**344**	1	0	5	6	6	0	27	33	**39**	**383**
08:00	08:15	0	192	4	196	14	70	1	85	**281**	1	0	0	1	10	0	34	44	**45**	**326**
08:15	08:30	3	169	16	188	22	51	0	73	**261**	2	2	2	6	14	1	48	63	**69**	**330**
08:30	08:45	0	141	7	148	16	61	4	81	**229**	2	0	1	3	5	0	38	43	**46**	**275**
08:45	09:00	0	148	30	178	20	59	1	80	**258**	1	1	3	5	6	0	19	25	**30**	**288**
09:00	09:15	1	126	17	144	15	53	0	68	**212**	6	0	1	7	9	0	18	27	**34**	**246**
09:15	09:30	3	86	7	96	13	47	2	62	**158**	1	0	2	3	11	2	14	27	**30**	**188**
09:30	09:45	1	95	5	101	14	54	1	69	**170**	1	0	2	3	8	0	21	29	**32**	**202**
09:45	10:00	1	93	9	103	8	47	2	57	**160**	0	2	0	2	4	3	16	23	**25**	**185**
11:30	11:45	2	98	2	102	11	58	4	73	**175**	2	1	1	4	7	0	15	22	**26**	**201**
11:45	12:00	2	76	5	83	11	65	2	78	**161**	2	0	1	3	17	0	10	27	**30**	**191**
12:00	12:15	0	68	6	74	14	71	2	87	**161**	0	1	1	2	11	0	7	18	**20**	**181**
12:15	12:30	0	71	7	78	11	79	2	92	**170**	4	0	1	5	5	2	21	28	**33**	**203**
12:30	12:45	0	82	5	87	18	91	0	109	**196**	2	1	1	4	6	0	12	18	**22**	**218**
12:45	13:00	1	74	2	77	17	80	2	99	**176**	2	0	0	2	9	0	16	25	**27**	**203**
13:00	13:15	0	67	5	72	17	74	0	91	**163**	1	0	1	2	9	0	13	22	**24**	**187**
13:15	13:30	1	95	5	101	12	64	2	78	**179**	0	0	0	0	6	0	16	22	**22**	**201**
15:00	15:15	0	65	6	71	28	98	0	126	**197**	1	1	2	4	3	1	24	28	**32**	**229**
15:15	15:30	2	102	11	115	29	108	3	140	**255**	2	2	1	5	7	2	16	25	**30**	**285**
15:30	15:45	0	94	2	96	23	117	2	142	**238**	4	1	2	7	9	2	21	32	**39**	**277**
15:45	16:00	0	76	10	86	29	157	0	186	**272**	1	1	1	3	17	0	28	45	**48**	**320**
16:00	16:15	1	102	14	117	27	153	1	181	**298**	0	0	2	2	18	0	15	33	**35**	**333**
16:15	16:30	0	106	10	116	24	140	1	165	**281**	1	2	3	6	10	1	25	36	**42**	**323**
16:30	16:45	0	87	14	101	36	129	0	165	**266**	4	0	0	4	13	0	23	36	**40**	**306**
16:45	17:00	0	136	15	151	36	147	0	183	**334**	0	0	0	0	12	0	39	51	**51**	**385**
17:00	17:15	0	127	15	142	35	174	0	209	**351**	0	0	0	0	14	0	23	37	**37**	**388**
17:15	17:30	0	152	16	168	44	170	0	214	**382**	0	0	0	0	21	0	16	37	**37**	**419**
17:30	17:45	0	124	8	132	50	194	0	244	**376**	0	0	0	0	18	0	26	44	**44**	**420**
17:45	18:00	0	103	4	107	41	141	0	182	**289**	0	0	0	0	13	0	19	32	**32**	**321**
Total:		19	3663	311	3993	701	2949	48	3698	**7691**	46	18	37	101	310	15	703	1028	**7691**	**8,820**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHAPMAN MILLS DR @ LONGFIELDS DR

Survey Date: Tuesday, June 19, 2018 **WO No:** 37883

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

Full Study Cyclist Volume

		LONGFIELDS DR			CHAPMAN MILLS DR			
Time Period		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	1	**1**	0	0	**0**	**1**
07:15	07:30	1	0	**1**	0	0	**0**	**1**
07:30	07:45	6	0	**6**	0	0	**0**	**6**
07:45	08:00	6	0	**6**	0	0	**0**	**6**
08:00	08:15	3	0	**3**	0	0	**0**	**3**
08:15	08:30	2	0	**2**	0	0	**0**	**2**
08:30	08:45	2	0	**2**	0	0	**0**	**2**
08:45	09:00	2	0	**2**	0	0	**0**	**2**
09:00	09:15	1	0	**1**	0	1	**1**	**2**
09:15	09:30	1	1	**2**	0	0	**0**	**2**
09:30	09:45	0	1	**1**	1	0	**1**	**2**
09:45	10:00	1	4	**5**	0	0	**0**	**5**
11:30	11:45	0	0	**0**	0	0	**0**	**0**
11:45	12:00	0	2	**2**	0	0	**0**	**2**
12:00	12:15	2	2	**4**	0	0	**0**	**4**
12:15	12:30	0	0	**0**	0	0	**0**	**0**
12:30	12:45	7	4	**11**	0	0	**0**	**11**
12:45	13:00	0	1	**1**	0	0	**0**	**1**
13:00	13:15	0	1	**1**	0	1	**1**	**2**
13:15	13:30	0	1	**1**	0	0	**0**	**1**
15:00	15:15	0	2	**2**	0	0	**0**	**2**
15:15	15:30	1	1	**2**	1	0	**1**	**3**
15:30	15:45	5	3	**8**	1	1	**2**	**10**
15:45	16:00	0	0	**0**	0	0	**0**	**0**
16:00	16:15	0	2	**2**	0	0	**0**	**2**
16:15	16:30	3	1	**4**	0	0	**0**	**4**
16:30	16:45	1	1	**2**	0	0	**0**	**2**
16:45	17:00	1	5	**6**	0	0	**0**	**6**
17:00	17:15	1	2	**3**	1	0	**1**	**4**
17:15	17:30	0	3	**3**	0	0	**0**	**3**
17:30	17:45	1	0	**1**	0	0	**0**	**1**
17:45	18:00	1	1	**2**	0	0	**0**	**2**
Total		48	39	**87**	4	3	**7**	**94**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHAPMAN MILLS DR @ LONGFIELDS DR

Survey Date: Tuesday, June 19, 2018 **WO No:** 37883

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

Full Study Pedestrian Volume

	LONGFIELDS DR			CHAPMAN MILLS 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**	2	2	**4**	**4**
07:15 07:30	0	0	**0**	3	4	**7**	**7**
07:30 07:45	0	1	**1**	0	1	**1**	**2**
07:45 08:00	0	1	**1**	5	8	**13**	**14**
08:00 08:15	0	1	**1**	0	4	**4**	**5**
08:15 08:30	0	0	**0**	0	3	**3**	**3**
08:30 08:45	1	0	**1**	2	4	**6**	**7**
08:45 09:00	3	0	**3**	2	5	**7**	**10**
09:00 09:15	0	1	**1**	2	4	**6**	**7**
09:15 09:30	1	0	**1**	3	2	**5**	**6**
09:30 09:45	2	0	**2**	1	1	**2**	**4**
09:45 10:00	1	1	**2**	1	1	**2**	**4**
11:30 11:45	0	2	**2**	1	3	**4**	**6**
11:45 12:00	0	1	**1**	0	6	**6**	**7**
12:00 12:15	0	0	**0**	3	4	**7**	**7**
12:15 12:30	2	2	**4**	3	2	**5**	**9**
12:30 12:45	0	0	**0**	1	2	**3**	**3**
12:45 13:00	0	0	**0**	1	2	**3**	**3**
13:00 13:15	0	0	**0**	3	4	**7**	**7**
13:15 13:30	0	2	**2**	6	3	**9**	**11**
15:00 15:15	2	2	**4**	6	5	**11**	**15**
15:15 15:30	3	4	**7**	4	7	**11**	**18**
15:30 15:45	0	2	**2**	1	2	**3**	**5**
15:45 16:00	7	0	**7**	5	3	**8**	**15**
16:00 16:15	1	0	**1**	4	1	**5**	**6**
16:15 16:30	1	6	**7**	2	6	**8**	**15**
16:30 16:45	2	3	**5**	3	8	**11**	**16**
16:45 17:00	0	0	**0**	3	2	**5**	**5**
17:00 17:15	0	3	**3**	2	4	**6**	**9**
17:15 17:30	4	0	**4**	9	1	**10**	**14**
17:30 17:45	4	2	**6**	3	0	**3**	**9**
17:45 18:00	2	1	**3**	5	2	**7**	**10**
Total	36	35	**71**	86	106	**192**	**263**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHAPMAN MILLS DR @ LONGFIELDS DR

Survey Date: Tuesday, June 19, 2018 **WO No:** 37883

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

Full Study Heavy Vehicles

		LONGFIELDS DR									CHAPMAN MILLS 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	0	0	**0**	2	2	0	**4**	**4**	1	0	0	**1**	0	0	0	**0**	**1**	**5**
07:15	07:30	0	5	0	**5**	1	3	0	**4**	**9**	0	0	0	**0**	1	0	1	**2**	**2**	**11**
07:30	07:45	0	2	0	**2**	1	5	3	**9**	**11**	0	2	0	**2**	0	0	1	**1**	**3**	**14**
07:45	08:00	0	6	1	**7**	4	7	2	**13**	**20**	0	0	0	**0**	0	0	2	**2**	**2**	**22**
08:00	08:15	0	1	0	**1**	2	4	0	**6**	**7**	0	0	0	**0**	0	0	5	**5**	**5**	**12**
08:15	08:30	0	3	1	**4**	4	4	0	**8**	**12**	0	0	0	**0**	1	1	3	**5**	**5**	**19**
08:30	08:45	0	2	0	**2**	2	5	0	**7**	**9**	1	0	0	**1**	0	0	0	**0**	**1**	**11**
08:45	09:00	0	5	1	**6**	1	3	0	**4**	**10**	1	1	0	**2**	0	0	3	**3**	**5**	**15**
09:00	09:15	0	5	0	**5**	1	3	0	**4**	**9**	1	0	0	**1**	0	0	0	**0**	**1**	**11**
09:15	09:30	0	5	0	**5**	1	1	0	**2**	**7**	0	0	0	**0**	0	1	1	**2**	**2**	**11**
09:30	09:45	0	1	0	**1**	3	1	0	**4**	**5**	0	0	0	**0**	0	0	0	**0**	**0**	**6**
09:45	10:00	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**2**	0	3	2	**5**	**7**	**7**
11:30	11:45	0	1	0	**1**	1	0	1	**2**	**3**	0	0	0	**0**	0	0	0	**0**	**0**	**5**
11:45	12:00	0	2	0	**2**	1	0	0	**1**	**3**	0	0	1	**1**	0	0	2	**2**	**3**	**13**
12:00	12:15	0	1	1	**2**	2	0	0	**2**	**4**	0	0	0	**0**	0	0	0	**0**	**0**	**5**
12:15	12:30	0	1	1	**2**	0	1	1	**2**	**4**	0	0	0	**0**	1	1	1	**3**	**3**	**7**
12:30	12:45	0	0	0	**0**	1	1	0	**2**	**2**	0	1	0	**1**	0	0	0	**0**	**1**	**3**
12:45	13:00	0	0	0	**0**	2	2	1	**5**	**5**	0	0	0	**0**	1	0	2	**3**	**3**	**10**
13:00	13:15	0	0	0	**0**	1	3	0	**4**	**4**	0	0	0	**0**	0	0	0	**0**	**0**	**6**
13:15	13:30	0	1	0	**1**	0	3	0	**3**	**4**	0	0	0	**0**	0	0	1	**1**	**1**	**7**
15:00	15:15	0	0	0	**0**	1	2	0	**3**	**3**	0	1	0	**1**	1	1	2	**4**	**5**	**8**
15:15	15:30	0	7	0	**7**	1	6	0	**7**	**14**	0	2	0	**2**	0	2	1	**3**	**5**	**19**
15:30	15:45	0	2	0	**2**	1	3	0	**4**	**6**	0	1	0	**1**	0	2	0	**2**	**3**	**11**
15:45	16:00	0	2	0	**2**	0	2	0	**2**	**4**	0	0	0	**0**	1	0	2	**3**	**3**	**13**
16:00	16:15	0	3	0	**3**	1	5	0	**6**	**9**	0	0	0	**0**	2	0	1	**3**	**3**	**18**
16:15	16:30	0	4	0	**4**	0	4	0	**4**	**8**	0	2	0	**2**	0	0	0	**0**	**2**	**10**
16:30	16:45	0	2	0	**2**	1	1	0	**2**	**4**	0	0	0	**0**	0	0	4	**4**	**4**	**10**
16:45	17:00	0	3	0	**3**	0	0	0	**0**	**3**	0	0	0	**0**	1	0	1	**2**	**2**	**5**
17:00	17:15	0	7	0	**7**	2	3	0	**5**	**12**	0	0	0	**0**	0	0	1	**1**	**1**	**13**
17:15	17:30	0	2	0	**2**	0	0	0	**0**	**2**	0	0	0	**0**	0	0	0	**0**	**0**	**2**
17:30	17:45	0	2	0	**2**	0	1	0	**1**	**3**	0	0	0	**0**	0	0	1	**1**	**1**	**4**
17:45	18:00	0	0	0	**0**	1	0	0	**1**	**1**	0	0	0	**0**	0	0	0	**0**	**0**	**1**
Total:	None	0	75	5	**80**	38	75	8	**121**	**201**	4	12	1	**17**	9	11	37	**57**	**74**	**314**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHAPMAN MILLS DR @ LONGFIELDS DR

Survey Date: Tuesday, June 19, 2018 **WO No:** 37883

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

Full Study 15 Minute U-Turn Total

Time Period		LONGFIELDS DR Northbound U-Turn Total	LONGFIELDS DR Southbound U-Turn Total	CHAPMAN MILLS DR Eastbound U-Turn Total	CHAPMAN MILLS 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	1	0	0	3	**4**
08:30	08:45	0	0	0	1	**1**
08:45	09:00	0	0	0	0	**0**
09:00	09:15	0	0	0	1	**1**
09:15	09:30	0	0	0	2	**2**
09:30	09:45	1	0	0	1	**2**
09:45	10:00	0	1	0	0	**1**
11:30	11:45	0	2	0	3	**5**
11:45	12:00	0	0	0	8	**8**
12:00	12:15	0	1	0	1	**2**
12:15	12:30	0	0	0	0	**0**
12:30	12:45	0	0	0	0	**0**
12:45	13:00	0	2	0	2	**4**
13:00	13:15	0	0	0	4	**4**
13:15	13:30	0	1	0	2	**3**
15:00	15:15	0	1	0	0	**1**
15:15	15:30	0	1	0	0	**1**
15:30	15:45	0	0	0	2	**2**
15:45	16:00	0	1	0	7	**8**
16:00	16:15	1	0	0	6	**7**
16:15	16:30	0	1	0	2	**3**
16:30	16:45	0	0	0	2	**2**
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	2	0	0	**2**
Total		3	13	0	47	**63**

Transportation Services - Traffic Services

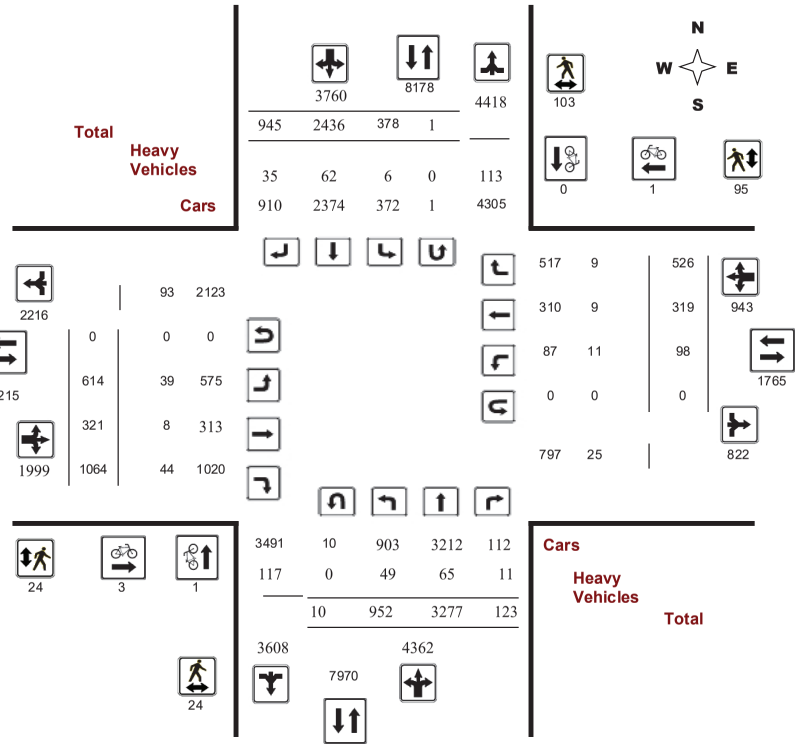
Turning Movement Count - Study Results

CLEARBROOK DR/MARKETPLACE AVE @ LONGFIELDS DR

Survey Date: Wednesday, November 21, 2018 **WO No:** 38150

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

Full Study Diagram



Transportation Services - Traffic Services

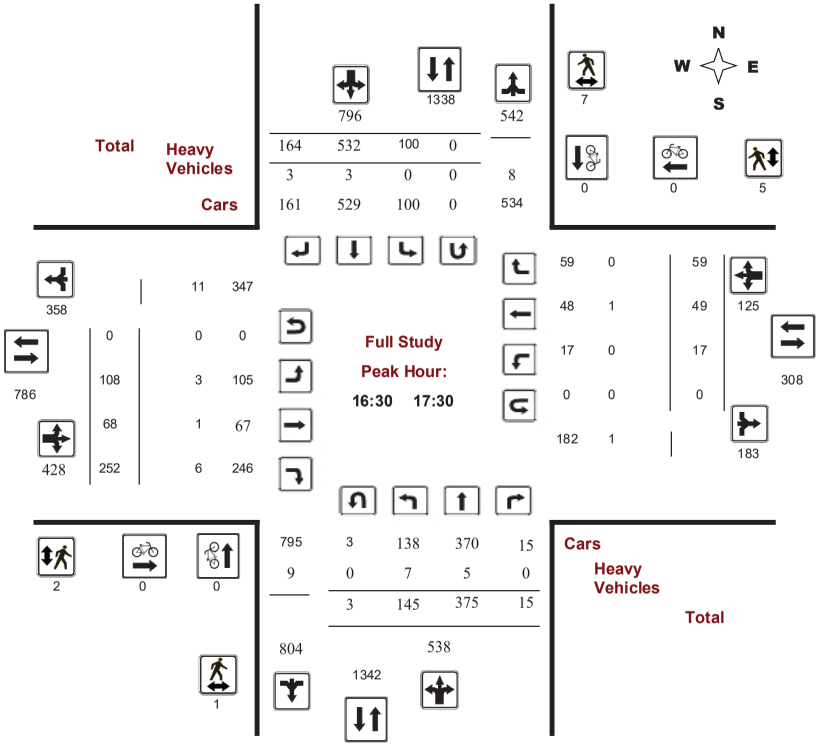
Turning Movement Count - Study Results

CLEARBROOK DR/MARKETPLACE AVE @ LONGFIELDS DR

Survey Date: Wednesday, November 21, 2018 **WO No:** 38150

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

Full Study Peak Hour Diagram



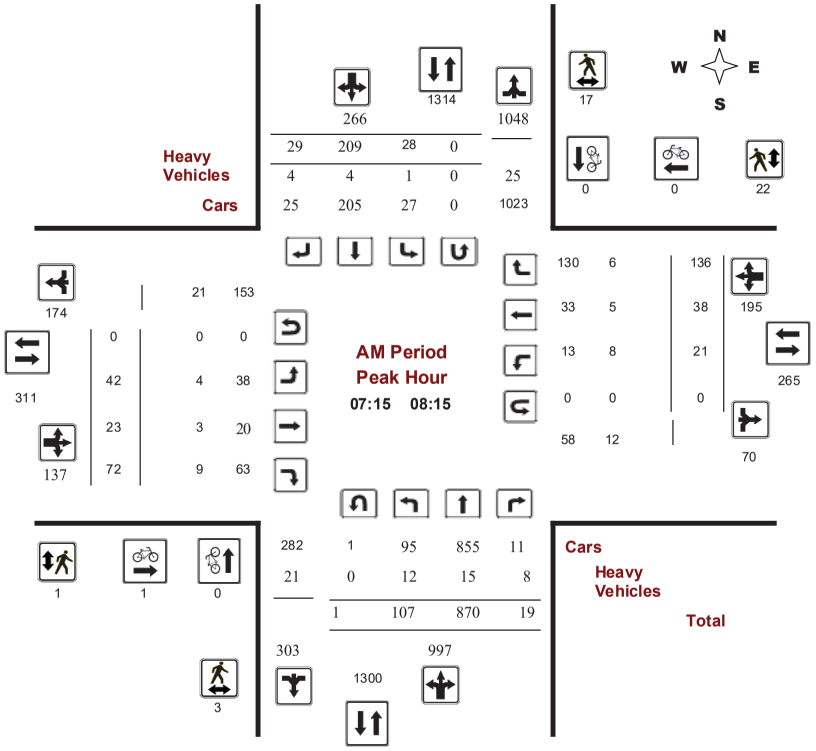
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CLEARBROOK DR/MARKETPLACE AVE @ LONGFIELDS DR

Survey Date: Wednesday, November 21, 2018 **WO No:** 38150

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



Comments

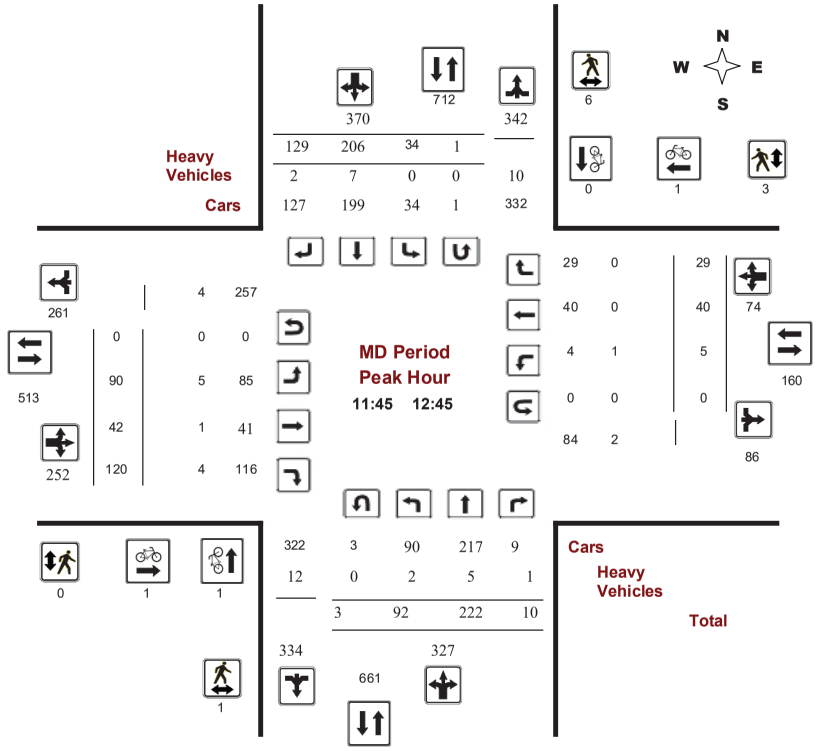
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CLEARBROOK DR/MARKETPLACE AVE @ LONGFIELDS DR

Survey Date: Wednesday, November 21, 2018 **WO No:** 38150

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



Comments

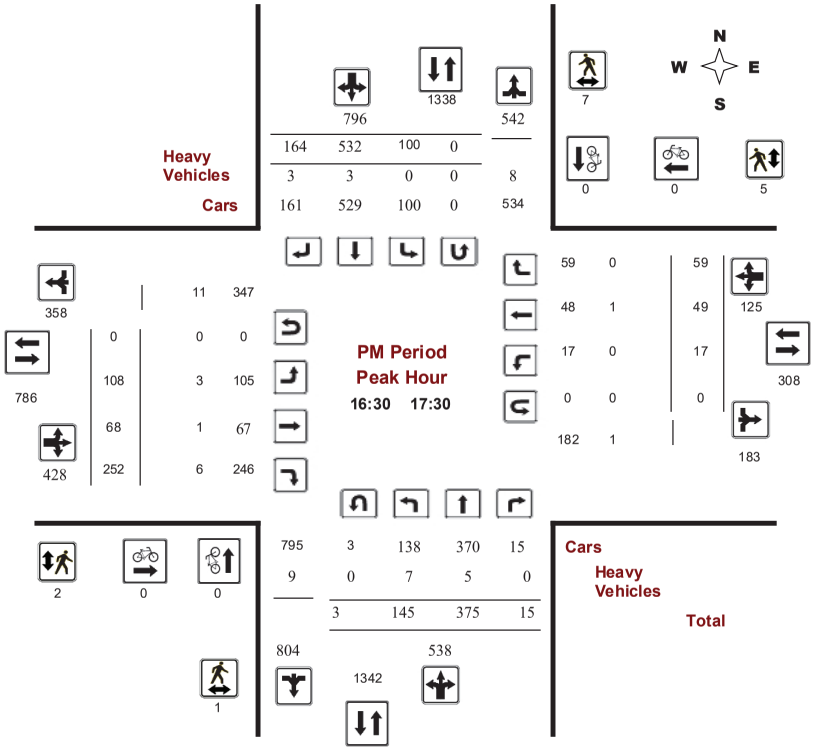
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CLEARBROOK DR/MARKETPLACE AVE @ LONGFIELDS DR

Survey Date: Wednesday, November 21, 2018 **WO No:** 38150

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



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CLEARBROOK DR/MARKETPLACE AVE @ LONGFIELDS DR

Survey Date: Wednesday, November 21, 2018 **WO No:** 38150

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

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, November 21, 2018

Total Observed U-Turns

Northbound: 10 Southbound: 1

Eastbound: 0 Westbound: 0

AADT Factor

.90

	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	102	823	18	**943**	26	204	25	**255**	**1198**	39	18	69	**126**	20	40	130	**190**	**316**	**1514**
08:00 09:00	110	627	21	**758**	31	259	72	**362**	**1120**	32	23	55	**110**	8	37	107	**152**	**262**	**1382**
09:00 10:00	132	339	10	**481**	15	184	111	**310**	**791**	46	22	69	**137**	5	49	49	**103**	**240**	**1031**
11:30 12:30	98	221	9	**328**	30	206	128	**364**	**692**	83	36	119	**238**	5	40	34	**79**	**317**	**1009**
12:30 13:30	93	200	4	**297**	36	161	124	**321**	**618**	100	40	122	**262**	4	27	30	**61**	**323**	**941**
15:00 16:00	126	338	21	**485**	63	385	165	**613**	**1098**	102	46	171	**319**	17	39	51	**107**	**426**	**1524**
16:00 17:00	138	330	19	**487**	85	501	169	**755**	**1242**	116	68	221	**405**	13	45	66	**124**	**529**	**1771**
17:00 18:00	153	399	21	**573**	92	536	151	**779**	**1352**	96	68	238	**402**	26	42	59	**127**	**529**	**1881**
Sub Total	952	3277	123	**4352**	378	2436	945	**3759**	**8111**	614	321	1064	**1999**	98	319	526	**943**	**2942**	**11053**
U Turns	10			**10**	1			**1**	**11**	**0**			**0**	0			**0**	**0**	**11**
Total	962	3277	123	**4362**	379	2436	945	**3760**	**8122**	614	321	1064	**1999**	98	319	526	**943**	**2942**	**11064**
EQ 12Hr	1337	4555	171	**6063**	527	3386	1314	**5227**	**11290**	853	446	1479	**2778**	136	443	731	**1310**	**4088**	**15378**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	1203	4100	154	**5457**	474	3047	1183	**4704**	**10161**	768	401	1331	**2500**	122	399	658	**1179**	**3679**	**13840**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**.90**					
AVG 24Hr	1576	5371	202	**7149**	621	3992	1550	**6163**	**13312**	1006	525	1744	**3275**	160	523	862	**1545**	**4820**	**18132**
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

CLEARBROOK DR/MARKETPLACE AVE @ LONGFIELDS DR

Survey Date: Wednesday, November 21, 2018 **WO No:** 38150

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

Full Study 15 Minute Increments

		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	21	156	3	180	5	46	3	54	**234**	9	3	14	26	3	11	16	30	**56**	**290**
07:15	07:30	21	218	1	240	6	46	8	60	**300**	9	4	15	28	2	9	26	37	**65**	**365**
07:30	07:45	25	206	2	233	6	43	5	54	**287**	9	6	17	32	1	5	34	40	**72**	**359**
07:45	08:00	36	243	12	291	9	69	9	87	**378**	12	5	23	40	14	15	54	83	**123**	**501**
08:00	08:15	26	203	4	233	7	51	7	65	**298**	12	8	17	37	4	9	22	35	**72**	**370**
08:15	08:30	35	165	6	206	6	57	24	87	**293**	5	4	15	24	2	7	21	30	**54**	**347**
08:30	08:45	25	149	6	180	9	68	22	99	**279**	5	7	9	21	1	11	42	54	**75**	**354**
08:45	09:00	25	110	5	140	9	83	19	111	**251**	10	4	14	28	1	10	22	33	**61**	**312**
09:00	09:15	46	103	3	152	6	58	39	103	**255**	11	5	17	33	2	15	12	29	**62**	**317**
09:15	09:30	30	80	3	113	4	47	21	72	**185**	4	5	13	22	1	12	11	24	**46**	**231**
09:30	09:45	31	82	3	116	3	38	29	70	**186**	13	8	22	43	1	9	11	21	**64**	**250**
09:45	10:00	26	74	1	101	2	41	22	65	**166**	18	4	17	39	1	13	15	29	**68**	**234**
11:30	11:45	31	60	1	92	6	44	29	79	**171**	15	7	27	49	2	8	14	24	**73**	**244**
11:45	12:00	23	67	5	95	10	55	36	101	**196**	26	9	23	58	3	6	9	18	**76**	**272**
12:00	12:15	28	42	2	72	12	58	33	103	**175**	22	7	31	60	0	13	7	20	**80**	**255**
12:15	12:30	19	52	1	72	2	49	30	81	**153**	20	13	38	71	0	13	4	17	**88**	**241**
12:30	12:45	25	61	2	88	11	44	30	85	**173**	22	13	28	63	2	8	9	19	**82**	**255**
12:45	13:00	27	54	0	81	7	46	27	80	**161**	25	10	33	68	0	5	9	14	**82**	**243**
13:00	13:15	25	39	2	66	8	31	35	74	**140**	23	13	27	63	1	7	9	17	**80**	**220**
13:15	13:30	17	46	0	63	11	40	32	83	**146**	30	4	34	68	1	7	3	11	**79**	**225**
15:00	15:15	31	88	6	125	10	69	27	106	**231**	28	14	42	84	2	7	17	26	**110**	**341**
15:15	15:30	31	86	5	122	24	110	35	169	**291**	21	12	33	66	5	12	10	27	**93**	**384**
15:30	15:45	31	72	4	107	14	89	49	152	**259**	24	8	49	81	2	12	15	29	**110**	**369**
15:45	16:00	33	92	6	131	15	117	54	186	**317**	29	12	47	88	8	8	9	25	**113**	**430**
16:00	16:15	39	87	8	134	17	124	45	186	**320**	29	8	57	94	4	7	19	30	**124**	**444**
16:15	16:30	27	83	4	114	23	123	33	179	**293**	27	22	45	94	2	10	14	26	**120**	**413**
16:30	16:45	34	78	4	116	25	153	45	223	**339**	28	16	68	112	3	14	18	35	**147**	**486**
16:45	17:00	40	82	3	125	20	101	46	167	**292**	32	22	51	105	4	14	15	33	**138**	**430**
17:00	17:15	30	94	1	125	32	146	40	218	**343**	26	18	66	110	2	8	9	19	**129**	**472**
17:15	17:30	44	121	7	172	23	132	33	188	**360**	22	12	67	101	8	13	17	38	**139**	**499**
17:30	17:45	40	90	5	135	22	136	38	196	**331**	28	19	53	100	8	10	13	31	**131**	**462**
17:45	18:00	40	94	8	142	15	122	40	177	**319**	20	19	52	91	8	11	20	39	**130**	**449**
Total:		962	3277	123	4362	379	2436	945	3760	**8122**	614	321	1064	1999	98	319	526	943	**8122**	**11,064**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CLEARBROOK DR/MARKETPLACE AVE @ LONGFIELDS DR

Survey Date: Wednesday, November 21, 2018 **WO No:** 38150

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

Full Study Cyclist Volume

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**	1	0	**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	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	1	0	**1**	0	1	**1**	**2**
12:15	12:30	0	0	**0**	0	0	**0**	**0**
12:30	12:45	0	0	**0**	1	0	**1**	**1**
12:45	13:00	0	0	**0**	0	0	**0**	**0**
13:00	13:15	0	0	**0**	0	0	**0**	**0**
13:15	13:30	0	0	**0**	0	0	**0**	**0**
15:00	15:15	0	0	**0**	0	0	**0**	**0**
15:15	15:30	0	0	**0**	0	0	**0**	**0**
15:30	15:45	0	0	**0**	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**	3	1	**4**	**5**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CLEARBROOK DR/MARKETPLACE AVE @ LONGFIELDS DR

Survey Date: Wednesday, November 21, 2018 **WO No:** 38150

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

Full Study Pedestrian Volume

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	3	**3**	0	4	**4**	**7**
07:15 07:30	0	3	**3**	1	2	**3**	**6**
07:30 07:45	0	5	**5**	0	4	**4**	**9**
07:45 08:00	2	6	**8**	0	12	**12**	**20**
08:00 08:15	1	3	**4**	0	4	**4**	**8**
08:15 08:30	1	3	**4**	1	11	**12**	**16**
08:30 08:45	0	5	**5**	0	9	**9**	**14**
08:45 09:00	0	1	**1**	0	2	**2**	**3**
09:00 09:15	0	4	**4**	1	2	**3**	**7**
09:15 09:30	1	5	**6**	1	3	**4**	**10**
09:30 09:45	1	2	**3**	0	1	**1**	**4**
09:45 10:00	0	0	**0**	1	1	**2**	**2**
11:30 11:45	0	0	**0**	1	0	**1**	**1**
11:45 12:00	1	2	**3**	0	2	**2**	**5**
12:00 12:15	0	0	**0**	0	0	**0**	**0**
12:15 12:30	0	2	**2**	0	0	**0**	**2**
12:30 12:45	0	2	**2**	0	1	**1**	**3**
12:45 13:00	2	4	**6**	0	4	**4**	**10**
13:00 13:15	1	4	**5**	3	0	**3**	**8**
13:15 13:30	1	1	**2**	1	0	**1**	**3**
15:00 15:15	2	3	**5**	2	5	**7**	**12**
15:15 15:30	1	9	**10**	3	11	**14**	**24**
15:30 15:45	0	3	**3**	0	6	**6**	**9**
15:45 16:00	6	10	**16**	5	3	**8**	**24**
16:00 16:15	2	2	**4**	2	1	**3**	**7**
16:15 16:30	0	7	**7**	0	2	**2**	**9**
16:30 16:45	0	3	**3**	0	1	**1**	**4**
16:45 17:00	0	0	**0**	1	0	**1**	**1**
17:00 17:15	1	4	**5**	1	4	**5**	**10**
17:15 17:30	0	0	**0**	0	0	**0**	**0**
17:30 17:45	1	7	**8**	0	0	**0**	**8**
17:45 18:00	0	0	**0**	0	0	**0**	**0**
Total	24	103	**127**	24	95	**119**	**246**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CLEARBROOK DR/MARKETPLACE AVE @ LONGFIELDS DR

Survey Date: Wednesday, November 21, 2018 **WO No:** 38150

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

Full Study Heavy Vehicles

Time Period		Northbound				Southbound					Eastbound				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**	1	3	0	**4**	**7**	1	0	3	**4**	0	0	0	**0**	**4**	**11**
07:15	07:30	3	5	0	**8**	0	2	3	**5**	**13**	1	0	1	**2**	1	0	2	**3**	**5**	**18**
07:30	07:45	2	4	1	**7**	0	1	0	**1**	**8**	1	0	2	**3**	0	0	0	**0**	**3**	**11**
07:45	08:00	3	3	7	**13**	1	1	1	**3**	**16**	2	2	4	**8**	7	4	4	**15**	**23**	**39**
08:00	08:15	4	3	0	**7**	0	0	0	**0**	**7**	0	1	2	**3**	0	1	0	**1**	**4**	**11**
08:15	08:30	3	4	0	**7**	0	7	2	**9**	**16**	1	0	2	**3**	0	0	0	**0**	**3**	**19**
08:30	08:45	1	4	0	**5**	1	2	3	**6**	**11**	1	0	2	**3**	1	0	1	**2**	**5**	**16**
08:45	09:00	1	2	1	**4**	0	6	1	**7**	**11**	1	0	1	**2**	0	0	2	**2**	**4**	**15**
09:00	09:15	4	3	0	**7**	0	4	1	**5**	**12**	1	0	1	**2**	0	0	0	**0**	**2**	**14**
09:15	09:30	0	0	0	**0**	0	1	1	**2**	**2**	0	0	0	**0**	1	0	0	**1**	**1**	**3**
09:30	09:45	1	0	0	**1**	0	3	2	**5**	**6**	2	0	1	**3**	0	0	0	**0**	**3**	**9**
09:45	10:00	1	2	0	**3**	0	2	3	**5**	**8**	1	0	1	**2**	0	0	0	**0**	**2**	**10**
11:30	11:45	1	4	0	**5**	0	1	0	**1**	**6**	3	0	1	**4**	0	0	0	**0**	**4**	**10**
11:45	12:00	0	0	0	**0**	0	3	0	**3**	**3**	1	0	1	**2**	1	0	0	**1**	**3**	**6**
12:00	12:15	0	2	1	**3**	0	0	1	**1**	**4**	1	0	1	**2**	0	0	0	**0**	**2**	**6**
12:15	12:30	1	2	0	**3**	0	3	0	**3**	**6**	1	1	1	**3**	0	0	0	**0**	**3**	**9**
12:30	12:45	1	1	0	**2**	0	1	1	**2**	**4**	2	0	1	**3**	0	0	0	**0**	**3**	**7**
12:45	13:00	1	3	0	**4**	0	2	2	**4**	**8**	1	1	0	**2**	0	0	0	**0**	**2**	**10**
13:00	13:15	0	1	0	**1**	1	4	0	**5**	**6**	1	0	3	**4**	0	0	0	**0**	**4**	**10**
13:15	13:30	2	1	0	**3**	0	0	2	**2**	**5**	3	0	0	**3**	0	0	0	**0**	**3**	**8**
15:00	15:15	1	1	1	**3**	0	2	1	**3**	**6**	1	0	2	**3**	0	0	0	**0**	**3**	**9**
15:15	15:30	2	1	0	**3**	0	2	1	**3**	**6**	2	0	0	**2**	0	1	0	**1**	**3**	**9**
15:30	15:45	0	4	0	**4**	0	0	3	**3**	**7**	5	0	2	**7**	0	0	0	**0**	**7**	**14**
15:45	16:00	3	2	0	**5**	0	3	1	**4**	**9**	0	0	1	**1**	0	0	0	**0**	**1**	**10**
16:00	16:15	2	1	0	**3**	2	3	1	**6**	**9**	1	0	1	**2**	0	0	0	**0**	**2**	**11**
16:15	16:30	2	3	0	**5**	0	3	1	**4**	**9**	0	1	1	**2**	0	2	0	**2**	**4**	**13**
16:30	16:45	2	1	0	**3**	0	1	1	**2**	**5**	0	0	2	**2**	0	1	0	**1**	**3**	**8**
16:45	17:00	1	1	0	**2**	0	0	0	**0**	**2**	1	0	2	**3**	0	0	0	**0**	**3**	**5**
17:00	17:15	1	3	0	**4**	0	0	0	**0**	**4**	2	1	2	**5**	0	0	0	**0**	**5**	**9**
17:15	17:30	3	0	0	**3**	0	2	2	**4**	**7**	0	0	0	**0**	0	0	0	**0**	**0**	**7**
17:30	17:45	1	0	0	**1**	0	0	1	**1**	**2**	1	0	1	**2**	0	0	0	**0**	**2**	**4**
17:45	18:00	2	1	0	**3**	0	0	0	**0**	**3**	1	1	2	**4**	0	0	0	**0**	**4**	**7**
Total:	None	49	65	11	**125**	6	62	35	**103**	**228**	39	8	44	**91**	11	9	9	**29**	**120**	**348**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CLEARBROOK DR/MARKETPLACE AVE @ LONGFIELDS DR

Survey Date: Wednesday, November 21, 2018 **WO No:** 38150

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

Full Study 15 Minute U-Turn Total

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	1	0	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	0	0	0	0	**0**
08:45	09:00	1	0	0	0	**1**
09:00	09:15	1	0	0	0	**1**
09:15	09:30	0	0	0	0	**0**
09:30	09:45	0	0	0	0	**0**
09:45	10:00	0	0	0	0	**0**
11:30	11:45	0	0	0	0	**0**
11:45	12:00	1	0	0	0	**1**
12:00	12:15	2	0	0	0	**2**
12:15	12:30	0	0	0	0	**0**
12:30	12:45	0	1	0	0	**1**
12:45	13:00	0	0	0	0	**0**
13:00	13:15	1	0	0	0	**1**
13:15	13:30	0	0	0	0	**0**
15:00	15:15	0	0	0	0	**0**
15:15	15:30	0	0	0	0	**0**
15:30	15:45	0	0	0	0	**0**
15:45	16:00	0	0	0	0	**0**
16:00	16:15	0	0	0	0	**0**
16:15	16:30	0	0	0	0	**0**
16:30	16:45	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	0	0	0	0	**0**
17:45	18:00	0	0	0	0	**0**
Total		10	1	0	0	**11**

Transportation Services - Traffic Services

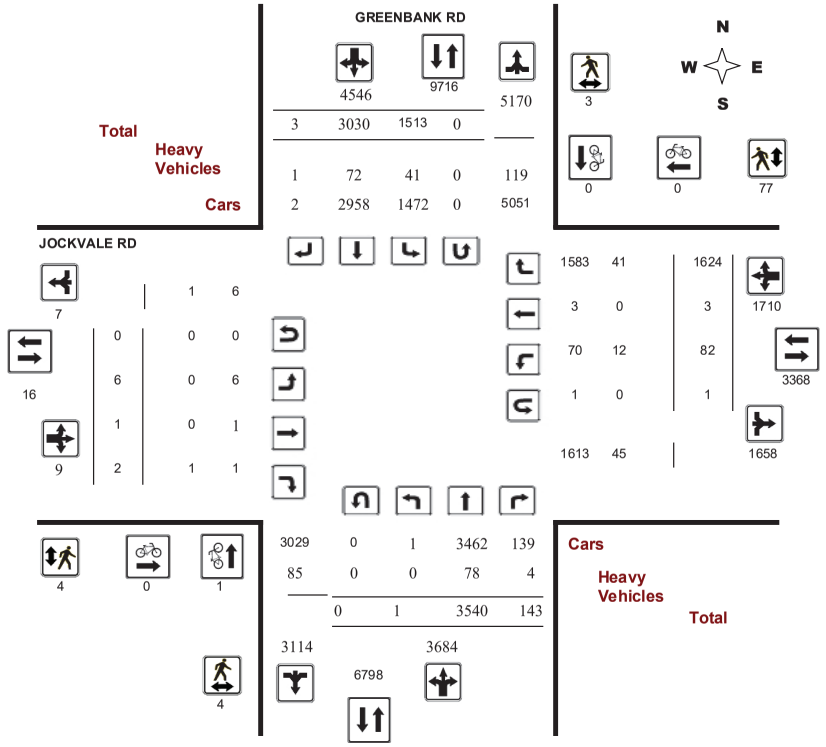
Turning Movement Count - Study Results

GREENBANK RD @ JOCKVALE RD

Survey Date: Wednesday, January 08, 2020 **WO No:** 39522

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

Full Study Diagram



5469202 - WED JAN 03, 2020 - 8HRS - LORETTA

Transportation Services - Traffic Services

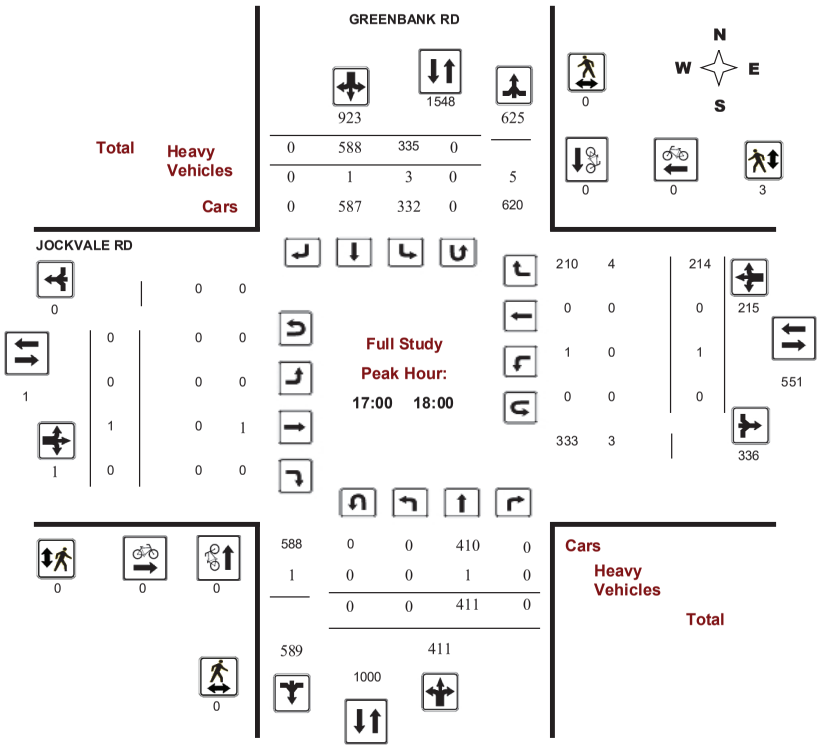
Turning Movement Count - Study Results

GREENBANK RD @ JOCKVALE RD

Survey Date: Wednesday, January 08, 2020 **WO No:** 39522

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

Full Study Peak Hour Diagram



5469202 - WED JAN 03, 2020 - 8HRS - LORETTA

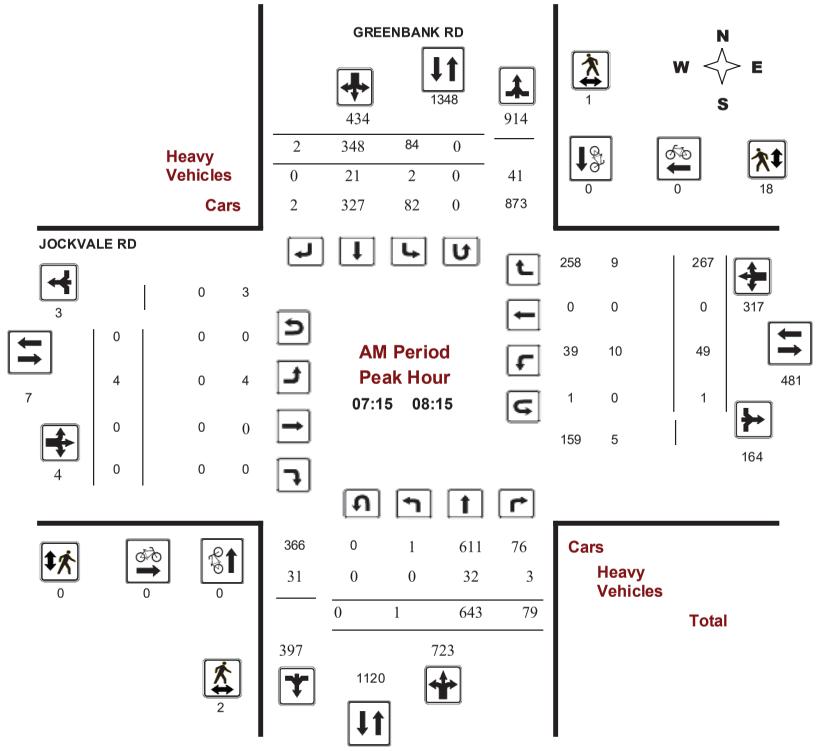
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

GREENBANK RD @ JOCKVALE RD

Survey Date: Wednesday, January 08, 2020 **WO No:** 39522

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



Comments 5469202 - WED JAN 03, 2020 - 8HRS - LORETTA

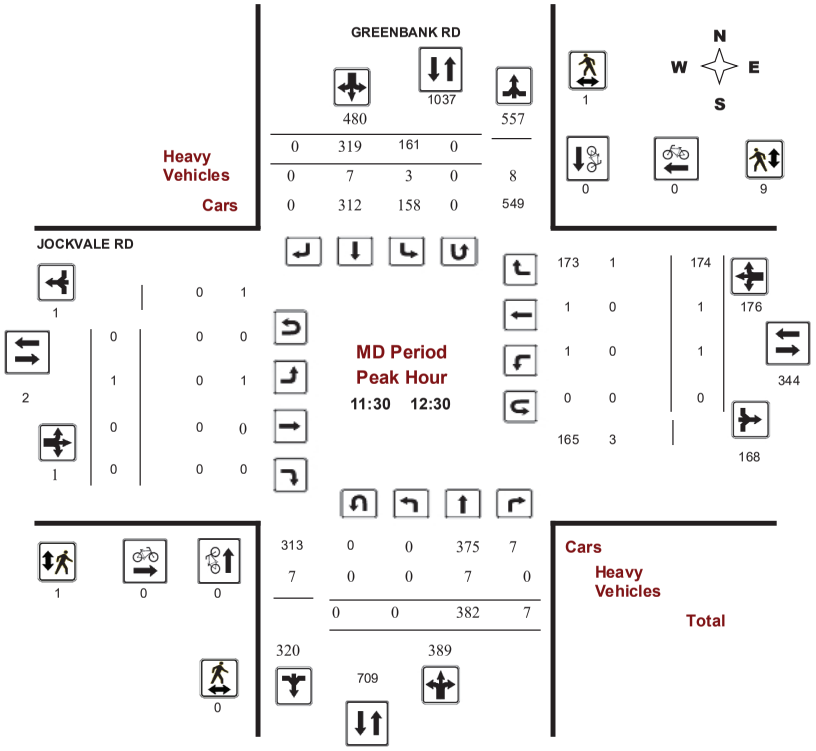
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

GREENBANK RD @ JOCKVALE RD

Survey Date: Wednesday, January 08, 2020 **WO No:** 39522

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



Comments 5469202 - WED JAN 03, 2020 - 8HRS - LORETTA

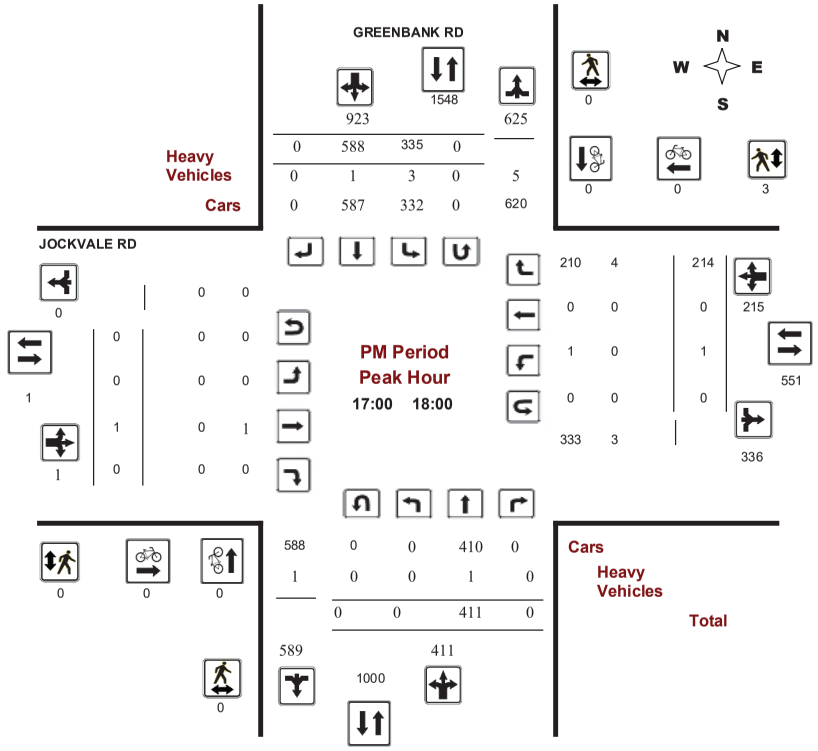
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

GREENBANK RD @ JOCKVALE RD

Survey Date: Wednesday, January 08, 2020 **WO No:** 39522

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



Comments 5469202 - WED JAN 03, 2020 - 8HRS - LORETTA

Transportation Services - Traffic Services

Turning Movement Count - Study Results

GREENBANK RD @ JOCKVALE RD

Survey Date: Wednesday, January 08, 2020 **WO No:** 39522

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

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, January 08, 202

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 1

AADT Factor 1.00

	GREENBANK RD								JOCKVALE 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	1	672	75	**748**	73	345	2	**420**	**1168**	3	0	0	**3**	49	0	257	**306**	**309**	**1477**
08:00 09:00	0	546	15	**561**	114	215	1	**330**	**891**	1	0	2	**3**	10	0	257	**267**	**270**	**1161**
09:00 10:00	0	453	6	**459**	111	242	0	**353**	**812**	1	0	0	**1**	6	1	170	**177**	**178**	**990**
11:30 12:30	0	382	7	**389**	161	319	0	**480**	**869**	1	0	0	**1**	1	1	174	**176**	**177**	**1046**
12:30 13:30	0	289	13	**302**	164	310	0	**474**	**776**	0	0	0	**0**	7	0	161	**168**	**168**	**944**
15:00 16:00	0	372	14	**386**	259	489	0	**748**	**1134**	0	0	0	**0**	3	0	172	**175**	**175**	**1309**
16:00 17:00	0	415	13	**428**	296	522	0	**818**	**1246**	0	0	0	**0**	5	1	219	**225**	**225**	**1471**
17:00 18:00	0	411	0	**411**	335	588	0	**923**	**1334**	0	1	0	**1**	1	0	214	**215**	**216**	**1550**
Sub Total	1	3540	143	**3684**	1513	3030	3	**4546**	**8230**	6	1	2	**9**	82	3	1624	**1709**	**1718**	**9948**
U Turns				**0**				**0**	**0**				**0**				**1**	**1**	**1**
Total	1	3540	143	**3684**	1513	3030	3	**4546**	**8230**	6	1	2	**9**	82	3	1624	**1710**	**1719**	**9949**
EQ 12Hr	1	4921	199	**5121**	2103	4212	4	**6319**	**11440**	8	1	3	**13**	114	4	2257	**2377**	**2389**	**13829**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	1	4637	187	**4826**	1982	3969	4	**5955**	**11440**	8	1	3	**12**	107	4	2127	**2240**	**2389**	**13829**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1**					
AVG 24Hr	2	6075	245	**6322**	2596	5200	5	**7801**	**14123**	10	2	3	**15**	141	5	2787	**2935**	**2950**	**17073**

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

GREENBANK RD @ JOCKVALE RD

Survey Date: Wednesday, January 08, 2020 **WO No:** 39522

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

Full Study 15 Minute Increments

		GREENBANK RD									JOCKVALE 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	174	2	176	17	62	0	79	553	0	0	0	0	5	0	57	62	553	317
07:15	07:30	0	176	6	182	16	98	0	114	644	0	0	0	0	12	0	62	74	644	370
07:30	07:45	0	137	24	161	19	97	1	117	599	1	0	0	1	17	0	69	86	599	365
07:45	08:00	1	185	43	229	21	88	1	110	698	2	0	0	2	15	0	69	85	698	426
08:00	08:15	0	145	6	151	28	65	0	93	527	1	0	0	1	5	0	67	72	527	317
08:15	08:30	0	144	1	145	26	63	0	89	503	0	0	0	0	2	0	60	62	503	296
08:30	08:45	0	137	2	139	28	40	1	69	448	0	0	1	1	1	0	61	62	448	271
08:45	09:00	0	120	6	126	32	47	0	79	444	0	0	1	1	2	0	69	71	444	277
09:00	09:15	0	144	2	146	30	66	0	96	500	0	0	0	0	3	0	45	48	500	290
09:15	09:30	0	125	2	127	27	62	0	89	458	0	0	0	0	0	0	55	55	458	271
09:30	09:45	0	87	0	87	28	56	0	84	355	0	0	0	0	1	0	40	41	355	212
09:45	10:00	0	97	2	99	26	58	0	84	371	1	0	0	1	2	1	30	33	371	217
11:30	11:45	0	105	2	107	44	69	0	113	442	0	0	0	0	1	0	47	48	442	268
11:45	12:00	0	94	1	95	34	56	0	90	380	1	0	0	1	0	1	44	45	380	231
12:00	12:15	0	104	2	106	47	96	0	143	493	0	0	0	0	0	0	44	44	493	293
12:15	12:30	0	79	2	81	36	98	0	134	431	0	0	0	0	0	0	39	39	431	254
12:30	12:45	0	81	1	82	30	65	0	95	377	0	0	0	0	2	0	52	54	377	231
12:45	13:00	0	77	7	84	40	77	0	117	393	0	0	0	0	1	0	37	38	393	239
13:00	13:15	0	53	1	54	49	86	0	135	359	0	0	0	0	0	0	31	31	359	220
13:15	13:30	0	78	4	82	45	82	0	127	414	0	0	0	0	4	0	41	45	414	254
15:00	15:15	0	83	5	88	59	96	0	155	470	0	0	0	0	1	0	47	48	470	291
15:15	15:30	0	94	5	99	55	114	0	169	511	0	0	0	0	1	0	34	35	511	303
15:30	15:45	0	84	3	87	75	152	0	227	584	0	0	0	0	1	0	33	34	584	348
15:45	16:00	0	111	1	112	70	127	0	197	605	0	0	0	0	0	0	58	58	605	367
16:00	16:15	0	95	4	99	91	120	0	211	581	0	0	0	0	0	0	56	56	581	366
16:15	16:30	0	112	1	113	65	132	0	197	602	0	0	0	0	2	0	46	48	602	358
16:30	16:45	0	97	4	101	68	141	0	209	605	0	0	0	0	2	0	55	57	605	367
16:45	17:00	0	111	4	115	72	129	0	201	619	0	0	0	0	1	1	62	64	619	380
17:00	17:15	0	109	0	109	87	127	0	214	610	0	0	0	0	0	0	51	51	610	374
17:15	17:30	0	106	0	106	83	151	0	234	665	0	0	0	0	0	0	68	68	665	408
17:30	17:45	0	88	0	88	79	156	0	235	618	0	1	0	1	0	0	51	51	618	375
17:45	18:00	0	108	0	108	86	154	0	240	655	0	0	0	0	1	0	44	45	655	393
Total:		1	3540	143	3684	1513	3030	3	4546	16514	6	1	2	9	82	3	1624	1710	16514	9,949

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

GREENBANK RD @ JOCKVALE RD

Survey Date: Wednesday, January 08, 2020 **WO No:** 39522

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

Full Study Cyclist Volume

		GREENBANK RD			JOCKVALE 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	1	0	1	0	0	0	1
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	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

GREENBANK RD @ JOCKVALE RD

Survey Date: Wednesday, January 08, 2020 **WO No:** 39522

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

Full Study Pedestrian Volume

	GREENBANK RD			JOCKVALE 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	4	**4**	**4**
07:15 07:30	0	0	**0**	0	8	**8**	**8**
07:30 07:45	0	1	**1**	0	4	**4**	**5**
07:45 08:00	2	0	**2**	0	2	**2**	**4**
08:00 08:15	0	0	**0**	0	4	**4**	**4**
08:15 08:30	0	0	**0**	0	1	**1**	**1**
08:30 08:45	0	0	**0**	0	2	**2**	**2**
08:45 09:00	0	0	**0**	0	0	**0**	**0**
09:00 09:15	0	0	**0**	0	0	**0**	**0**
09:15 09:30	0	0	**0**	0	1	**1**	**1**
09:30 09:45	0	0	**0**	0	1	**1**	**1**
09:45 10:00	0	0	**0**	1	3	**4**	**4**
11:30 11:45	0	0	**0**	0	5	**5**	**5**
11:45 12:00	0	0	**0**	0	0	**0**	**0**
12:00 12:15	0	0	**0**	0	2	**2**	**2**
12:15 12:30	0	1	**1**	1	2	**3**	**4**
12:30 12:45	0	0	**0**	0	1	**1**	**1**
12:45 13:00	0	0	**0**	0	2	**2**	**2**
13:00 13:15	0	0	**0**	0	3	**3**	**3**
13:15 13:30	0	0	**0**	0	0	**0**	**0**
15:00 15:15	0	0	**0**	0	5	**5**	**5**
15:15 15:30	1	0	**1**	1	1	**2**	**3**
15:30 15:45	1	1	**2**	1	6	**7**	**9**
15:45 16:00	0	0	**0**	0	4	**4**	**4**
16:00 16:15	0	0	**0**	0	2	**2**	**2**
16:15 16:30	0	0	**0**	0	3	**3**	**3**
16:30 16:45	0	0	**0**	0	5	**5**	**5**
16:45 17:00	0	0	**0**	0	3	**3**	**3**
17:00 17:15	0	0	**0**	0	1	**1**	**1**
17:15 17:30	0	0	**0**	0	1	**1**	**1**
17:30 17:45	0	0	**0**	0	1	**1**	**1**
17:45 18:00	0	0	**0**	0	0	**0**	**0**
Total	4	3	**7**	4	77	**81**	**88**

5469202 - WED JAN 03, 2020 - 8HRS - LORETTA

Transportation Services - Traffic Services

Turning Movement Count - Study Results

GREENBANK RD @ JOCKVALE RD

Survey Date: Wednesday, January 08, 2020 **WO No:** 39522

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

Full Study Heavy Vehicles

		GREENBANK RD									JOCKVALE 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	**2**	2	2	0	**4**	**6**	0	0	0	**0**	0	0	0	**2**	**2**	**4**
07:15	07:30	0	2	0	**19**	0	10	0	**14**	**33**	0	0	0	**0**	7	0	2	**9**	**9**	**21**
07:30	07:45	0	25	3	**31**	0	2	0	**30**	**61**	0	0	0	**0**	1	0	3	**7**	**7**	**34**
07:45	08:00	0	3	0	**9**	0	4	0	**10**	**19**	0	0	0	**0**	2	0	3	**5**	**5**	**12**
08:00	08:15	0	2	0	**7**	2	5	0	**10**	**17**	0	0	0	**0**	0	0	1	**3**	**3**	**10**
08:15	08:30	0	4	0	**11**	5	7	0	**18**	**29**	0	0	0	**0**	0	0	2	**7**	**7**	**18**
08:30	08:45	0	2	0	**4**	1	1	1	**6**	**10**	0	0	1	**2**	0	0	1	**2**	**4**	**7**
08:45	09:00	0	9	0	**10**	0	1	0	**16**	**26**	0	0	0	**0**	0	0	6	**6**	**6**	**16**
09:00	09:15	0	0	0	**1**	3	0	0	**3**	**4**	0	0	0	**0**	1	0	0	**4**	**4**	**4**
09:15	09:30	0	0	0	**0**	1	0	0	**1**	**1**	0	0	0	**0**	0	0	0	**1**	**1**	**1**
09:30	09:45	0	1	0	**5**	1	3	0	**6**	**11**	0	0	0	**0**	1	0	1	**3**	**3**	**7**
09:45	10:00	0	2	0	**4**	1	2	0	**6**	**10**	0	0	0	**0**	0	0	1	**2**	**2**	**6**
11:30	11:45	0	3	0	**3**	1	0	0	**4**	**7**	0	0	0	**0**	0	0	0	**1**	**1**	**4**
11:45	12:00	0	1	0	**2**	1	1	0	**4**	**6**	0	0	0	**0**	0	0	1	**2**	**2**	**4**
12:00	12:15	0	1	0	**5**	0	4	0	**5**	**10**	0	0	0	**0**	0	0	0	**0**	**0**	**5**
12:15	12:30	0	2	0	**4**	1	2	0	**5**	**9**	0	0	0	**0**	0	0	0	**1**	**1**	**5**
12:30	12:45	0	2	0	**5**	1	3	0	**8**	**13**	0	0	0	**0**	0	0	2	**3**	**3**	**8**
12:45	13:00	0	0	0	**4**	0	4	0	**4**	**8**	0	0	0	**0**	0	0	0	**0**	**0**	**4**
13:00	13:15	0	1	0	**4**	2	3	0	**6**	**10**	0	0	0	**0**	0	0	0	**2**	**2**	**6**
13:15	13:30	0	5	0	**10**	0	5	0	**12**	**22**	0	0	0	**0**	0	0	2	**2**	**2**	**12**
15:00	15:15	0	0	0	**1**	2	1	0	**4**	**5**	0	0	0	**0**	0	0	1	**3**	**3**	**4**
15:15	15:30	0	2	0	**3**	0	1	0	**6**	**9**	0	0	0	**0**	0	0	3	**3**	**3**	**6**
15:30	15:45	0	1	0	**7**	3	6	0	**13**	**20**	0	0	0	**0**	0	0	3	**6**	**6**	**13**
15:45	16:00	0	4	0	**5**	3	1	0	**11**	**16**	0	0	0	**0**	0	0	3	**6**	**6**	**11**
16:00	16:15	0	1	0	**4**	5	3	0	**10**	**14**	0	0	0	**0**	0	0	1	**6**	**6**	**10**
16:15	16:30	0	2	0	**2**	1	0	0	**3**	**5**	0	0	0	**0**	0	0	0	**1**	**1**	**3**
16:30	16:45	0	1	1	**2**	1	0	0	**2**	**4**	0	0	0	**0**	0	0	0	**2**	**2**	**3**
16:45	17:00	0	1	0	**1**	1	0	0	**3**	**4**	0	0	0	**0**	0	0	1	**2**	**2**	**3**
17:00	17:15	0	1	0	**2**	1	1	0	**3**	**5**	0	0	0	**0**	0	0	0	**1**	**1**	**3**
17:15	17:30	0	0	0	**0**	0	0	0	**0**	**0**	0	0	0	**0**	0	0	0	**0**	**0**	**0**
17:30	17:45	0	0	0	**0**	1	0	0	**1**	**1**	0	0	0	**0**	0	0	0	**1**	**1**	**1**
17:45	18:00	0	0	0	**0**	1	0	0	**5**	**5**	0	0	0	**0**	0	0	4	**5**	**5**	**5**
Total:	None	0	78	4	**167**	41	72	1	**233**	**400**	0	0	1	**2**	12	0	41	**98**	**100**	**250**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

GREENBANK RD @ JOCKVALE RD

Survey Date: Wednesday, January 08, 2020 **WO No:** 39522

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

Full Study 15 Minute U-Turn Total

Time Period		GREENBANK RD Northbound U-Turn Total	GREENBANK RD Southbound U-Turn Total	JOCKVALE RD Eastbound U-Turn Total	JOCKVALE 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	1	1
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		0	0	0	1	1

Transportation Services - Traffic Services

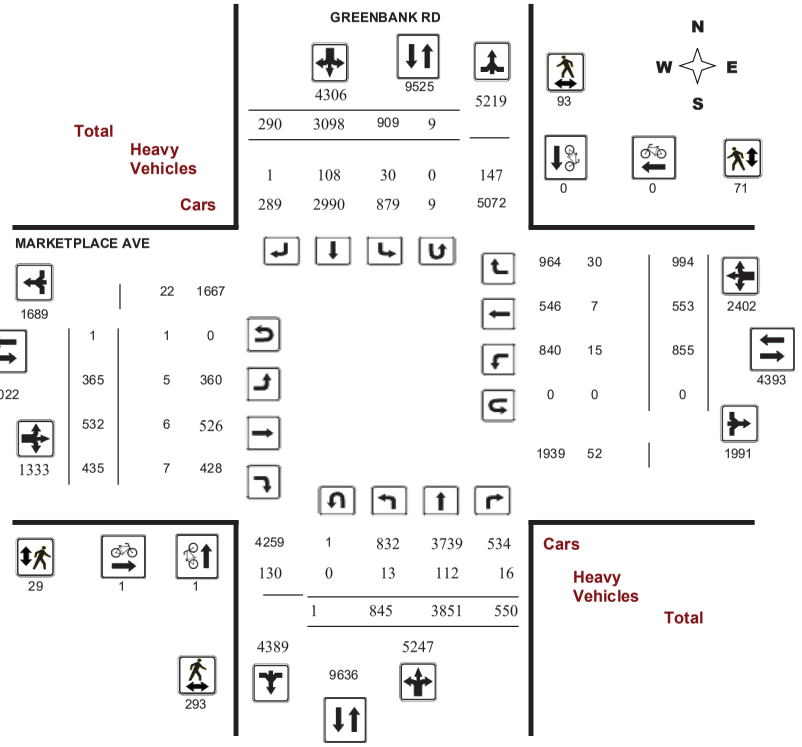
Turning Movement Count - Study Results

GREENBANK RD @ MARKETPLACE AVE

Survey Date: Tuesday, January 28, 2020 **WO No:** 39260

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

Full Study Diagram



Transportation Services - Traffic Services

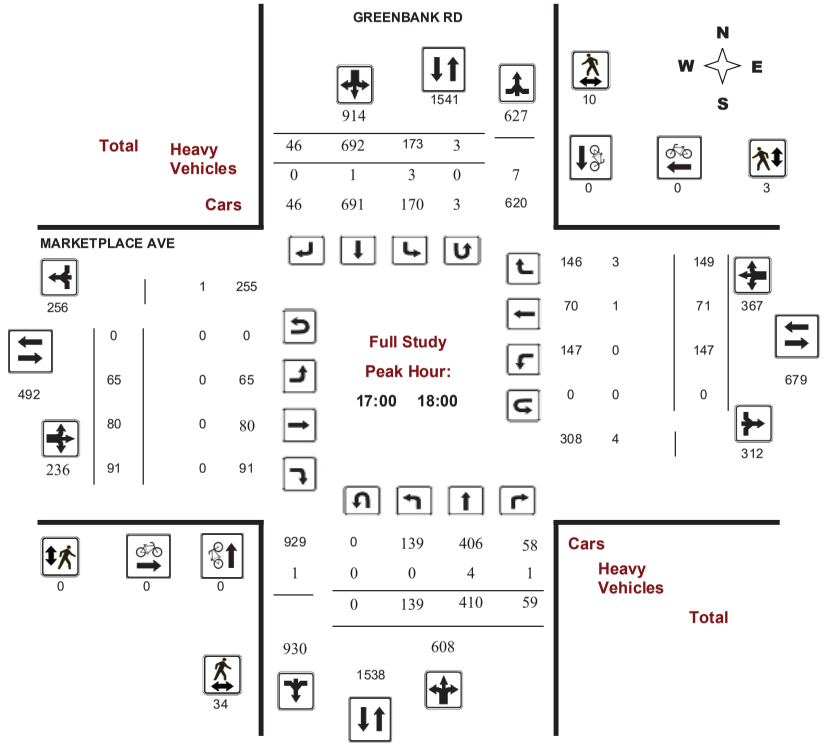
Turning Movement Count - Study Results

GREENBANK RD @ MARKETPLACE AVE

Survey Date: Tuesday, January 28, 2020 **WO No:** 39260

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

Full Study Peak Hour Diagram



5469201 - WED JAN 08, 2020 - 8HRS - LORETTA

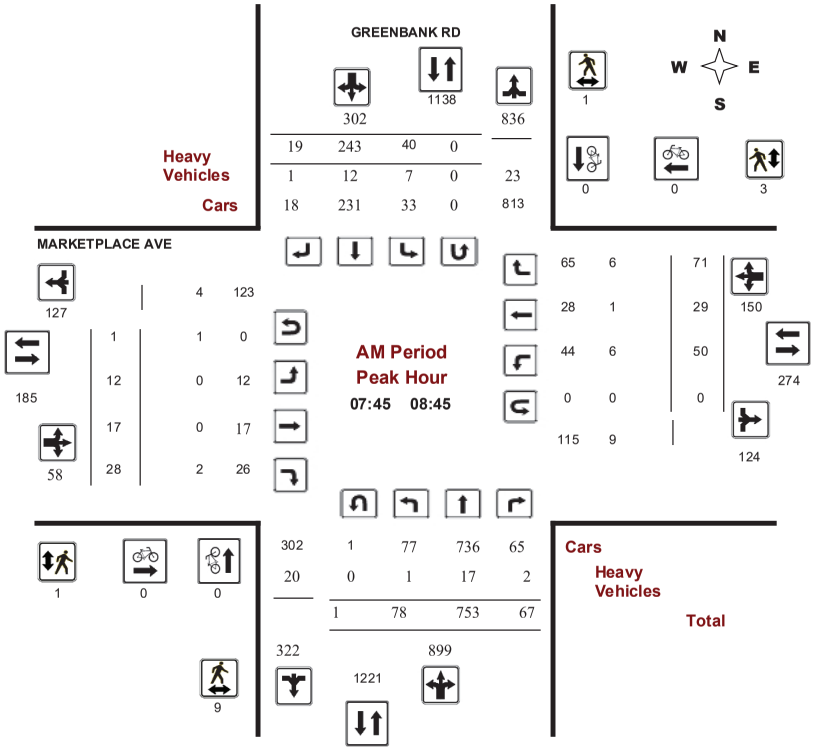
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

GREENBANK RD @ MARKETPLACE AVE

Survey Date: Tuesday, January 28, 2020 **WO No:** 39260

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



Comments 5469201 - WED JAN 08, 2020 - 8HRS - LORETTA

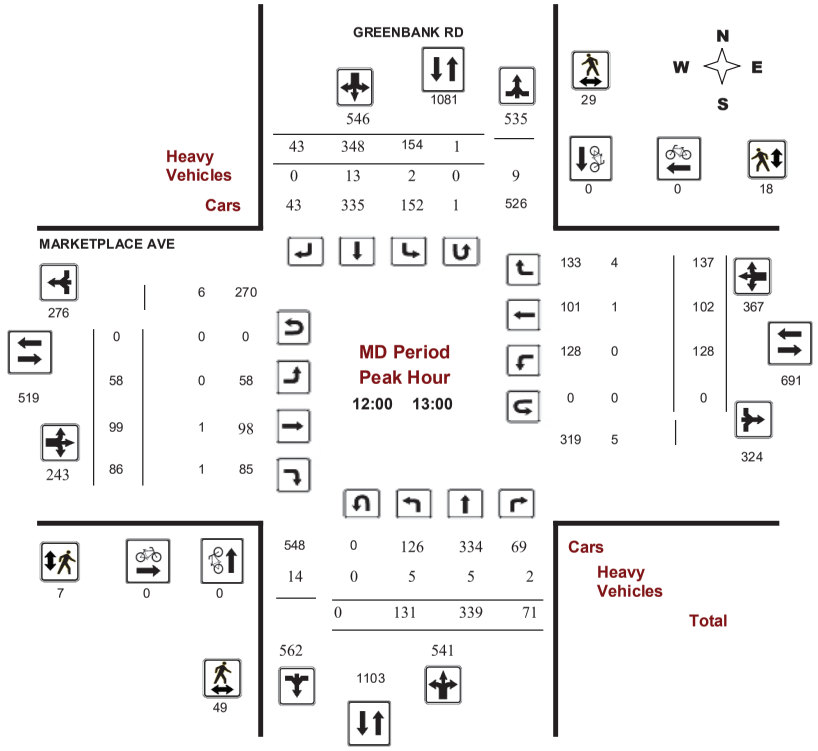
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

GREENBANK RD @ MARKETPLACE AVE

Survey Date: Tuesday, January 28, 2020 **WO No:** 39260

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



Comments 5469201 - WED JAN 08, 2020 - 8HRS - LORETTA

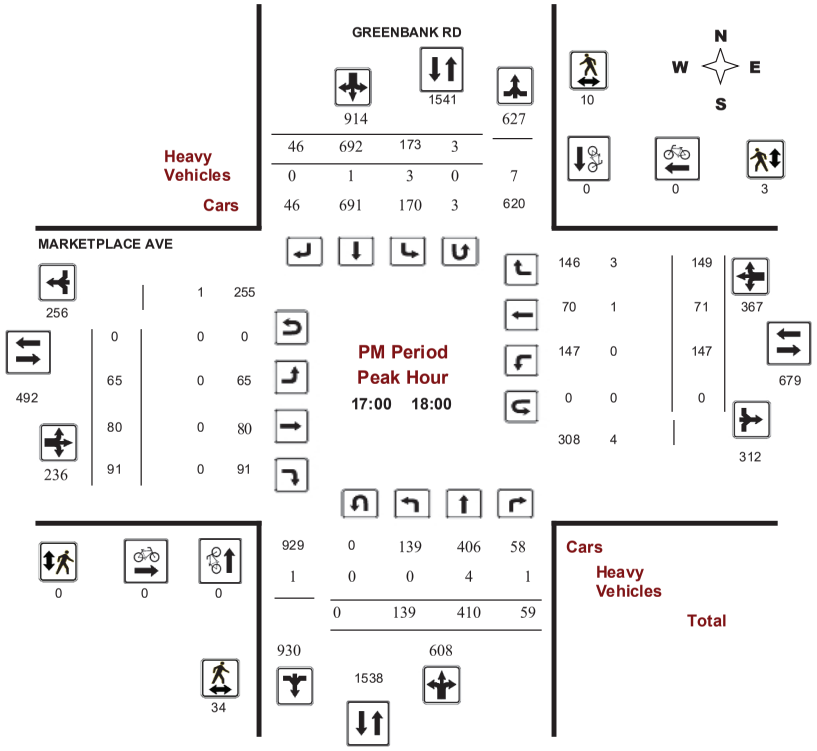
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

GREENBANK RD @ MARKETPLACE AVE

Survey Date: Tuesday, January 28, 2020 **WO No:** 39260

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



Comments 5469201 - WED JAN 08, 2020 - 8HRS - LORETTA

Transportation Services - Traffic Services

Turning Movement Count - Study Results

GREENBANK RD @ MARKETPLACE AVE

Survey Date: Tuesday, January 28, 2020 **WO No:** 39260

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

Full Study Summary (8 HR Standard)

Survey Date: Tuesday, January 28, 2020

Total Observed U-Turns

Northbound: 1 Southbound: 9

Eastbound: 1 Westbound: 0

AADT Factor 1.10

	GREENBANK RD								MARKETPLACE AVE									
	Northbound				Southbound				Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	55	777	66	**898**	29	260	11	**300**	**1198**	5	8	9	**22**	42	17	58	**117**	**139**	**1337**
08:00 09:00	66	713	65	**844**	44	247	22	**313**	**1157**	17	20	29	**66**	58	31	74	**163**	**229**	**1386**
09:00 10:00	110	432	92	**634**	66	230	35	**331**	**965**	31	57	33	**121**	63	59	97	**219**	**340**	**1305**
11:30 12:30	126	373	74	**573**	148	302	42	**492**	**1065**	49	108	75	**232**	120	97	148	**365**	**597**	**1662**
12:30 13:30	114	315	67	**496**	142	331	39	**512**	**1008**	75	85	67	**227**	130	92	152	**374**	**601**	**1609**
15:00 16:00	110	433	59	**602**	146	451	47	**644**	**1246**	66	83	66	**215**	141	91	150	**382**	**597**	**1843**
16:00 17:00	125	398	68	**591**	161	585	48	**794**	**1385**	57	91	65	**213**	154	95	166	**415**	**628**	**2013**
17:00 18:00	139	410	59	**608**	173	692	46	**911**	**1519**	65	80	91	**236**	147	71	149	**367**	**603**	**2122**
Sub Total	845	3851	550	**5246**	909	3098	290	**4297**	**9543**	365	532	435	**1332**	855	553	994	**2402**	**3734**	**13277**
U Turns				**1**				**9**	**10**				**1**				**0**	**1**	**11**
Total	845	3851	550	**5247**	909	3098	290	**4306**	**9553**	365	532	435	**1333**	855	553	994	**2402**	**3735**	**13288**
EQ 12Hr	1175	5353	764	**7293**	1264	4306	403	**5985**	**13279**	507	739	605	**1853**	1188	769	1382	**3339**	**5192**	**18470**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	1218	5549	793	**7561**	1310	4464	418	**6205**	**14607**	526	767	627	**1921**	1232	797	1432	**3461**	**5711**	**20317**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1.1**					
AVG 24Hr	1595	7270	1038	**9905**	1716	5848	547	**8128**	**18033**	689	1004	821	**2516**	1614	1044	1876	**4534**	**7050**	**25083**
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

GREENBANK RD @ MARKETPLACE AVE

Survey Date: Tuesday, January 28, 2020 **WO No:** 39260

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

Full Study 15 Minute Increments

		GREENBANK RD									MARKETPLACE AVE									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	7	187	13	207	7	49	3	59	9	2	1	0	3	8	3	12	23	9	292
07:15	07:30	11	202	17	230	8	75	2	85	21	1	1	1	3	11	4	9	24	21	342
07:30	07:45	11	168	16	195	4	79	0	83	30	0	2	3	5	15	3	15	33	30	316
07:45	08:00	26	220	20	266	10	57	6	73	11	2	4	5	11	8	7	22	37	11	387
08:00	08:15	15	196	13	224	7	70	5	82	8	4	4	8	16	10	8	13	31	8	353
08:15	08:30	17	180	19	217	8	48	3	59	7	1	5	4	11	11	5	14	30	7	317
08:30	08:45	20	157	15	192	15	68	5	88	14	5	4	11	20	21	9	22	52	14	352
08:45	09:00	14	180	18	212	14	61	9	84	22	7	7	6	20	16	9	25	50	22	366
09:00	09:15	33	145	26	204	15	59	4	78	8	7	7	8	22	5	6	30	41	8	345
09:15	09:30	30	105	21	156	20	51	12	83	6	4	12	12	28	19	13	20	52	6	319
09:30	09:45	22	83	24	129	12	53	8	73	5	6	18	9	33	15	23	28	66	5	301
09:45	10:00	25	99	21	145	19	67	11	97	4	14	20	4	38	24	17	19	60	4	340
11:30	11:45	32	121	19	172	24	68	10	102	3	11	27	9	47	24	27	46	97	3	418
11:45	12:00	21	85	19	125	37	70	9	116	6	10	24	18	52	29	18	36	83	6	376
12:00	12:15	38	107	15	160	44	82	11	137	5	16	26	22	64	28	27	31	86	5	447
12:15	12:30	35	60	21	116	43	82	12	137	8	12	31	26	69	39	25	35	99	8	421
12:30	12:45	33	92	19	144	30	87	11	129	8	13	14	19	46	25	26	42	93	8	412
12:45	13:00	25	80	16	121	37	97	9	143	6	17	28	19	64	36	24	29	89	6	417
13:00	13:15	23	69	16	108	31	70	11	112	7	21	22	18	61	33	22	39	94	7	375
13:15	13:30	33	74	16	123	44	77	8	129	14	24	21	11	56	36	20	42	98	14	406
15:00	15:15	33	116	10	159	43	96	14	153	9	14	13	18	45	35	19	38	92	9	449
15:15	15:30	26	92	22	140	28	103	5	137	10	15	30	22	67	33	21	33	87	10	431
15:30	15:45	20	142	11	173	35	131	17	184	15	16	23	12	51	38	23	34	95	15	503
15:45	16:00	31	83	16	130	40	121	11	172	7	21	17	14	52	35	28	45	108	7	462
16:00	16:15	24	98	18	140	43	161	11	215	7	13	26	13	52	25	22	35	82	7	489
16:15	16:30	36	100	19	155	41	135	9	185	8	14	16	15	45	44	26	52	122	8	507
16:30	16:45	32	110	11	153	43	159	15	218	6	16	22	22	60	30	19	41	90	6	521
16:45	17:00	33	90	20	143	34	130	13	179	7	14	27	15	56	55	28	38	121	7	499
17:00	17:15	31	125	13	169	45	191	10	247	1	15	17	22	54	38	17	31	86	1	556
17:15	17:30	34	94	17	145	42	159	10	212	2	19	23	21	63	43	18	39	100	2	520
17:30	17:45	43	109	11	163	44	187	11	243	2	10	21	19	50	23	27	43	93	2	549
17:45	18:00	31	82	18	131	42	155	15	212	4	21	19	29	69	43	9	36	88	4	500
Total:		845	3851	550	5247	909	3098	290	4306	280	365	532	435	1333	855	553	994	2402	280	13,288

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

GREENBANK RD @ MARKETPLACE AVE

Survey Date: Tuesday, January 28, 2020 **WO No:** 39260

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

Full Study Cyclist Volume

Time Period		GREENBANK RD			MARKETPLACE AVE			
		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	0	0	0	0
15:15	15:30	1	0	1	1	0	1	2
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**	1	0	1	2

Transportation Services - Traffic Services

Turning Movement Count - Study Results

GREENBANK RD @ MARKETPLACE AVE

Survey Date: Tuesday, January 28, 2020 **WO No:** 39260

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

Full Study Pedestrian Volume

Time Period	GREENBANK RD			MARKETPLACE AVE			
	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	0	**4**	0	1	**1**	**5**
07:15 07:30	5	0	**5**	0	0	**0**	**5**
07:30 07:45	2	1	**3**	0	1	**1**	**4**
07:45 08:00	5	1	**6**	1	2	**3**	**9**
08:00 08:15	2	0	**2**	0	1	**1**	**3**
08:15 08:30	0	0	**0**	0	0	**0**	**0**
08:30 08:45	2	0	**2**	0	0	**0**	**2**
08:45 09:00	4	5	**9**	0	0	**0**	**9**
09:00 09:15	2	0	**2**	0	0	**0**	**2**
09:15 09:30	4	0	**4**	2	3	**5**	**9**
09:30 09:45	3	1	**4**	1	3	**4**	**8**
09:45 10:00	11	2	**13**	1	4	**5**	**18**
11:30 11:45	26	8	**34**	2	5	**7**	**41**
11:45 12:00	26	6	**32**	1	2	**3**	**35**
12:00 12:15	16	5	**21**	1	6	**7**	**28**
12:15 12:30	21	11	**32**	1	6	**7**	**39**
12:30 12:45	6	6	**12**	1	3	**4**	**16**
12:45 13:00	6	7	**13**	4	3	**7**	**20**
13:00 13:15	11	3	**14**	2	1	**3**	**17**
13:15 13:30	17	4	**21**	1	1	**2**	**23**
15:00 15:15	21	1	**22**	0	8	**8**	**30**
15:15 15:30	8	6	**14**	2	1	**3**	**17**
15:30 15:45	18	3	**21**	4	2	**6**	**27**
15:45 16:00	8	7	**15**	1	6	**7**	**22**
16:00 16:15	7	1	**8**	3	5	**8**	**16**
16:15 16:30	6	3	**9**	0	1	**1**	**10**
16:30 16:45	10	2	**12**	0	3	**3**	**15**
16:45 17:00	8	0	**8**	1	0	**1**	**9**
17:00 17:15	2	4	**6**	0	0	**0**	**6**
17:15 17:30	12	3	**15**	0	1	**1**	**16**
17:30 17:45	10	2	**12**	0	2	**2**	**14**
17:45 18:00	10	1	**11**	0	0	**0**	**11**
Total	293	93	**386**	29	71	**100**	**486**

5469201 - WED JAN 08, 2020 - 8HRS - LORETTA

Transportation Services - Traffic Services

Turning Movement Count - Study Results

GREENBANK RD @ MARKETPLACE AVE

Survey Date: Tuesday, January 28, 2020 **WO No:** 39260

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

Full Study Heavy Vehicles

		GREENBANK RD									MARKETPLACE AVE									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	0	1	**1**	0	8	0	**8**	**9**	0	0	0	**0**	1	0	1	**2**	**2**	**11**
07:15	07:30	1	5	1	**7**	2	12	0	**14**	**21**	0	0	0	**0**	0	0	1	**1**	**1**	**22**
07:30	07:45	2	15	6	**23**	1	6	0	**7**	**30**	0	0	0	**0**	0	0	0	**0**	**0**	**30**
07:45	08:00	0	5	1	**6**	4	0	1	**5**	**11**	0	0	0	**0**	0	1	1	**2**	**2**	**13**
08:00	08:15	0	4	1	**5**	1	2	0	**3**	**8**	0	0	1	**1**	2	0	2	**4**	**5**	**13**
08:15	08:30	1	3	0	**4**	0	3	0	**3**	**7**	0	0	0	**1**	2	0	1	**3**	**4**	**11**
08:30	08:45	0	5	0	**5**	2	7	0	**9**	**14**	0	0	1	**1**	2	0	2	**4**	**5**	**19**
08:45	09:00	0	18	0	**18**	1	3	0	**4**	**22**	1	0	1	**2**	1	0	0	**1**	**3**	**25**
09:00	09:15	1	3	0	**4**	1	3	0	**4**	**8**	0	0	0	**0**	0	0	1	**1**	**1**	**9**
09:15	09:30	0	3	0	**3**	1	2	0	**3**	**6**	0	1	1	**2**	1	0	0	**1**	**3**	**9**
09:30	09:45	0	2	0	**2**	1	2	0	**3**	**5**	0	0	0	**0**	0	1	2	**3**	**3**	**8**
09:45	10:00	0	1	0	**1**	1	2	0	**3**	**4**	2	0	0	**2**	2	0	0	**2**	**4**	**8**
11:30	11:45	0	1	0	**1**	0	2	0	**2**	**3**	0	1	0	**1**	0	1	2	**3**	**4**	**7**
11:45	12:00	1	1	0	**2**	1	3	0	**4**	**6**	0	0	0	**0**	0	0	1	**1**	**1**	**7**
12:00	12:15	3	0	0	**3**	0	2	0	**2**	**5**	0	0	0	**0**	0	0	0	**0**	**0**	**5**
12:15	12:30	1	3	1	**5**	1	2	0	**3**	**8**	0	1	1	**2**	0	1	2	**3**	**5**	**13**
12:30	12:45	0	1	1	**2**	0	6	0	**6**	**8**	0	0	0	**0**	0	0	1	**1**	**1**	**9**
12:45	13:00	1	1	0	**2**	1	3	0	**4**	**6**	0	0	0	**0**	0	0	1	**1**	**1**	**7**
13:00	13:15	0	2	0	**2**	0	5	0	**5**	**7**	0	0	2	**2**	0	0	1	**1**	**3**	**10**
13:15	13:30	0	3	2	**5**	4	5	0	**9**	**14**	0	1	0	**1**	1	0	2	**3**	**4**	**18**
15:00	15:15	2	3	0	**5**	1	3	0	**4**	**9**	0	0	0	**0**	1	0	2	**3**	**3**	**12**
15:15	15:30	0	8	0	**8**	1	1	0	**2**	**10**	0	0	0	**0**	0	0	0	**0**	**0**	**10**
15:30	15:45	0	7	0	**7**	0	8	0	**8**	**15**	2	0	0	**2**	2	0	1	**3**	**5**	**20**
15:45	16:00	0	3	0	**3**	1	3	0	**4**	**7**	0	0	0	**0**	0	0	0	**0**	**0**	**7**
16:00	16:15	0	1	0	**1**	0	6	0	**6**	**7**	0	0	0	**0**	0	0	1	**1**	**1**	**8**
16:15	16:30	0	5	1	**6**	1	1	0	**2**	**8**	0	0	0	**0**	0	2	1	**3**	**3**	**11**
16:30	16:45	0	2	0	**2**	0	4	0	**4**	**6**	0	0	0	**0**	0	0	1	**1**	**1**	**7**
16:45	17:00	0	3	0	**3**	1	3	0	**4**	**7**	0	2	0	**2**	0	0	0	**0**	**2**	**9**
17:00	17:15	0	1	0	**1**	0	0	0	**0**	**1**	0	0	0	**0**	0	1	2	**3**	**3**	**4**
17:15	17:30	0	0	0	**0**	2	0	0	**2**	**2**	0	0	0	**0**	0	0	0	**0**	**0**	**2**
17:30	17:45	0	1	0	**1**	0	1	0	**1**	**2**	0	0	0	**0**	0	0	1	**1**	**1**	**3**
17:45	18:00	0	2	1	**3**	1	0	0	**1**	**4**	0	0	0	**0**	0	0	0	**0**	**0**	**4**
Total:	None	13	112	16	**141**	30	108	1	**139**	**280**	5	6	7	**19**	15	7	30	**52**	**71**	**351**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

GREENBANK RD @ MARKETPLACE AVE

Survey Date: Tuesday, January 28, 2020 **WO No:** 39260

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

Full Study 15 Minute U-Turn Total

		GREENBANK RD	MARKETPLACE AVE			
Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	1	0	1	0	2
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	1	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	0	1	0	0	1
15:30	15:45	0	1	0	0	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	0	0	0
16:30	16:45	0	1	0	0	1
16:45	17:00	0	2	0	0	2
17:00	17:15	0	1	0	0	1
17:15	17:30	0	1	0	0	1
17:30	17:45	0	1	0	0	1
17:45	18:00	0	0	0	0	0
Total		1	9	1	0	11

Transportation Services - Traffic Services

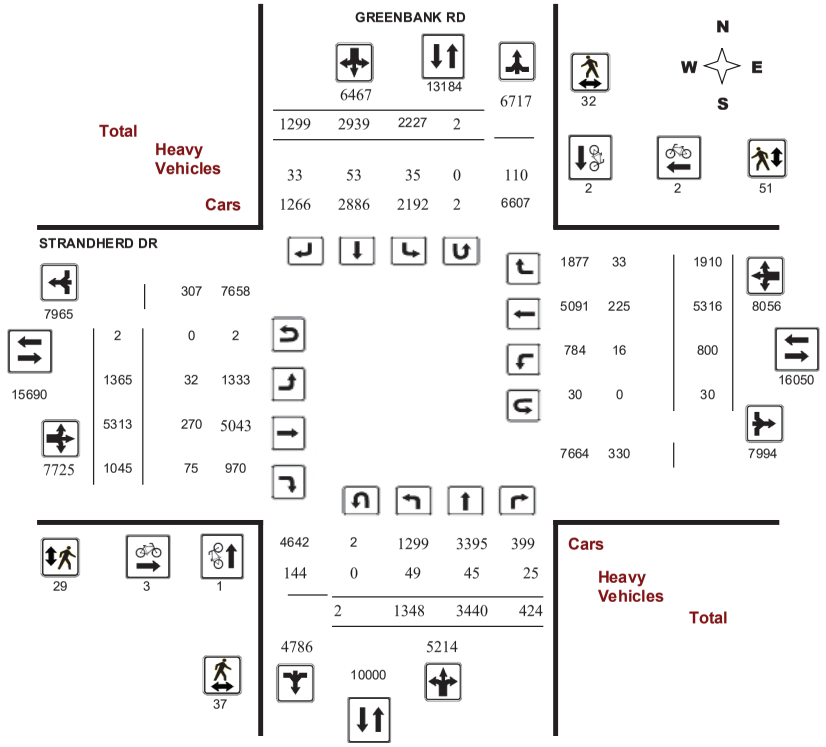
Turning Movement Count - Study Results

GREENBANK RD @ STRANDHERD DR

Survey Date: Thursday, January 09, 2020 **WO No:** 39281

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

Full Study Diagram



5469222 - THUR JAN 09, 2020 - 8 HRS - LORETTA

Transportation Services - Traffic Services

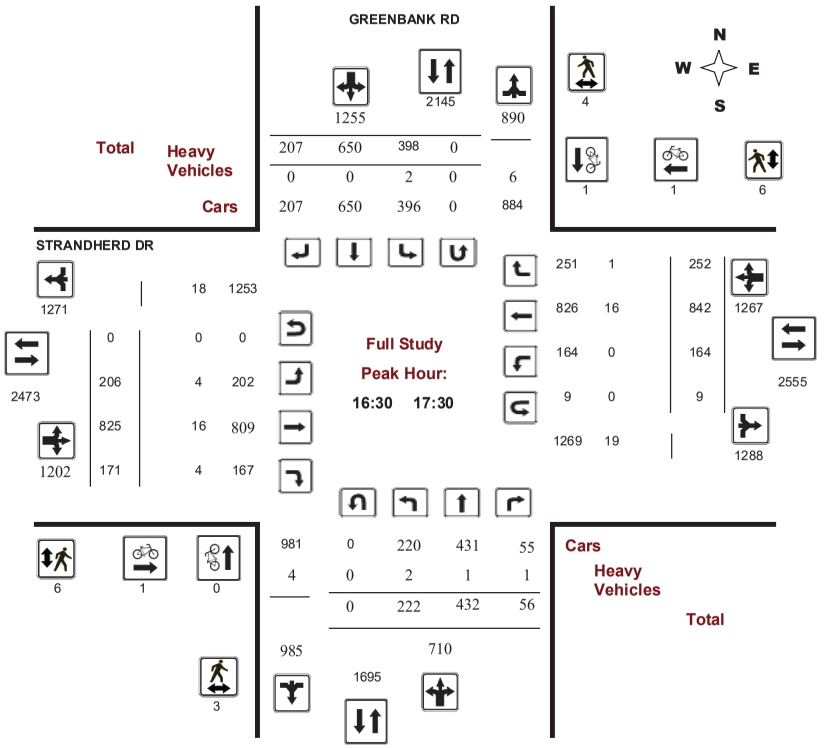
Turning Movement Count - Study Results

GREENBANK RD @ STRANDHERD DR

Survey Date: Thursday, January 09, 2020 **WO No:** 39281

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

Full Study Peak Hour Diagram



5469222 - THUR JAN 09, 2020 - 8 HRS - LORETTA

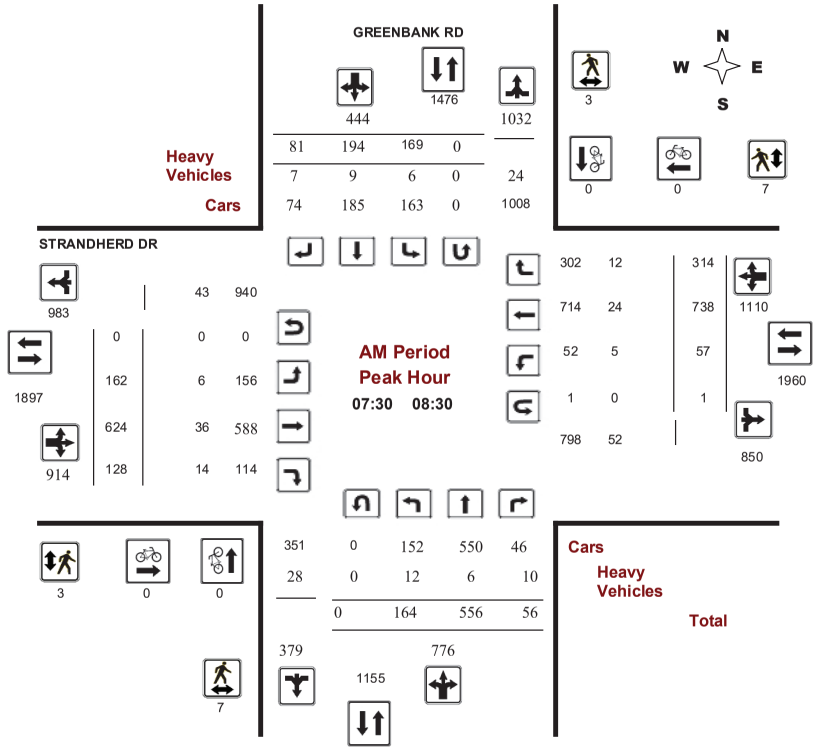
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

GREENBANK RD @ STRANDHERD DR

Survey Date: Thursday, January 09, 2020 **WO No:** 39281

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



Comments 5469222 - THUR JAN 09, 2020 - 8 HRS - LORETTA

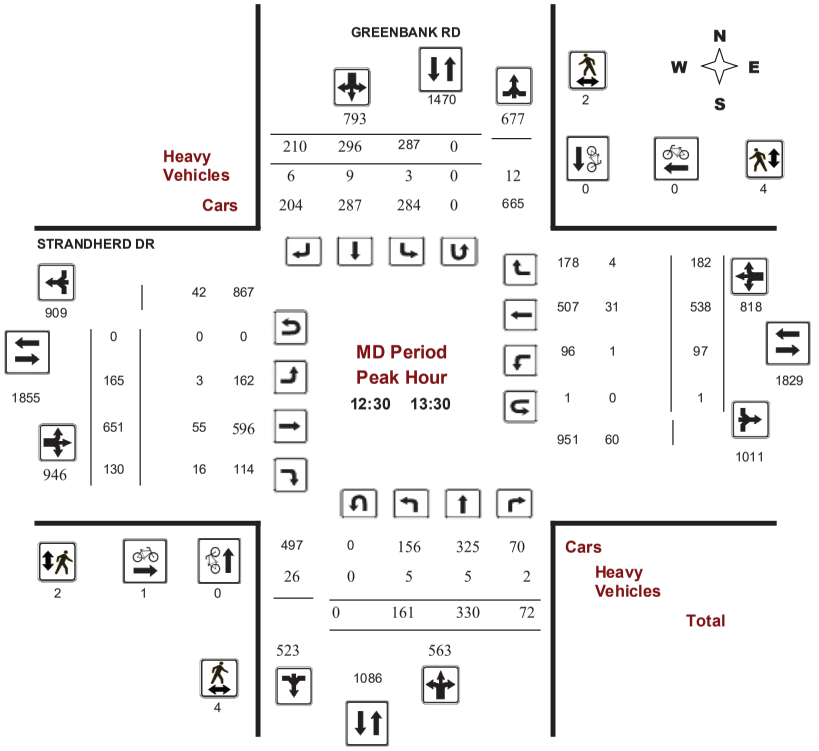
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

GREENBANK RD @ STRANDHERD DR

Survey Date: Thursday, January 09, 2020 **WO No:** 39281

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



Comments 5469222 - THUR JAN 09, 2020 - 8 HRS - LORETTA

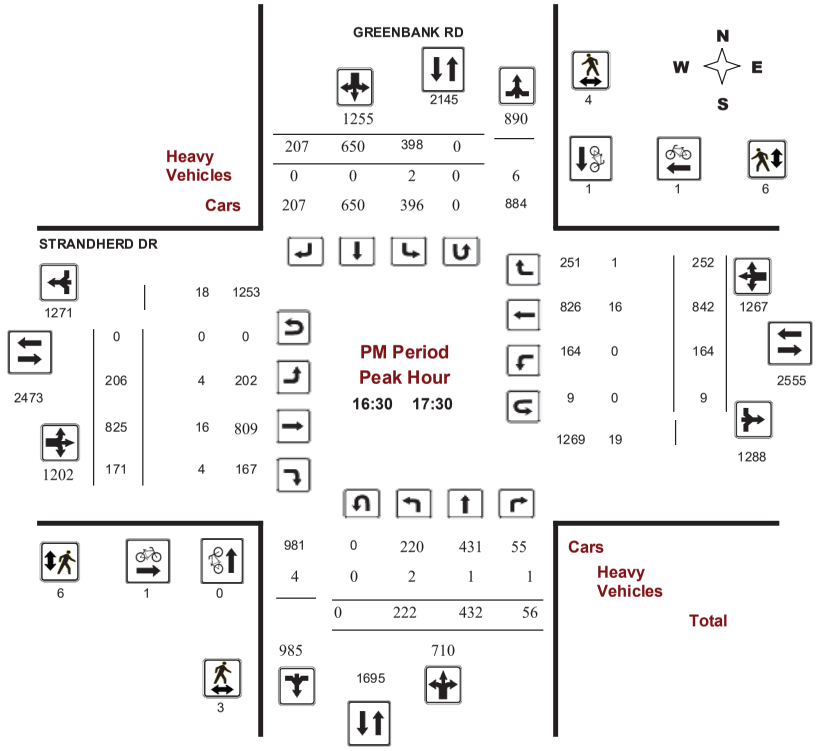
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

GREENBANK RD @ STRANDHERD DR

Survey Date: Thursday, January 09, 2020 **WO No:** 39281

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



Comments 5469222 - THUR JAN 09, 2020 - 8 HRS - LORETTA

Transportation Services - Traffic Services

Turning Movement Count - Study Results

GREENBANK RD @ STRANDHERD DR

Survey Date: Thursday, January 09, 2020 **WO No:** 39281

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

Full Study Summary (8 HR Standard)

Survey Date: Thursday, January 09, 2020

Total Observed U-Turns

Northbound: 2 Southbound: 2

Eastbound: 2 Westbound: 30

AADT Factor 1.00

	GREENBANK RD									STRANDHERD 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	149	620	57	**826**	145	178	76	**399**	**1225**	133	576	112	**821**	48	630	244	**922**	**1743**	**2968**
08:00 09:00	143	548	35	**726**	196	184	105	**485**	**1211**	167	574	98	**839**	49	742	316	**1107**	**1946**	**3157**
09:00 10:00	119	367	31	**517**	200	212	111	**523**	**1040**	139	513	103	**755**	82	498	166	**746**	**1501**	**2541**
11:30 12:30	159	318	46	**523**	280	277	152	**709**	**1232**	202	582	117	**901**	85	547	204	**836**	**1737**	**2969**
12:30 13:30	161	330	72	**563**	287	296	210	**793**	**1356**	165	651	130	**946**	97	538	182	**817**	**1763**	**3119**
15:00 16:00	199	381	70	**650**	337	520	218	**1075**	**1725**	176	751	150	**1077**	122	754	299	**1175**	**2252**	**3977**
16:00 17:00	229	434	66	**729**	384	627	232	**1243**	**1972**	193	842	156	**1191**	152	841	239	**1232**	**2423**	**4395**
17:00 18:00	189	442	47	**678**	398	645	195	**1238**	**1916**	190	824	179	**1193**	165	766	260	**1191**	**2384**	**4300**
Sub Total	1348	3440	424	**5212**	2227	2939	1299	**6465**	**11677**	1365	5313	1045	**7723**	800	5316	1910	**8026**	**15749**	**27426**
U Turns				**2**				**2**	**4**				**2**				**30**	**32**	**36**
Total	1348	3440	424	**5214**	2227	2939	1299	**6467**	**11681**	1365	5313	1045	**7725**	800	5316	1910	**8056**	**15781**	**27462**
EQ 12Hr	1874	4782	589	**7247**	3096	4085	1806	**8989**	**16237**	1897	7385	1453	**10738**	1112	7389	2655	**11198**	**21936**	**38172**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	1766	4506	555	**6830**	2917	3850	1702	**8472**	**16237**	1788	6960	1369	**10120**	1048	6964	2502	**10553**	**21936**	**38172**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1**					
AVG 24Hr	2313	5903	728	**8948**	3822	5044	2229	**11098**	**20046**	2342	9118	1793	**13257**	1373	9123	3278	**13825**	**27082**	**47128**
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

GREENBANK RD @ STRANDHERD DR

Survey Date: Thursday, January 09, 2020 **WO No:** 39281

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

Full Study 15 Minute Increments

		GREENBANK RD									STRANDHERD 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
09:15	09:30	43	94	7	144	43	58	23	124	8	35	124	26	186	23	132	53	208	8	662
09:30	09:45	24	89	7	120	41	54	26	121	8	28	111	21	160	17	127	41	186	8	587
09:45	10:00	27	66	7	101	50	43	30	123	10	43	125	27	195	23	106	31	160	10	579
11:30	11:45	46	73	14	133	64	69	33	166	9	50	144	20	214	18	142	61	221	9	734
11:45	12:00	39	91	11	141	69	65	44	178	3	57	135	27	219	25	138	51	216	3	754
12:00	12:15	36	85	12	133	79	72	40	191	5	54	156	37	247	22	135	49	207	5	778
12:15	12:30	38	69	9	116	68	71	35	174	7	41	147	33	221	20	132	43	195	7	706
12:30	12:45	41	90	23	154	79	70	56	205	10	37	165	27	229	21	126	37	185	10	773
12:45	13:00	47	68	16	131	74	89	53	216	11	41	165	32	238	31	156	53	240	11	825
13:00	13:15	40	79	16	135	70	66	47	183	2	47	156	26	229	28	127	51	206	2	753
13:15	13:30	33	93	17	143	64	71	54	189	7	40	165	45	250	17	129	41	187	7	769
15:00	15:15	49	85	14	148	72	115	52	240	9	41	163	28	233	27	188	73	288	9	909
15:15	15:30	43	111	13	167	95	124	65	284	5	57	228	36	321	26	178	93	298	5	1070
15:30	15:45	60	92	18	170	86	145	46	277	17	44	170	45	259	38	197	62	303	17	1009
15:45	16:00	47	93	25	165	84	136	55	275	6	34	190	41	265	31	191	71	294	6	999
16:00	16:15	57	101	11	169	97	155	68	320	6	51	196	42	289	36	227	47	310	6	1088
16:15	16:30	53	112	22	188	99	164	57	320	10	39	240	41	320	43	181	65	290	10	1118
16:30	16:45	60	102	14	176	82	164	55	301	3	64	207	34	305	32	230	73	336	3	1118
07:00	07:15	19	174	8	201	21	33	18	72	3	34	97	16	147	8	108	47	163	3	583
07:15	07:30	39	164	10	213	34	43	17	94	7	29	152	26	207	8	165	48	221	7	735
07:30	07:45	37	120	19	176	55	61	18	134	17	29	159	42	230	18	176	79	274	17	814
07:45	08:00	54	162	20	236	35	41	23	99	12	41	168	28	237	14	181	70	265	12	837
08:00	08:15	45	142	8	195	36	50	23	109	6	36	142	26	204	10	192	75	277	6	785
08:15	08:30	28	132	9	169	43	42	17	102	15	56	155	32	243	15	189	90	294	15	808
08:30	08:45	29	137	9	175	63	41	28	132	9	42	128	18	188	7	193	83	283	9	778
08:45	09:00	41	137	9	187	54	51	37	143	18	33	149	22	204	17	168	68	253	18	787
09:00	09:15	25	118	10	153	66	57	32	155	8	33	153	29	215	19	133	41	195	8	718
17:30	17:45	51	104	13	168	89	165	61	315	3	45	207	44	296	46	215	67	329	3	1108
16:45	17:00	59	119	19	197	106	144	52	302	2	39	199	39	277	41	203	54	301	2	1077
17:00	17:15	41	89	11	141	90	180	54	324	1	55	210	52	317	44	226	60	333	1	1115
17:15	17:30	62	122	12	196	120	162	46	328	0	48	209	46	303	47	183	65	297	0	1124
17:45	18:00	35	127	11	173	99	138	34	271	3	42	198	37	277	28	142	68	241	3	962
Total:		1348	3440	424	5214	2227	2939	1299	6467	240	1365	5313	1045	7725	800	5316	1910	8056	240	27,462

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

GREENBANK RD @ STRANDHERD DR

Survey Date: Thursday, January 09, 2020 **WO No:** 39281

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

Full Study Cyclist Volume

		GREENBANK RD			STRANDHERD DR			
Time Period		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
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	1	0	1	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	1	1	1	0	1	2
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
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	1	0	1	0	1	1	2
08:45	09:00	0	0	0	0	0	0	0
09:00	09:15	0	0	0	0	0	0	0
17:30	17:45	0	0	0	0	0	0	0
16:45	17:00	0	0	0	0	1	1	1
17:00	17:15	0	0	0	0	0	0	0
17:15	17:30	0	1	1	1	0	1	2
17:45	18:00	0	0	0	0	0	0	0
Total		1	2	3	3	2	5	8

Transportation Services - Traffic Services

Turning Movement Count - Study Results

GREENBANK RD @ STRANDHERD DR

Survey Date: Thursday, January 09, 2020 **WO No:** 39281

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

Full Study Pedestrian Volume

	GREENBANK RD			STRANDHERD 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
09:15 09:30	2	0	**2**	2	0	**2**	**4**
09:30 09:45	2	2	**4**	2	0	**2**	**6**
09:45 10:00	0	0	**0**	1	0	**1**	**1**
11:30 11:45	0	2	**2**	1	1	**2**	**4**
11:45 12:00	3	0	**3**	1	1	**2**	**5**
12:00 12:15	5	0	**5**	1	2	**3**	**8**
12:15 12:30	0	2	**2**	1	2	**3**	**5**
12:30 12:45	0	1	**1**	1	1	**2**	**3**
12:45 13:00	2	0	**2**	1	1	**2**	**4**
13:00 13:15	0	1	**1**	0	1	**1**	**2**
13:15 13:30	2	0	**2**	0	1	**1**	**3**
15:00 15:15	0	2	**2**	1	3	**4**	**6**
15:15 15:30	2	1	**3**	1	3	**4**	**7**
15:30 15:45	3	2	**5**	1	4	**5**	**10**
15:45 16:00	0	3	**3**	0	3	**3**	**6**
16:00 16:15	1	0	**1**	1	3	**4**	**5**
16:15 16:30	3	3	**6**	1	4	**5**	**11**
16:30 16:45	0	1	**1**	0	2	**2**	**3**
07:00 07:15	1	0	**1**	2	0	**2**	**3**
07:15 07:30	0	0	**0**	0	0	**0**	**0**
07:30 07:45	2	0	**2**	0	2	**2**	**4**
07:45 08:00	2	2	**4**	1	4	**5**	**9**
08:00 08:15	1	0	**1**	2	0	**2**	**3**
08:15 08:30	2	1	**3**	0	1	**1**	**4**
08:30 08:45	1	1	**2**	1	1	**2**	**4**
08:45 09:00	0	2	**2**	1	2	**3**	**5**
09:00 09:15	0	0	**0**	0	0	**0**	**0**
17:30 17:45	0	3	**3**	0	5	**5**	**8**
16:45 17:00	3	1	**4**	4	2	**6**	**10**
17:00 17:15	0	1	**1**	1	2	**3**	**4**
17:15 17:30	0	1	**1**	1	0	**1**	**2**
17:45 18:00	0	0	**0**	0	0	**0**	**0**
Total	37	32	**69**	29	51	**80**	**149**

5469222 - THUR JAN 09, 2020 - 8 HRS - LORETTA

Transportation Services - Traffic Services

Turning Movement Count - Study Results

GREENBANK RD @ STRANDHERD DR

Survey Date: Thursday, January 09, 2020 **WO No:** 39281

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

Full Study Heavy Vehicles

		GREENBANK RD									STRANDHERD 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
09:15	09:30	1	0	0	**1**	3	2	2	**7**	**8**	4	7	4	**15**	1	8	2	**11**	**26**	**34**
09:30	09:45	1	1	0	**2**	3	2	1	**6**	**8**	1	13	1	**15**	2	9	1	**12**	**27**	**35**
09:45	10:00	0	1	1	**2**	1	2	5	**8**	**10**	1	13	3	**17**	1	9	0	**10**	**27**	**37**
11:30	11:45	3	0	1	**4**	2	2	1	**5**	**9**	0	8	0	**8**	0	7	1	**8**	**16**	**25**
11:45	12:00	1	0	0	**1**	1	1	0	**2**	**3**	1	10	1	**12**	0	7	0	**7**	**19**	**22**
12:00	12:15	1	1	0	**2**	0	3	0	**3**	**5**	0	9	1	**10**	0	12	0	**12**	**22**	**27**
12:15	12:30	1	2	0	**3**	0	3	1	**4**	**7**	1	9	3	**13**	1	8	0	**9**	**22**	**29**
12:30	12:45	1	2	0	**3**	2	4	1	**7**	**10**	0	13	3	**16**	0	8	0	**8**	**24**	**34**
12:45	13:00	2	0	1	**3**	1	4	3	**8**	**11**	2	14	5	**21**	1	10	1	**12**	**33**	**44**
13:00	13:15	1	0	0	**1**	0	0	1	**1**	**2**	0	11	5	**16**	0	7	2	**9**	**25**	**27**
13:15	13:30	1	3	1	**5**	0	1	1	**2**	**7**	1	17	3	**21**	0	6	1	**7**	**28**	**35**
15:00	15:15	4	2	1	**7**	0	1	1	**2**	**9**	1	13	1	**15**	0	9	0	**9**	**24**	**33**
15:15	15:30	1	3	1	**5**	0	0	0	**0**	**5**	1	17	1	**19**	2	9	4	**15**	**34**	**39**
15:30	15:45	3	3	0	**6**	2	7	2	**11**	**17**	1	7	4	**12**	0	5	1	**6**	**18**	**35**
15:45	16:00	0	1	2	**3**	1	2	0	**3**	**6**	1	9	2	**12**	1	3	0	**4**	**16**	**22**
16:00	16:15	3	1	0	**4**	1	1	0	**2**	**6**	1	6	4	**11**	1	14	1	**16**	**27**	**33**
16:15	16:30	2	4	1	**7**	2	0	1	**3**	**10**	1	7	1	**9**	0	14	0	**14**	**23**	**33**
16:30	16:45	1	1	0	**2**	1	0	0	**1**	**3**	1	6	1	**8**	0	11	1	**12**	**20**	**23**
07:00	07:15	0	0	1	**1**	1	0	1	**2**	**3**	0	9	3	**12**	0	2	0	**2**	**14**	**17**
07:15	07:30	2	0	0	**2**	0	4	1	**5**	**7**	0	3	9	**12**	0	2	2	**4**	**16**	**23**
07:30	07:45	4	5	4	**13**	1	2	1	**4**	**17**	0	8	3	**11**	2	1	2	**5**	**16**	**33**
07:45	08:00	3	0	2	**5**	3	3	1	**7**	**12**	2	8	4	**14**	0	10	3	**13**	**27**	**39**
08:00	08:15	1	1	0	**2**	0	0	4	**4**	**6**	2	6	2	**10**	0	8	1	**9**	**19**	**25**
08:15	08:30	4	0	4	**8**	2	4	1	**7**	**15**	2	14	5	**21**	3	5	6	**14**	**35**	**50**
08:30	08:45	0	2	1	**3**	1	3	2	**6**	**9**	0	6	0	**6**	0	13	2	**15**	**21**	**30**
08:45	09:00	4	9	1	**14**	1	1	2	**4**	**18**	2	6	1	**9**	1	10	1	**12**	**21**	**39**
09:00	09:15	1	1	0	**2**	5	1	0	**6**	**8**	1	10	1	**12**	0	12	1	**13**	**25**	**33**
17:30	17:45	2	0	1	**3**	0	0	0	**0**	**3**	1	0	0	**1**	0	0	0	**0**	**1**	**4**
16:45	17:00	0	0	1	**1**	1	0	0	**1**	**2**	0	5	2	**7**	0	3	0	**3**	**10**	**12**
17:00	17:15	1	0	0	**1**	0	0	0	**0**	**1**	3	4	0	**7**	0	1	0	**1**	**8**	**9**
17:15	17:30	0	0	0	**0**	0	0	0	**0**	**0**	0	1	1	**2**	0	1	0	**1**	**3**	**3**
17:45	18:00	0	2	1	**3**	0	0	0	**0**	**3**	1	1	1	**3**	0	1	0	**1**	**4**	**7**
Total:	None	49	45	25	**119**	35	53	33	**121**	**240**	32	270	75	**377**	16	225	33	**274**	**651**	**891**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

GREENBANK RD @ STRANDHERD DR

Survey Date: Thursday, January 09, 2020 **WO No:** 39281

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

Full Study 15 Minute U-Turn Total

Time Period		GREENBANK RD Northbound U-Turn Total	GREENBANK RD Southbound U-Turn Total	STRANDHERD DR Eastbound U-Turn Total	STRANDHERD DR Westbound U-Turn Total	Total
09:15	09:30	0	0	1	0	1
09:30	09:45	0	0	0	1	1
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	2	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	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	1	1	0	2
15:15	15:30	0	0	0	1	1
15:30	15:45	0	0	0	6	6
15:45	16:00	0	0	0	1	1
16:00	16:15	0	0	0	0	0
16:15	16:30	1	0	0	1	2
16:30	16:45	0	0	0	1	1
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	1	1
07:45	08:00	0	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	1	0	0	1
09:00	09:15	0	0	0	2	2
17:30	17:45	0	0	0	1	1
16:45	17:00	0	0	0	3	3
17:00	17:15	0	0	0	3	3
17:15	17:30	0	0	0	2	2
17:45	18:00	0	0	0	3	3
Total		2	2	2	30	36

Transportation Services - Traffic Services

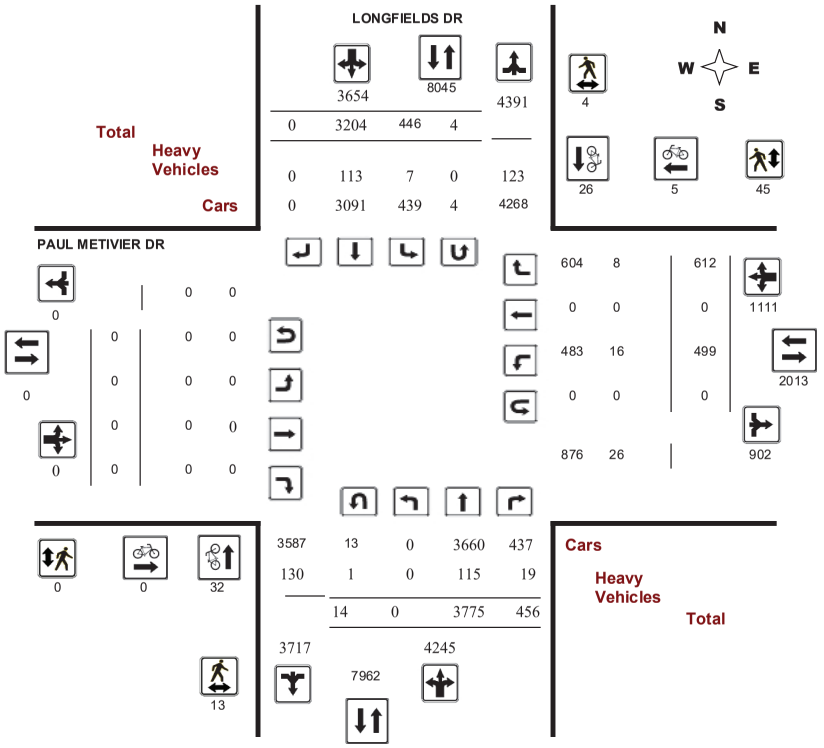
Turning Movement Count - Study Results

LONGFIELDS DR @ PAUL METIVIER DR

Survey Date: Thursday, June 22, 2017 **WO No:** 36939

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

Full Study Diagram



Transportation Services - Traffic Services

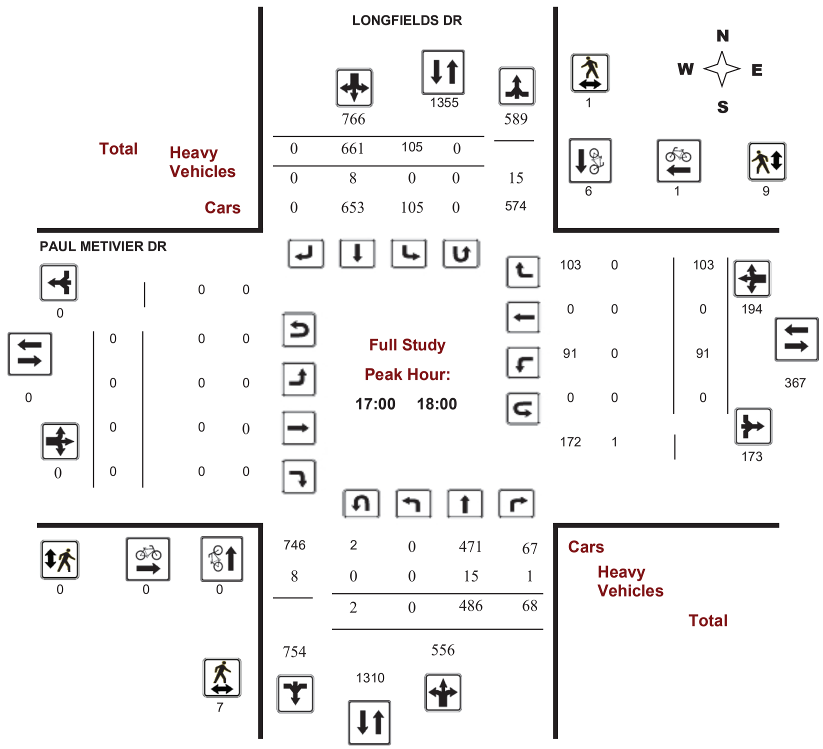
Turning Movement Count - Study Results

LONGFIELDS DR @ PAUL METIVIER DR

Survey Date: Thursday, June 22, 2017 **WO No:** 36939

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

Full Study Peak Hour Diagram



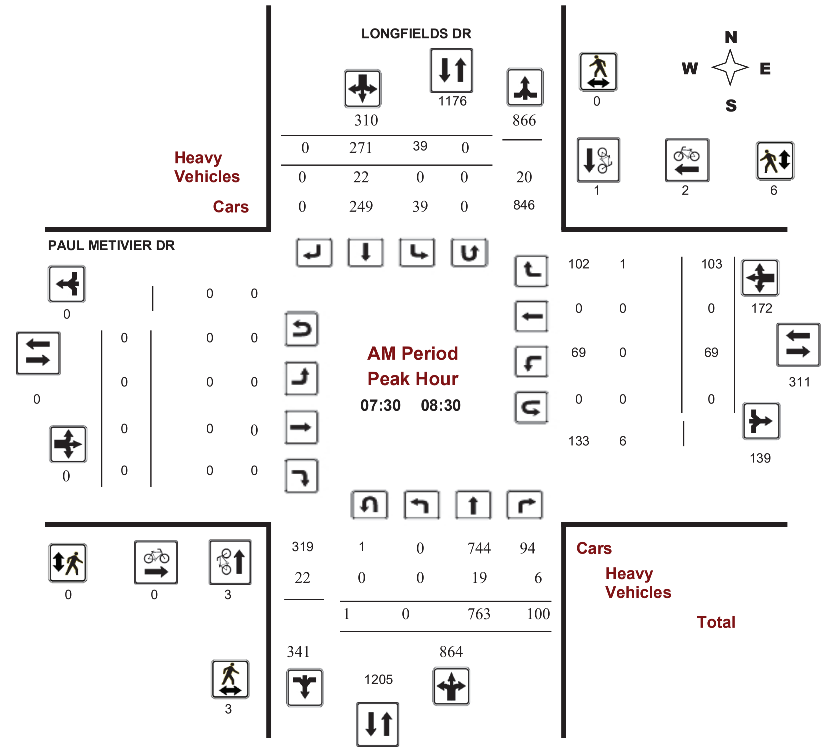
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

LONGFIELDS DR @ PAUL METIVIER DR

Survey Date: Thursday, June 22, 2017 **WO No:** 36939

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



Comments

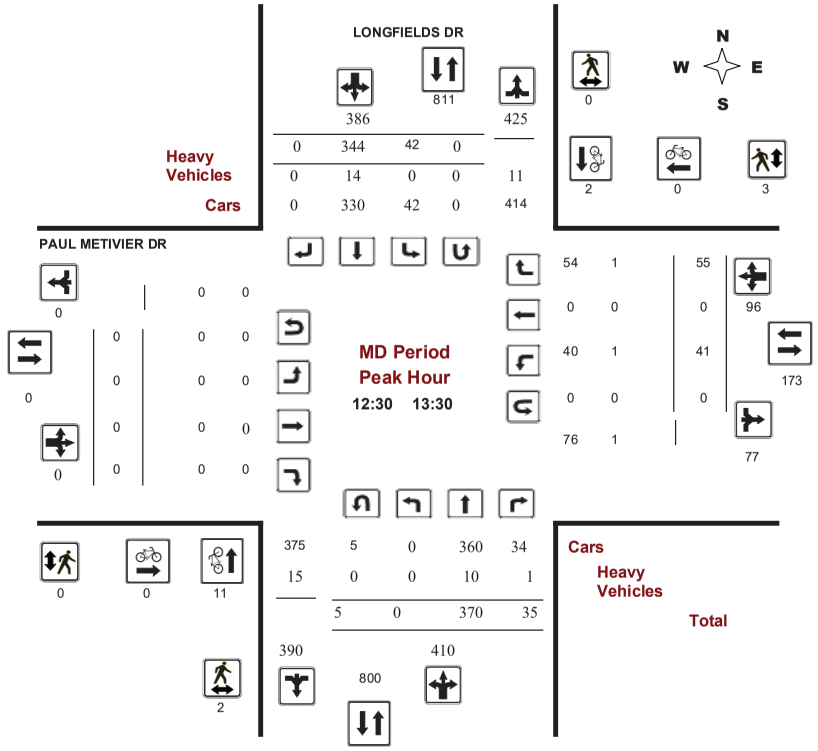
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

LONGFIELDS DR @ PAUL METIVIER DR

Survey Date: Thursday, June 22, 2017 **WO No:** 36939

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



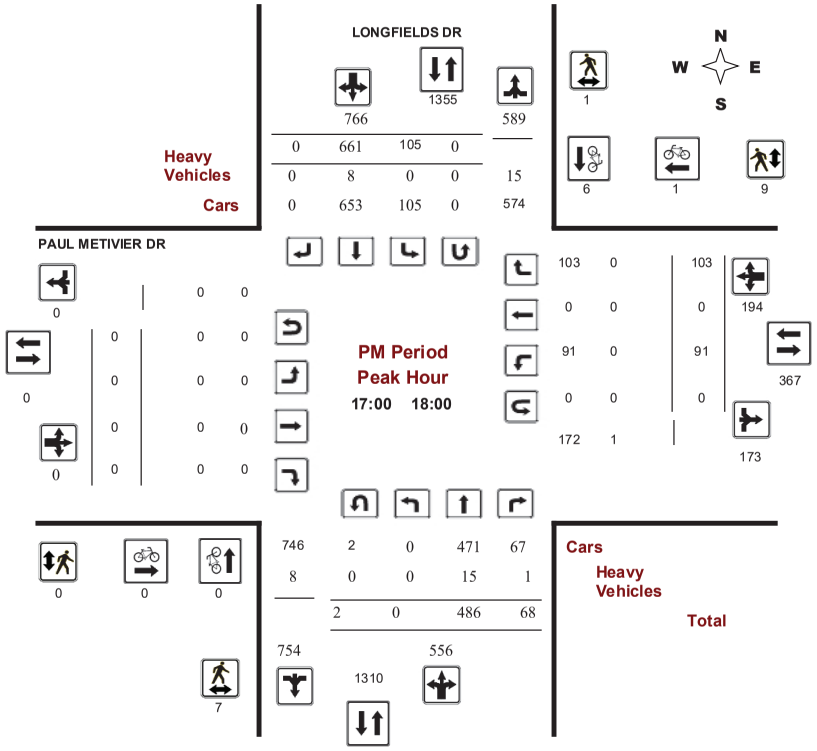
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

LONGFIELDS DR @ PAUL METIVIER DR

Survey Date: Thursday, June 22, 2017 **WO No:** 36939

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



Transportation Services - Traffic Services

Turning Movement Count - Study Results

LONGFIELDS DR @ PAUL METIVIER DR

Survey Date: Thursday, June 22, 2017 **WO No:** 36939

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

Full Study Summary (8 HR Standard)

Survey Date: Thursday, June 22, 2017

Total Observed U-Turns

Northbound: 14 Southbound: 4

Eastbound: 0 Westbound: 0

AADT Factor .90

	LONGFIELDS DR								PAUL METIVIER 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	0	682	70	**752**	31	213	0	**244**	**996**	0	0	0	**0**	60	0	77	**137**	**137**	**1133**
08:00 09:00	0	676	86	**762**	46	279	0	**325**	**1087**	0	0	0	**0**	57	0	113	**170**	**170**	**1257**
09:00 10:00	0	424	42	**466**	31	263	0	**294**	**760**	0	0	0	**0**	50	0	63	**113**	**113**	**873**
11:30 12:30	0	361	31	**392**	37	340	0	**377**	**769**	0	0	0	**0**	38	0	54	**92**	**92**	**861**
12:30 13:30	0	370	35	**405**	42	344	0	**386**	**791**	0	0	0	**0**	41	0	55	**96**	**96**	**887**
15:00 16:00	0	374	53	**427**	60	490	0	**550**	**977**	0	0	0	**0**	65	0	57	**122**	**122**	**1099**
16:00 17:00	0	402	71	**473**	94	614	0	**708**	**1181**	0	0	0	**0**	97	0	90	**187**	**187**	**1368**
17:00 18:00	0	486	68	**554**	105	661	0	**766**	**1320**	0	0	0	**0**	91	0	103	**194**	**194**	**1514**
Sub Total	0	3775	456	**4231**	446	3204	0	**3650**	**7881**	0	0	0	**0**	499	0	612	**1111**	**1111**	**8992**
U Turns	14			**14**	4			**4**	**18**	**0**			**0**	0			**0**	**0**	**18**
Total	14	3775	456	**4245**	450	3204	0	**3654**	**7899**	0	0	0	**0**	499	0	612	**1111**	**1111**	**9010**
EQ 12Hr	19	5247	634	**5900**	626	4454	0	**5080**	**10980**	0	0	0	**0**	694	0	851	**1545**	**1545**	**12525**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	17	4722	571	**5310**	563	4009	0	**4572**	**9882**	0	0	0	**0**	625	0	766	**1391**	**1391**	**11273**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**.90**					
AVG 24Hr	22	6186	748	**6956**	738	5252	0	**5990**	**12946**	0	0	0	**0**	819	0	1003	**1822**	**1822**	**14768**
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

LONGFIELDS DR @ PAUL METIVIER DR

Survey Date: Thursday, June 22, 2017 **WO No:** 36939

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

Full Study 15 Minute Increments

		LONGFIELDS DR									PAUL METIVIER 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	143	11	154	6	41	0	47	**201**	0	0	0	0	10	0	16	26	**26**	**227**
07:15	07:30	0	158	14	172	5	53	0	58	**230**	0	0	0	0	11	0	19	30	**30**	**260**
07:30	07:45	0	204	18	222	10	59	0	69	**291**	0	0	0	0	20	0	20	40	**40**	**331**
07:45	08:00	0	177	27	204	10	60	0	70	**274**	0	0	0	0	19	0	22	41	**41**	**315**
08:00	08:15	1	202	25	228	9	72	0	81	**309**	0	0	0	0	17	0	31	48	**48**	**357**
08:15	08:30	0	180	30	210	10	80	0	90	**300**	0	0	0	0	13	0	30	43	**43**	**343**
08:30	08:45	0	148	9	157	17	69	0	86	**243**	0	0	0	0	17	0	23	40	**40**	**283**
08:45	09:00	2	146	22	170	11	58	0	69	**239**	0	0	0	0	10	0	29	39	**39**	**278**
09:00	09:15	0	134	14	148	8	78	0	86	**234**	0	0	0	0	15	0	20	35	**35**	**269**
09:15	09:30	0	88	12	100	12	71	0	83	**183**	0	0	0	0	13	0	9	22	**22**	**205**
09:30	09:45	2	100	6	108	9	59	0	68	**176**	0	0	0	0	11	0	12	23	**23**	**199**
09:45	10:00	0	102	10	112	2	55	0	57	**169**	0	0	0	0	11	0	22	33	**33**	**202**
11:30	11:45	1	88	8	97	9	86	0	95	**192**	0	0	0	0	13	0	15	28	**28**	**220**
11:45	12:00	0	88	10	98	5	78	0	83	**181**	0	0	0	0	8	0	12	20	**20**	**201**
12:00	12:15	1	94	6	101	9	89	0	98	**199**	0	0	0	0	9	0	15	24	**24**	**223**
12:15	12:30	0	91	7	98	15	87	0	102	**200**	0	0	0	0	8	0	12	20	**20**	**220**
12:30	12:45	0	99	12	111	10	80	0	90	**201**	0	0	0	0	8	0	17	25	**25**	**226**
12:45	13:00	1	96	8	105	12	82	0	94	**199**	0	0	0	0	9	0	15	24	**24**	**223**
13:00	13:15	4	81	9	94	8	92	0	100	**194**	0	0	0	0	13	0	9	22	**22**	**216**
13:15	13:30	0	94	6	100	12	90	0	102	**202**	0	0	0	0	11	0	14	25	**25**	**227**
15:00	15:15	0	89	11	100	18	114	0	132	**232**	0	0	0	0	19	0	12	31	**31**	**263**
15:15	15:30	0	93	13	106	12	125	0	137	**243**	0	0	0	0	21	0	20	41	**41**	**284**
15:30	15:45	0	87	18	105	13	118	0	131	**236**	0	0	0	0	12	0	7	19	**19**	**255**
15:45	16:00	0	105	11	116	17	133	0	150	**266**	0	0	0	0	13	0	18	31	**31**	**297**
16:00	16:15	0	98	10	108	20	122	0	142	**250**	0	0	0	0	20	0	19	39	**39**	**289**
16:15	16:30	0	96	19	115	29	153	0	182	**297**	0	0	0	0	25	0	22	47	**47**	**344**
16:30	16:45	0	111	25	136	23	161	0	184	**320**	0	0	0	0	23	0	21	44	**44**	**364**
16:45	17:00	0	97	17	114	24	178	0	202	**316**	0	0	0	0	29	0	28	57	**57**	**373**
17:00	17:15	1	109	15	125	22	176	0	198	**323**	0	0	0	0	28	0	26	54	**54**	**377**
17:15	17:30	0	130	14	144	27	154	0	181	**325**	0	0	0	0	20	0	21	41	**41**	**366**
17:30	17:45	0	121	23	144	22	163	0	185	**329**	0	0	0	0	24	0	19	43	**43**	**372**
17:45	18:00	1	126	16	143	34	168	0	202	**345**	0	0	0	0	19	0	37	56	**56**	**401**
Total:		14	3775	456	4245	450	3204	0	3654	**7899**	0	0	0	0	499	0	612	1111	**7899**	**9,010**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

LONGFIELDS DR @ PAUL METIVIER DR

Survey Date: Thursday, June 22, 2017 **WO No:** 36939

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

Full Study Cyclist Volume

Time Period		LONGFIELDS DR Northbound	LONGFIELDS DR Southbound	LONGFIELDS DR Street Total	PAUL METIVIER DR Eastbound	PAUL METIVIER DR Westbound	PAUL METIVIER DR 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	2	0	**2**	0	2	**2**	**4**
07:45	08:00	0	1	**1**	0	0	**0**	**1**
08:00	08:15	0	0	**0**	0	0	**0**	**0**
08:15	08:30	1	0	**1**	0	0	**0**	**1**
08:30	08:45	0	0	**0**	0	0	**0**	**0**
08:45	09:00	1	0	**1**	0	0	**0**	**1**
09:00	09:15	0	0	**0**	0	0	**0**	**0**
09:15	09:30	5	2	**7**	0	0	**0**	**7**
09:30	09:45	0	1	**1**	0	0	**0**	**1**
09:45	10:00	1	1	**2**	0	0	**0**	**2**
11:30	11:45	1	1	**2**	0	0	**0**	**2**
11:45	12:00	1	1	**2**	0	0	**0**	**2**
12:00	12:15	2	2	**4**	0	1	**1**	**5**
12:15	12:30	0	2	**2**	0	0	**0**	**2**
12:30	12:45	1	1	**2**	0	0	**0**	**2**
12:45	13:00	6	0	**6**	0	0	**0**	**6**
13:00	13:15	0	1	**1**	0	0	**0**	**1**
13:15	13:30	4	0	**4**	0	0	**0**	**4**
15:00	15:15	0	0	**0**	0	0	**0**	**0**
15:15	15:30	4	0	**4**	0	0	**0**	**4**
15:30	15:45	0	3	**3**	0	0	**0**	**3**
15:45	16:00	1	1	**2**	0	0	**0**	**2**
16:00	16:15	1	1	**2**	0	0	**0**	**2**
16:15	16:30	1	1	**2**	0	0	**0**	**2**
16:30	16:45	0	1	**1**	0	0	**0**	**1**
16:45	17:00	0	0	**0**	0	1	**1**	**1**
17:00	17:15	0	2	**2**	0	0	**0**	**2**
17:15	17:30	0	0	**0**	0	0	**0**	**0**
17:30	17:45	0	2	**2**	0	0	**0**	**2**
17:45	18:00	0	2	**2**	0	1	**1**	**3**
Total		32	26	**58**	0	5	**5**	**63**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

LONGFIELDS DR @ PAUL METIVIER DR

Survey Date: Thursday, June 22, 2017 **WO No:** 36939

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

Full Study Pedestrian Volume

Time Period		LONGFIELDS DR NB Approach (E or W Crossing)	LONGFIELDS DR SB Approach (E or W Crossing)	LONGFIELDS DR Total	PAUL METIVIER DR EB Approach (N or S Crossing)	PAUL METIVIER DR WB Approach (N or S Crossing)	PAUL METIVIER DR Total	Grand Total
07:00	07:15	0	0	**0**	0	0	**0**	**0**
07:15	07:30	0	0	**0**	0	1	**1**	**1**
07:30	07:45	2	0	**2**	0	1	**1**	**3**
07:45	08:00	0	0	**0**	0	2	**2**	**2**
08:00	08:15	0	0	**0**	0	1	**1**	**1**
08:15	08:30	1	0	**1**	0	2	**2**	**3**
08:30	08:45	0	0	**0**	0	2	**2**	**2**
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	4	**4**	**4**
09:30	09:45	0	0	**0**	0	0	**0**	**0**
09:45	10:00	0	0	**0**	0	3	**3**	**3**
11:30	11:45	0	0	**0**	0	1	**1**	**1**
11:45	12:00	0	0	**0**	0	0	**0**	**0**
12:00	12:15	0	0	**0**	0	2	**2**	**2**
12:15	12:30	0	0	**0**	0	1	**1**	**1**
12:30	12:45	0	0	**0**	0	1	**1**	**1**
12:45	13:00	2	0	**2**	0	0	**0**	**2**
13:00	13:15	0	0	**0**	0	1	**1**	**1**
13:15	13:30	0	0	**0**	0	1	**1**	**1**
15:00	15:15	0	1	**1**	0	6	**6**	**7**
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	1	**1**	0	1	**1**	**2**
16:15	16:30	0	0	**0**	0	1	**1**	**1**
16:30	16:45	1	0	**1**	0	1	**1**	**2**
16:45	17:00	0	1	**1**	0	2	**2**	**3**
17:00	17:15	2	0	**2**	0	2	**2**	**4**
17:15	17:30	4	0	**4**	0	3	**3**	**7**
17:30	17:45	1	0	**1**	0	3	**3**	**4**
17:45	18:00	0	1	**1**	0	1	**1**	**2**
Total	.....	13	4	**17**	0	45	**45**	**62**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

LONGFIELDS DR @ PAUL METIVIER DR

Survey Date: Thursday, June 22, 2017 **WO No:** 36939

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

Full Study Heavy Vehicles

		LONGFIELDS DR									PAUL METIVIER 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	1	0	**1**	2	2	0	**4**	**5**	0	0	0	**0**	0	0	0	**0**	**0**	**5**
07:15	07:30	0	4	0	**4**	0	7	0	**7**	**11**	0	0	0	**0**	3	0	0	**3**	**3**	**14**
07:30	07:45	0	7	2	**9**	0	5	0	**5**	**14**	0	0	0	**0**	0	0	0	**0**	**0**	**14**
07:45	08:00	0	5	0	**5**	0	4	0	**4**	**9**	0	0	0	**0**	0	0	0	**0**	**0**	**9**
08:00	08:15	0	2	4	**6**	0	4	0	**4**	**10**	0	0	0	**0**	0	0	1	**1**	**1**	**11**
08:15	08:30	0	5	0	**5**	0	9	0	**9**	**14**	0	0	0	**0**	0	0	0	**0**	**0**	**14**
08:30	08:45	0	3	0	**3**	1	8	0	**9**	**12**	0	0	0	**0**	1	0	0	**1**	**1**	**13**
08:45	09:00	0	6	4	**10**	1	2	0	**3**	**13**	0	0	0	**0**	0	0	0	**0**	**0**	**13**
09:00	09:15	0	3	0	**3**	0	8	0	**8**	**11**	0	0	0	**0**	1	0	0	**1**	**1**	**12**
09:15	09:30	0	2	0	**2**	1	1	0	**2**	**4**	0	0	0	**0**	1	0	0	**1**	**1**	**5**
09:30	09:45	0	3	0	**3**	0	2	0	**2**	**5**	0	0	0	**0**	0	0	0	**0**	**0**	**6**
09:45	10:00	0	4	0	**4**	0	4	0	**4**	**8**	0	0	0	**0**	1	0	0	**1**	**1**	**9**
11:30	11:45	0	2	0	**2**	0	4	0	**4**	**6**	0	0	0	**0**	0	0	0	**0**	**0**	**6**
11:45	12:00	0	3	1	**4**	0	5	0	**5**	**9**	0	0	0	**0**	0	0	0	**0**	**0**	**9**
12:00	12:15	0	6	0	**6**	0	2	0	**2**	**8**	0	0	0	**0**	0	0	0	**0**	**0**	**8**
12:15	12:30	0	3	0	**3**	0	4	0	**4**	**7**	0	0	0	**0**	0	0	0	**0**	**0**	**7**
12:30	12:45	0	3	1	**4**	0	3	0	**3**	**7**	0	0	0	**0**	0	0	0	**0**	**0**	**7**
12:45	13:00	0	1	0	**1**	0	2	0	**2**	**3**	0	0	0	**0**	1	0	0	**1**	**1**	**4**
13:00	13:15	0	3	0	**3**	0	3	0	**3**	**6**	0	0	0	**0**	0	0	0	**0**	**0**	**6**
13:15	13:30	0	3	0	**3**	0	6	0	**6**	**9**	0	0	0	**0**	0	0	1	**1**	**1**	**10**
15:00	15:15	0	2	0	**2**	0	3	0	**3**	**5**	0	0	0	**0**	0	0	0	**0**	**0**	**5**
15:15	15:30	0	7	0	**7**	0	3	0	**3**	**10**	0	0	0	**0**	2	0	1	**3**	**3**	**13**
15:30	15:45	0	5	1	**6**	0	4	0	**4**	**10**	0	0	0	**0**	2	0	0	**2**	**2**	**12**
15:45	16:00	0	2	0	**2**	0	3	0	**3**	**5**	0	0	0	**0**	2	0	1	**3**	**3**	**8**
16:00	16:15	0	5	1	**6**	2	3	0	**5**	**11**	0	0	0	**0**	1	0	1	**2**	**2**	**13**
16:15	16:30	0	6	1	**7**	0	0	0	**0**	**7**	0	0	0	**0**	0	0	2	**2**	**2**	**9**
16:30	16:45	0	2	1	**3**	0	3	0	**3**	**6**	0	0	0	**0**	0	0	1	**1**	**1**	**7**
16:45	17:00	0	2	2	**4**	0	1	0	**1**	**5**	0	0	0	**0**	1	0	0	**1**	**1**	**6**
17:00	17:15	0	2	1	**3**	0	3	0	**3**	**6**	0	0	0	**0**	0	0	0	**0**	**0**	**6**
17:15	17:30	0	3	0	**3**	0	1	0	**1**	**4**	0	0	0	**0**	0	0	0	**0**	**0**	**4**
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	6	0	**6**	0	2	0	**2**	**8**	0	0	0	**0**	0	0	0	**0**	**0**	**8**
Total:	None	0	115	19	**134**	7	113	0	**120**	**254**	0	0	0	**0**	16	0	8	**24**	**24**	**279**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

LONGFIELDS DR @ PAUL METIVIER DR

Survey Date: Thursday, June 22, 2017 **WO No:** 36939

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

Full Study 15 Minute U-Turn Total

		LONGFIELDS DR		PAUL METIVIER DR		
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	1	0	0	0	**1**
08:15	08:30	0	0	0	0	**0**
08:30	08:45	0	0	0	0	**0**
08:45	09:00	2	1	0	0	**3**
09:00	09:15	0	0	0	0	**0**
09:15	09:30	0	0	0	0	**0**
09:30	09:45	2	0	0	0	**2**
09:45	10:00	0	0	0	0	**0**
11:30	11:45	1	0	0	0	**1**
11:45	12:00	0	0	0	0	**0**
12:00	12:15	1	0	0	0	**1**
12:15	12:30	0	1	0	0	**1**
12:30	12:45	0	0	0	0	**0**
12:45	13:00	1	0	0	0	**1**
13:00	13:15	4	0	0	0	**4**
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	1	0	0	**1**
16:30	16:45	0	1	0	0	**1**
16:45	17:00	0	0	0	0	**0**
17:00	17:15	1	0	0	0	**1**
17:15	17:30	0	0	0	0	**0**
17:30	17:45	0	0	0	0	**0**
17:45	18:00	1	0	0	0	**1**
Total		14	4	0	0	**18**

Transportation Services - Traffic Services

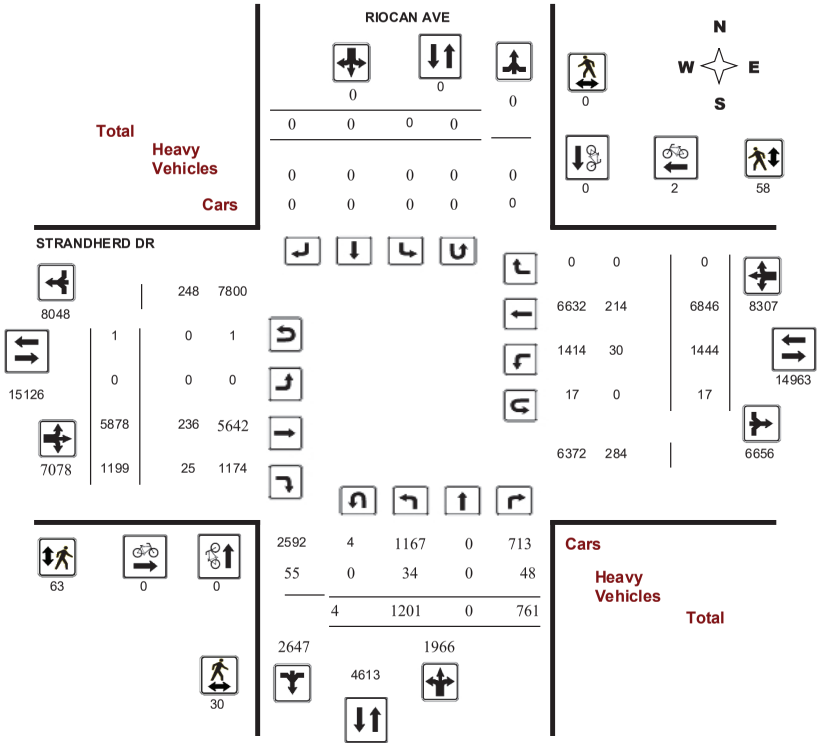
Turning Movement Count - Study Results

RIOCAN AVE @ STRANDHERD DR

Survey Date: Thursday, January 16, 2020 **WO No:** 39326

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

Full Study Diagram



5470811 - THU JAN 16, 2020 - 8HRS - LORETTA

Transportation Services - Traffic Services

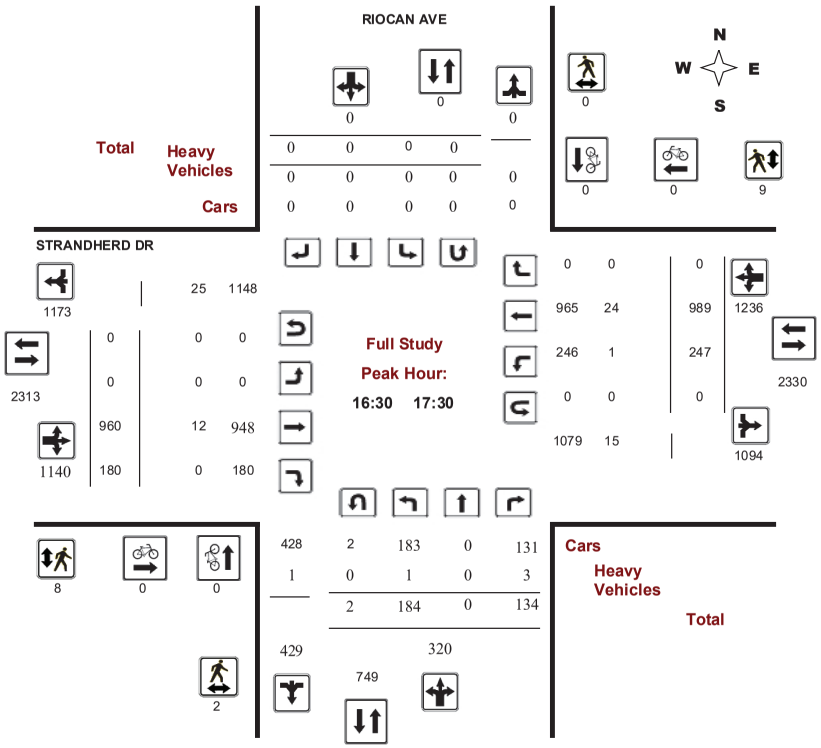
Turning Movement Count - Study Results

RIOCAN AVE @ STRANDHERD DR

Survey Date: Thursday, January 16, 2020 **WO No:** 39326

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

Full Study Peak Hour Diagram



5470811 - THU JAN 16, 2020 - 8HRS - LORETTA

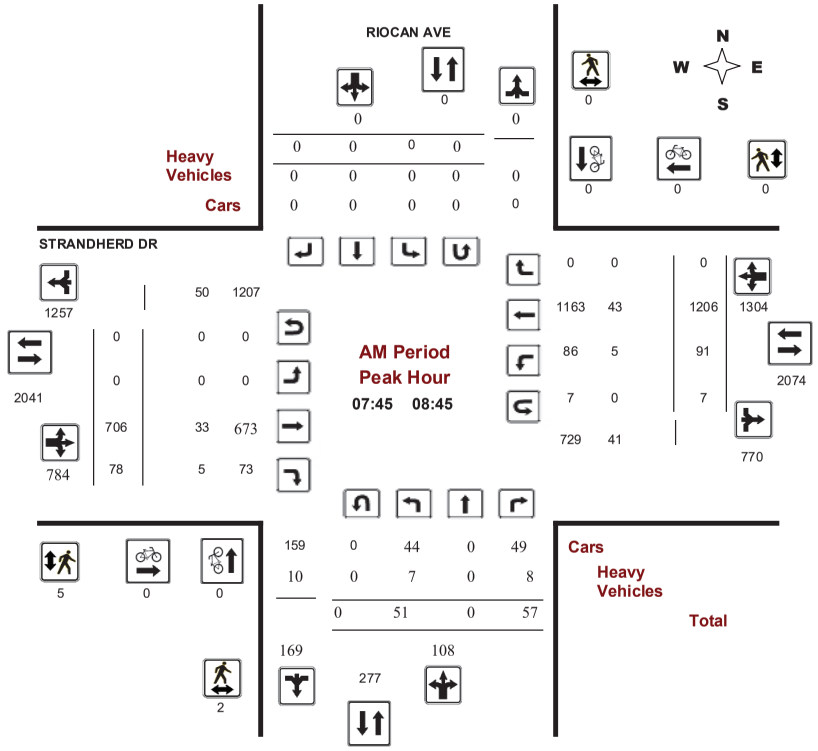
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RIOCAN AVE @ STRANDHERD DR

Survey Date: Thursday, January 16, 2020 **WO No:** 39326

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



Comments 5470811 - THU JAN 16, 2020 - 8HRS - LORETTA

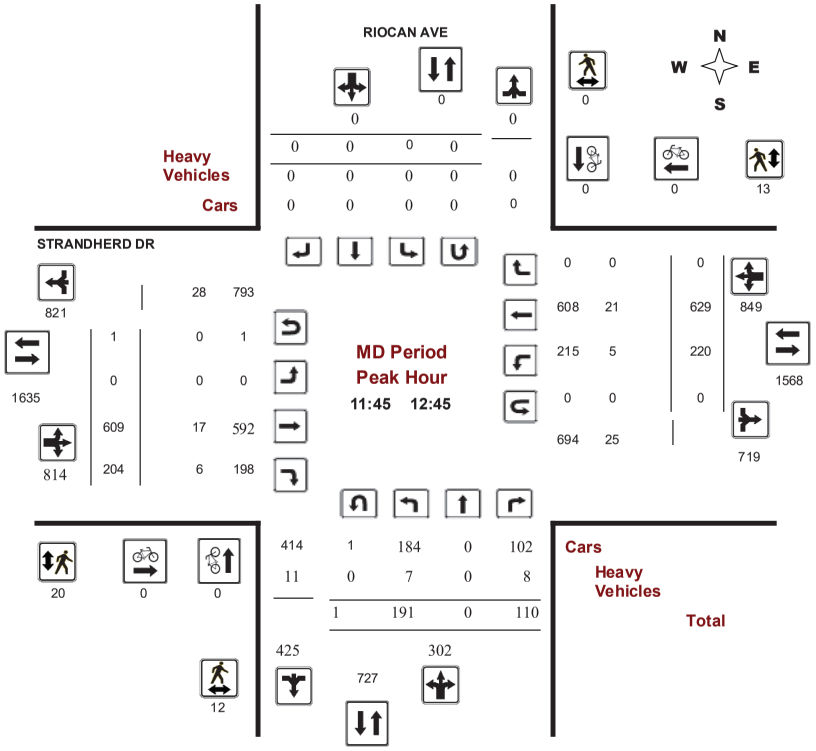
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RIOCAN AVE @ STRANDHERD DR

Survey Date: Thursday, January 16, 2020 **WO No:** 39326

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



Comments 5470811 - THU JAN 16, 2020 - 8HRS - LORETTA

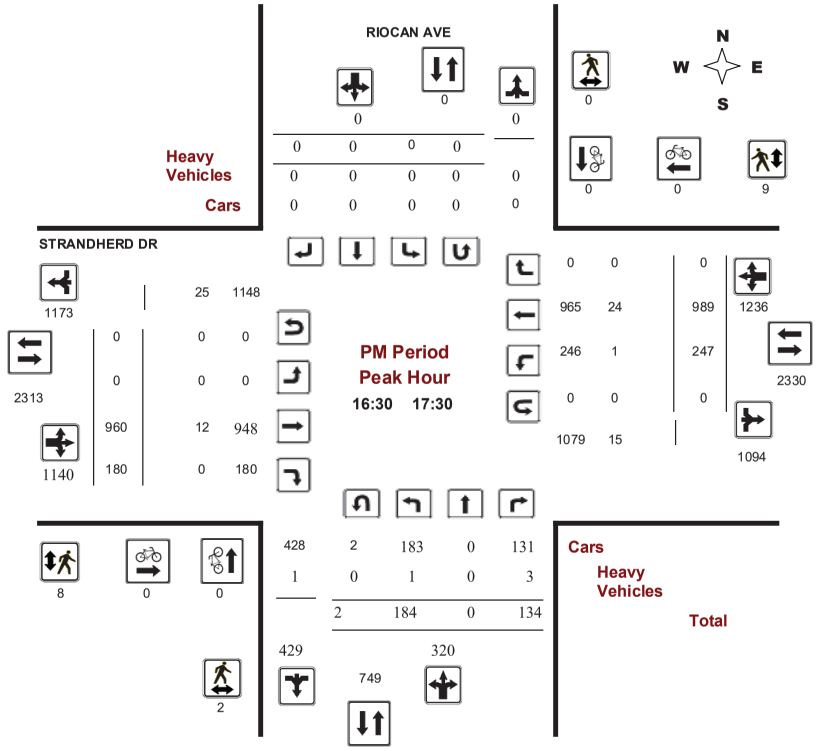
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RIOCAN AVE @ STRANDHERD DR

Survey Date: Thursday, January 16, 2020 **WO No:** 39326

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



Comments 5470811 - THU JAN 16, 2020 - 8HRS - LORETTA

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RIOCAN AVE @ STRANDHERD DR

Survey Date: Thursday, January 16, 2020 **WO No:** 39326

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

Full Study Summary (8 HR Standard)

Survey Date: Thursday, January 16, 2020

Total Observed U-Turns

Northbound: 4 Southbound: 0

Eastbound: 1 Westbound: 17

AADT Factor 1.00

	RIOCAN AVE								STRANDHERD 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	40	0	33	**73**	0	0	0	**0**	**73**	0	637	68	**705**	73	955	0	**1028**	**1733**	**1806**
08:00 09:00	56	0	61	**117**	0	0	0	**0**	**117**	0	670	76	**746**	116	1170	0	**1286**	**2032**	**2149**
09:00 10:00	100	0	49	**149**	0	0	0	**0**	**149**	0	547	121	**668**	146	660	0	**806**	**1474**	**1623**
11:30 12:30	177	0	106	**283**	0	0	0	**0**	**283**	0	592	186	**778**	202	639	0	**841**	**1619**	**1902**
12:30 13:30	196	0	119	**315**	0	0	0	**0**	**315**	0	645	208	**853**	211	568	0	**779**	**1632**	**1947**
15:00 16:00	248	0	134	**382**	0	0	0	**0**	**382**	0	865	191	**1056**	224	907	0	**1131**	**2187**	**2569**
16:00 17:00	196	0	130	**326**	0	0	0	**0**	**326**	0	979	169	**1148**	251	968	0	**1219**	**2367**	**2693**
17:00 18:00	188	0	129	**317**	0	0	0	**0**	**317**	0	943	180	**1123**	221	979	0	**1200**	**2323**	**2640**
Sub Total	1201	0	761	**1962**	0	0	0	**0**	**1962**	0	5878	1199	**7077**	1444	6846	0	**8290**	**15367**	**17329**
U Turns	4			**4**	0			**0**	**4**	**1**			**1**	17			**17**	**18**	**22**
Total	1205	0	761	**1966**	0	0	0	**0**	**1966**	1	5878	1199	**7078**	1461	6846	0	**8307**	**15385**	**17351**
EQ 12Hr	1675	0	1058	**2733**	0	0	0	**0**	**2733**	1	8170	1667	**9838**	2031	9516	0	**11547**	**21385**	**24118**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	1675	0	1058	**2733**	0	0	0	**0**	**2733**	1	8170	1667	**9838**	2031	9516	0	**11547**	**21385**	**24118**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1.00**					
AVG 24Hr	2194	0	1386	**3580**	0	0	0	**0**	**3580**	1	10703	2184	**12888**	2661	12466	0	**15127**	**28015**	**31595**
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

RIOCAN AVE @ STRANDHERD DR

Survey Date: Thursday, January 16, 2020 **WO No:** 39326

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

Full Study 15 Minute Increments

		RIOCAN AVE									STRANDHERD 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	5	0	12	17	0	0	0	0	**17**	0	137	17	154	24	189	0	213	**367**	**384**
07:15	07:30	12	0	6	18	0	0	0	0	**18**	0	154	21	175	14	199	0	213	**388**	**406**
07:30	07:45	12	0	6	18	0	0	0	0	**18**	0	157	10	167	17	275	0	292	**459**	**477**
07:45	08:00	11	0	9	20	0	0	0	0	**20**	0	189	20	209	21	292	0	313	**522**	**542**
08:00	08:15	9	0	22	31	0	0	0	0	**31**	0	169	18	187	23	308	0	331	**518**	**549**
08:15	08:30	12	0	15	27	0	0	0	0	**27**	0	184	21	205	18	274	0	292	**497**	**524**
08:30	08:45	19	0	11	30	0	0	0	0	**30**	0	164	19	183	36	332	0	368	**551**	**581**
08:45	09:00	16	0	13	29	0	0	0	0	**29**	0	153	18	171	47	256	0	303	**474**	**503**
09:00	09:15	16	0	12	28	0	0	0	0	**28**	0	158	33	191	34	164	0	198	**389**	**417**
09:15	09:30	27	0	7	34	0	0	0	0	**34**	0	136	24	160	46	206	0	252	**412**	**446**
09:30	09:45	19	0	14	33	0	0	0	0	**33**	0	108	32	140	28	135	0	163	**303**	**336**
09:45	10:00	38	0	16	54	0	0	0	0	**54**	0	145	32	177	40	155	0	195	**372**	**426**
11:30	11:45	36	0	20	56	0	0	0	0	**56**	0	139	40	179	48	164	0	212	**391**	**447**
11:45	12:00	57	0	28	85	0	0	0	0	**85**	1	155	50	206	51	156	0	207	**413**	**498**
12:00	12:15	43	0	28	71	0	0	0	0	**71**	0	141	51	192	56	162	0	218	**410**	**481**
12:15	12:30	41	0	30	71	0	0	0	0	**71**	0	157	45	202	48	157	0	205	**407**	**478**
12:30	12:45	51	0	24	75	0	0	0	0	**75**	0	156	58	214	65	154	0	219	**433**	**508**
12:45	13:00	46	0	34	80	0	0	0	0	**80**	0	168	47	215	54	142	0	196	**411**	**491**
13:00	13:15	47	0	31	78	0	0	0	0	**78**	0	150	50	200	47	127	0	174	**374**	**452**
13:15	13:30	54	0	30	84	0	0	0	0	**84**	0	171	53	224	45	145	0	190	**414**	**498**
15:00	15:15	57	0	42	99	0	0	0	0	**99**	0	185	46	231	57	212	0	269	**500**	**599**
15:15	15:30	73	0	32	105	0	0	0	0	**105**	0	229	39	268	40	227	0	267	**535**	**640**
15:30	15:45	48	0	29	77	0	0	0	0	**77**	0	230	55	285	58	240	0	298	**583**	**660**
15:45	16:00	70	0	31	101	0	0	0	0	**101**	0	221	51	272	70	228	0	298	**570**	**671**
16:00	16:15	50	0	30	80	0	0	0	0	**80**	0	238	44	282	67	255	0	322	**604**	**684**
16:15	16:30	55	0	33	88	0	0	0	0	**88**	0	251	43	294	58	216	0	274	**568**	**656**
16:30	16:45	47	0	30	77	0	0	0	0	**77**	0	234	39	273	65	266	0	331	**604**	**681**
16:45	17:00	45	0	37	82	0	0	0	0	**82**	0	256	43	299	61	231	0	292	**591**	**673**
17:00	17:15	51	0	34	85	0	0	0	0	**85**	0	228	47	275	61	264	0	325	**600**	**685**
17:15	17:30	43	0	33	76	0	0	0	0	**76**	0	242	51	293	60	228	0	288	**581**	**657**
17:30	17:45	41	0	39	80	0	0	0	0	**80**	0	231	36	267	55	250	0	305	**572**	**652**
17:45	18:00	54	0	23	77	0	0	0	0	**77**	0	242	46	288	47	237	0	284	**572**	**649**
Total:		1205	0	761	1966	0	0	0	0	**1966**	1	5878	1199	7078	1461	6846	0	8307	**1966**	**17,351**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RIOCAN AVE @ STRANDHERD DR

Survey Date: Thursday, January 16, 2020 **WO No:** 39326

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

Full Study Cyclist Volume

		RIOCAN AVE			STRANDHERD 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**	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	1	**1**	**1**
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	1	**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	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**	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

RIOCAN AVE @ STRANDHERD DR

Survey Date: Thursday, January 16, 2020 **WO No:** 39326

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

Full Study Pedestrian Volume

		RIOCAN AVE			STRANDHERD 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**	1	2	**3**	**3**
07:15	07:30	0	0	**0**	0	0	**0**	**0**
07:30	07:45	2	0	**2**	0	2	**2**	**4**
07:45	08:00	1	0	**1**	0	0	**0**	**1**
08:00	08:15	0	0	**0**	2	0	**2**	**2**
08:15	08:30	1	0	**1**	2	0	**2**	**3**
08:30	08:45	0	0	**0**	1	0	**1**	**1**
08:45	09:00	0	0	**0**	0	0	**0**	**0**
09:00	09:15	0	0	**0**	2	4	**6**	**6**
09:15	09:30	0	0	**0**	2	1	**3**	**3**
09:30	09:45	2	0	**2**	1	0	**1**	**3**
09:45	10:00	0	0	**0**	0	0	**0**	**0**
11:30	11:45	3	0	**3**	2	2	**4**	**7**
11:45	12:00	0	0	**0**	8	1	**9**	**9**
12:00	12:15	6	0	**6**	6	1	**7**	**13**
12:15	12:30	5	0	**5**	4	6	**10**	**15**
12:30	12:45	1	0	**1**	2	5	**7**	**8**
12:45	13:00	0	0	**0**	2	0	**2**	**2**
13:00	13:15	2	0	**2**	2	2	**4**	**6**
13:15	13:30	0	0	**0**	1	1	**2**	**2**
15:00	15:15	1	0	**1**	1	2	**3**	**4**
15:15	15:30	0	0	**0**	4	0	**4**	**4**
15:30	15:45	0	0	**0**	2	4	**6**	**6**
15:45	16:00	1	0	**1**	2	4	**6**	**7**
16:00	16:15	1	0	**1**	1	4	**5**	**6**
16:15	16:30	1	0	**1**	2	4	**6**	**7**
16:30	16:45	1	0	**1**	1	5	**6**	**7**
16:45	17:00	1	0	**1**	4	2	**6**	**7**
17:00	17:15	0	0	**0**	2	1	**3**	**3**
17:15	17:30	0	0	**0**	1	1	**2**	**2**
17:30	17:45	0	0	**0**	5	2	**7**	**7**
17:45	18:00	1	0	**1**	0	2	**2**	**3**
Total	.....	30	0	**30**	63	58	**121**	**151**

5470811 - THU JAN 16, 2020 - 8HRS - LORETTA

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RIOCAN AVE @ STRANDHERD DR

Survey Date: Thursday, January 16, 2020 **WO No:** 39326

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

Full Study Heavy Vehicles

		RIOCAN AVE									STRANDHERD 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	0	0	**0**	0	0	0	**0**	**0**	0	9	0	**9**	1	2	0	**3**	**12**	**12**
07:15	07:30	0	0	1	**1**	0	0	0	**0**	**1**	0	9	1	**10**	1	1	0	**2**	**12**	**13**
07:30	07:45	0	0	1	**1**	0	0	0	**0**	**1**	0	15	0	**15**	0	4	0	**4**	**19**	**20**
07:45	08:00	1	0	3	**4**	0	0	0	**0**	**4**	0	10	1	**11**	0	15	0	**15**	**26**	**30**
08:00	08:15	2	0	4	**6**	0	0	0	**0**	**6**	0	4	1	**5**	1	15	0	**16**	**21**	**27**
08:15	08:30	1	0	0	**1**	0	0	0	**0**	**1**	0	10	2	**12**	0	6	0	**6**	**18**	**19**
08:30	08:45	3	0	1	**4**	0	0	0	**0**	**4**	0	9	1	**10**	4	7	0	**11**	**21**	**25**
08:45	09:00	2	0	1	**3**	0	0	0	**0**	**3**	0	10	0	**10**	1	15	0	**16**	**26**	**29**
09:00	09:15	1	0	4	**5**	0	0	0	**0**	**5**	0	13	4	**17**	0	5	0	**5**	**22**	**27**
09:15	09:30	2	0	0	**2**	0	0	0	**0**	**2**	0	6	0	**6**	6	15	0	**21**	**27**	**29**
09:30	09:45	0	0	4	**4**	0	0	0	**0**	**4**	0	6	0	**6**	3	5	0	**8**	**14**	**18**
09:45	10:00	1	0	2	**3**	0	0	0	**0**	**3**	0	9	0	**9**	0	6	0	**6**	**15**	**18**
11:30	11:45	0	0	2	**2**	0	0	0	**0**	**2**	0	6	0	**6**	0	7	0	**7**	**13**	**15**
11:45	12:00	2	0	3	**5**	0	0	0	**0**	**5**	0	5	1	**6**	2	7	0	**9**	**15**	**20**
12:00	12:15	2	0	2	**4**	0	0	0	**0**	**4**	0	5	3	**8**	1	2	0	**3**	**11**	**15**
12:15	12:30	3	0	3	**6**	0	0	0	**0**	**6**	0	3	0	**3**	0	7	0	**7**	**10**	**16**
12:30	12:45	0	0	0	**0**	0	0	0	**0**	**0**	0	4	2	**6**	2	5	0	**7**	**13**	**13**
12:45	13:00	2	0	2	**4**	0	0	0	**0**	**4**	0	13	0	**13**	2	4	0	**6**	**19**	**23**
13:00	13:15	1	0	0	**1**	0	0	0	**0**	**1**	0	8	1	**9**	1	3	0	**4**	**13**	**14**
13:15	13:30	3	0	0	**3**	0	0	0	**0**	**3**	0	13	3	**16**	0	8	0	**8**	**24**	**27**
15:00	15:15	1	0	5	**6**	0	0	0	**0**	**6**	0	9	3	**12**	1	4	0	**5**	**17**	**23**
15:15	15:30	1	0	2	**3**	0	0	0	**0**	**3**	0	11	0	**11**	0	9	0	**9**	**20**	**23**
15:30	15:45	3	0	0	**3**	0	0	0	**0**	**3**	0	7	2	**9**	2	11	0	**13**	**22**	**25**
15:45	16:00	0	0	2	**2**	0	0	0	**0**	**2**	0	6	0	**6**	0	3	0	**3**	**9**	**11**
16:00	16:15	1	0	1	**2**	0	0	0	**0**	**2**	0	9	0	**9**	0	9	0	**9**	**18**	**20**
16:15	16:30	0	0	1	**1**	0	0	0	**0**	**1**	0	9	0	**9**	0	7	0	**7**	**16**	**17**
16:30	16:45	0	0	0	**0**	0	0	0	**0**	**0**	0	4	0	**4**	1	7	0	**8**	**12**	**12**
16:45	17:00	1	0	2	**3**	0	0	0	**0**	**3**	0	2	0	**2**	0	6	0	**6**	**8**	**11**
17:00	17:15	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**2**	0	6	0	**6**	**8**	**8**
17:15	17:30	0	0	1	**1**	0	0	0	**0**	**1**	0	4	0	**4**	0	5	0	**5**	**9**	**10**
17:30	17:45	0	0	0	**0**	0	0	0	**0**	**0**	0	1	0	**1**	1	3	0	**4**	**5**	**5**
17:45	18:00	1	0	1	**2**	0	0	0	**0**	**2**	0	5	0	**5**	0	5	0	**5**	**10**	**12**
Total:	None	34	0	48	**82**	0	0	0	**0**	**82**	0	236	25	**261**	30	214	0	**244**	**505**	**587**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RIOCAN AVE @ STRANDHERD DR

Survey Date: Thursday, January 16, 2020 **WO No:** 39326

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

Full Study 15 Minute U-Turn Total

Time Period		RIOCAN AVE Northbound U-Turn Total	RIOCAN AVE Southbound U-Turn Total	STRANDHERD DR Eastbound U-Turn Total	STRANDHERD DR Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	**0**
07:15	07:30	0	0	0	1	**1**
07:30	07:45	0	0	0	0	**0**
07:45	08:00	0	0	0	2	**2**
08:00	08:15	0	0	0	1	**1**
08:15	08:30	0	0	0	1	**1**
08:30	08:45	0	0	0	3	**3**
08:45	09:00	0	0	0	3	**3**
09:00	09:15	0	0	0	1	**1**
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	0	**1**
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	1	0	0	0	**1**
13:00	13:15	0	0	0	0	**0**
13:15	13:30	0	0	0	0	**0**
15:00	15:15	0	0	0	0	**0**
15:15	15:30	0	0	0	0	**0**
15:30	15:45	0	0	0	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	0	0	**0**
16:30	16:45	0	0	0	0	**0**
16:45	17:00	1	0	0	0	**1**
17:00	17:15	1	0	0	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	2	**2**
Total		4	0	1	17	**22**

Transportation Services - Traffic Services

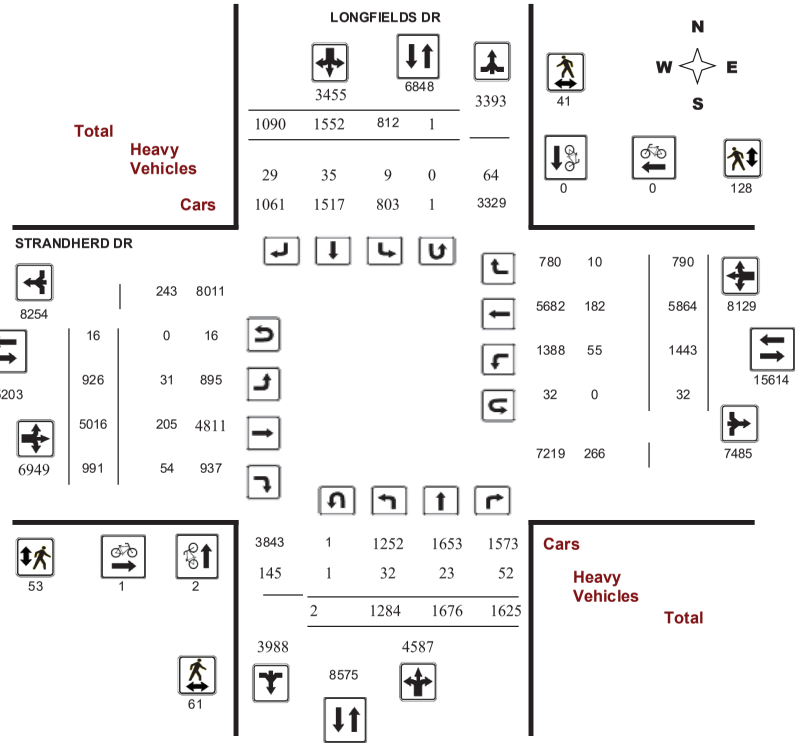
Turning Movement Count - Study Results

STRANDHERD DR @ LONGFIELDS DR

Survey Date: Thursday, January 16, 2020 **WO No:** 39327

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

Full Study Diagram



5470812 - THU JAN 16, 2020 - 8HRS - LORETTA

Transportation Services - Traffic Services

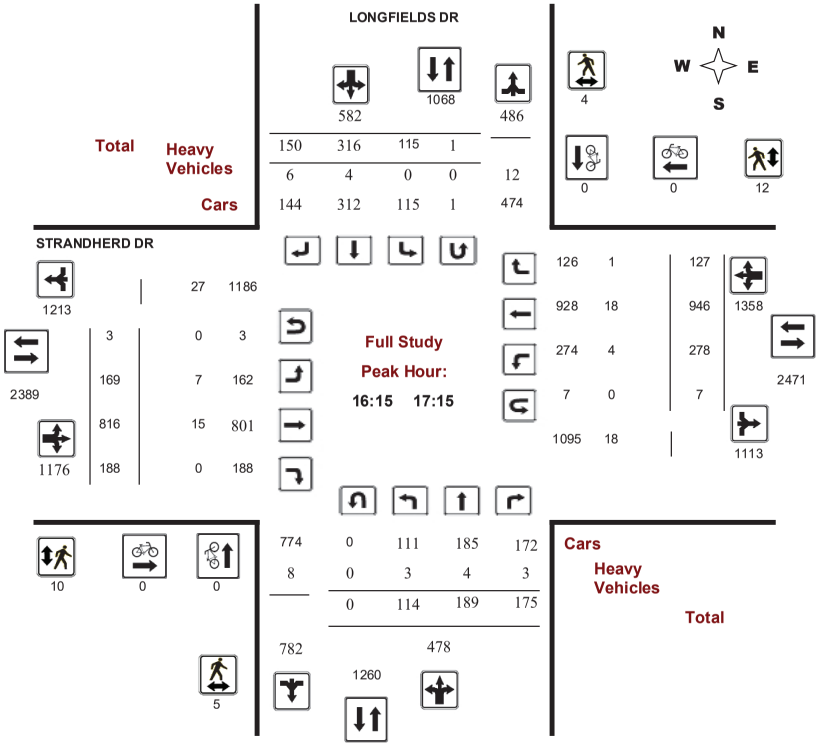
Turning Movement Count - Study Results

STRANDHERD DR @ LONGFIELDS DR

Survey Date: Thursday, January 16, 2020 **WO No:** 39327

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

Full Study Peak Hour Diagram



5470812 - THU JAN 16, 2020 - 8HRS - LORETTA

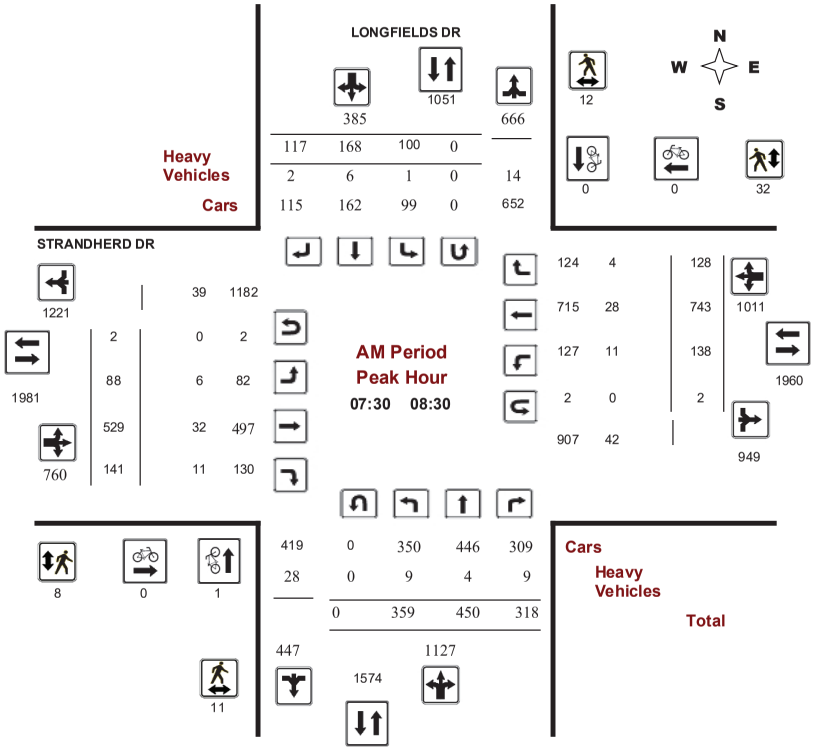
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

STRANDHERD DR @ LONGFIELDS DR

Survey Date: Thursday, January 16, 2020 **WO No:** 39327

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



Comments 5470812 - THU JAN 16, 2020 - 8HRS - LORETTA

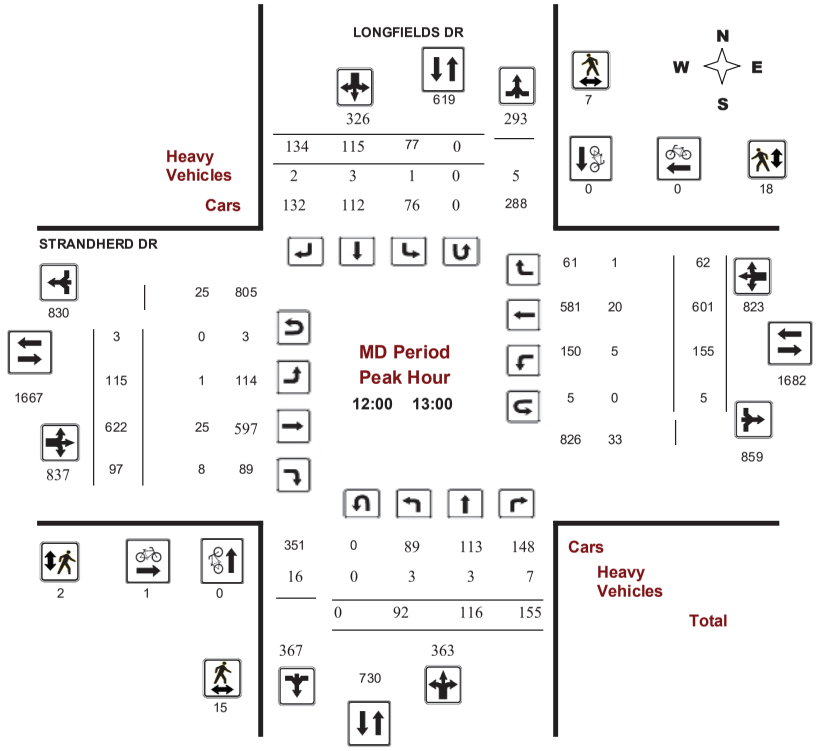
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

STRANDHERD DR @ LONGFIELDS DR

Survey Date: Thursday, January 16, 2020 **WO No:** 39327

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



Comments 5470812 - THU JAN 16, 2020 - 8HRS - LORETTA

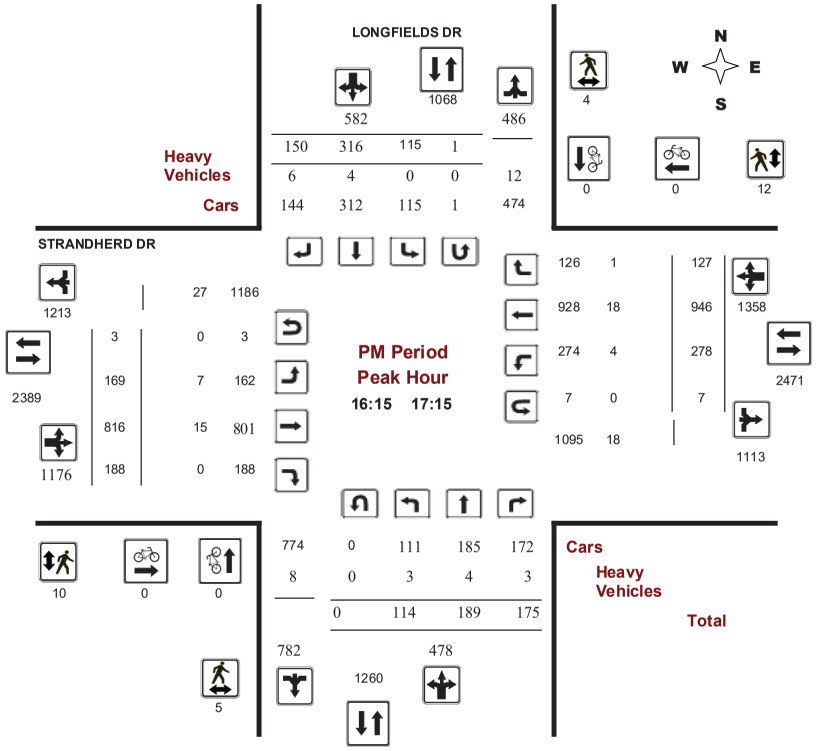
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

STRANDHERD DR @ LONGFIELDS DR

Survey Date: Thursday, January 16, 2020 **WO No:** 39327

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



Comments 5470812 - THU JAN 16, 2020 - 8HRS - LORETTA

Transportation Services - Traffic Services

Turning Movement Count - Study Results

STRANDHERD DR @ LONGFIELDS DR

Survey Date: Thursday, January 16, 2020 **WO No:** 39327

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

Full Study Summary (8 HR Standard)

Survey Date: Thursday, January 16, 2020

Total Observed U-Turns

Northbound: 2 Southbound: 1

Eastbound: 16 Westbound: 32

AADT Factor 1.00

	LONGFIELDS DR								STRANDHERD 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	284	430	283	**997**	101	128	117	**346**	**1343**	59	495	105	**659**	125	639	74	**838**	**1497**	**2840**
08:00 09:00	324	321	251	**896**	133	176	143	**452**	**1348**	100	542	119	**761**	114	752	186	**1052**	**1813**	**3161**
09:00 10:00	119	163	171	**453**	94	143	119	**356**	**809**	66	482	66	**614**	92	571	45	**708**	**1322**	**2131**
11:30 12:30	87	116	150	**353**	61	123	132	**316**	**669**	119	553	89	**761**	165	638	58	**861**	**1622**	**2291**
12:30 13:30	95	90	152	**337**	68	113	125	**306**	**643**	112	580	100	**792**	145	548	55	**748**	**1540**	**2183**
15:00 16:00	129	187	215	**531**	134	271	147	**552**	**1083**	131	763	147	**1041**	238	881	124	**1243**	**2284**	**3367**
16:00 17:00	113	184	192	**489**	109	300	145	**554**	**1043**	169	818	189	**1176**	292	943	126	**1361**	**2537**	**3580**
17:00 18:00	133	185	211	**529**	112	298	162	**572**	**1101**	170	783	176	**1129**	272	892	122	**1286**	**2415**	**3516**
Sub Total	1284	1676	1625	**4585**	812	1552	1090	**3454**	**8039**	926	5016	991	**6933**	1443	5864	790	**8097**	**15030**	**23069**
U Turns	2			**2**	1			**1**	**3**	**16**			**16**	32			**32**	**48**	**51**
Total	1286	1676	1625	**4587**	813	1552	1090	**3455**	**8042**	942	5016	991	**6949**	1475	5864	790	**8129**	**15078**	**23120**
EQ 12Hr	1788	2330	2259	**6377**	1130	2157	1515	**4802**	**11179**	1309	6972	1377	**9658**	2050	8151	1098	**11299**	**20957**	**32136**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	1788	2330	2259	**6377**	1130	2157	1515	**4802**	**11179**	1309	6972	1377	**9658**	2050	8151	1098	**11299**	**20957**	**32136**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1.00**					
AVG 24Hr	2342	3052	2959	**8353**	1480	2826	1985	**6291**	**14644**	1715	9133	1804	**12652**	2686	10678	1438	**14802**	**27454**	**42098**
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

STRANDHERD DR @ LONGFIELDS DR

Survey Date: Thursday, January 16, 2020 **WO No:** 39327

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

Full Study 15 Minute Increments

		LONGFIELDS DR									STRANDHERD 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	54	73	63	190	28	15	28	71	**261**	10	110	14	134	14	126	11	151	**285**	**546**
07:15	07:30	47	90	55	192	20	20	32	72	**264**	17	132	17	166	31	150	15	196	**362**	**626**
07:30	07:45	88	164	77	329	34	47	32	113	**442**	18	101	36	155	28	171	22	221	**376**	**818**
07:45	08:00	95	103	88	286	19	46	25	90	**376**	16	152	38	206	53	192	26	271	**477**	**853**
08:00	08:15	109	97	80	286	19	38	19	76	**362**	26	120	32	178	34	184	29	247	**425**	**787**
08:15	08:30	67	86	73	226	28	37	41	106	**332**	30	156	35	221	25	196	51	272	**493**	**825**
08:30	08:45	99	72	45	216	38	52	42	132	**348**	21	125	24	170	30	197	63	290	**460**	**808**
08:45	09:00	49	66	53	168	48	49	41	138	**306**	25	141	28	194	27	175	43	245	**439**	**745**
09:00	09:15	34	51	52	137	42	57	38	137	**274**	20	115	19	154	29	142	12	183	**337**	**611**
09:15	09:30	31	43	46	120	19	34	32	85	**205**	13	127	23	163	28	179	11	218	**381**	**586**
09:30	09:45	30	28	42	100	17	35	21	73	**173**	17	104	8	129	21	126	13	160	**289**	**462**
09:45	10:00	24	41	31	96	16	17	28	61	**157**	17	136	16	169	18	124	9	151	**320**	**477**
11:30	11:45	21	24	38	83	21	33	46	100	**183**	23	105	30	158	32	150	13	195	**353**	**536**
11:45	12:00	30	30	42	102	8	33	29	70	**172**	36	122	15	173	49	155	15	219	**392**	**564**
12:00	12:15	21	37	32	90	18	26	31	75	**165**	29	164	21	214	49	162	17	228	**442**	**607**
12:15	12:30	17	25	38	80	14	31	26	71	**151**	35	162	23	220	39	171	13	223	**443**	**594**
12:30	12:45	23	21	43	87	16	21	38	75	**162**	23	140	19	182	29	145	8	182	**364**	**526**
12:45	13:00	31	33	42	106	29	37	39	105	**211**	31	156	34	221	43	123	24	190	**411**	**622**
13:00	13:15	25	16	28	69	12	30	21	63	**132**	32	141	20	193	36	125	9	170	**363**	**495**
13:15	13:30	16	20	39	75	11	25	27	63	**138**	27	143	27	197	42	155	14	211	**408**	**546**
15:00	15:15	36	67	36	139	29	57	25	111	**250**	18	188	28	234	56	218	38	312	**546**	**796**
15:15	15:30	40	50	67	157	34	85	34	153	**310**	41	189	37	267	66	193	28	287	**554**	**864**
15:30	15:45	24	31	59	114	38	48	41	127	**241**	39	213	42	294	61	224	22	307	**601**	**842**
15:45	16:00	29	39	53	121	33	81	47	161	**282**	35	173	40	248	58	246	36	340	**588**	**870**
16:00	16:15	26	38	65	129	30	59	36	125	**254**	43	205	40	288	80	246	30	356	**644**	**898**
16:15	16:30	32	45	40	117	30	66	30	126	**243**	43	223	47	313	62	216	26	304	**617**	**860**
16:30	16:45	29	48	46	123	22	78	44	144	**267**	36	195	45	276	80	252	33	365	**641**	**908**
16:45	17:00	26	53	41	120	28	97	35	160	**280**	49	195	57	301	74	229	37	340	**641**	**921**
17:00	17:15	27	43	48	118	36	75	41	152	**270**	44	203	39	286	69	249	31	349	**635**	**905**
17:15	17:30	29	33	56	118	27	70	43	140	**258**	39	198	43	280	73	208	27	308	**588**	**846**
17:30	17:45	45	48	51	144	28	77	44	149	**293**	41	199	52	292	65	229	28	322	**614**	**907**
17:45	18:00	32	61	56	149	21	76	34	131	**280**	48	183	42	273	74	206	36	316	**589**	**869**
Total:		1286	1676	1625	4587	813	1552	1090	3455	**8042**	942	5016	991	6949	1475	5864	790	8129	**8042**	**23,120**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

STRANDHERD DR @ LONGFIELDS DR

Survey Date: Thursday, January 16, 2020 **WO No:** 39327

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

Full Study Cyclist Volume

Time Period		LONGFIELDS DR Northbound	LONGFIELDS DR Southbound	LONGFIELDS DR Street Total	STRANDHERD DR Eastbound	STRANDHERD DR Westbound	STRANDHERD DR 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	1	0	**1**	0	0	**0**	**1**
08:30	08:45	0	0	**0**	0	0	**0**	**0**
08:45	09:00	1	0	**1**	0	0	**0**	**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**	1	0	**1**	**1**
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**	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		2	0	**2**	1	0	**1**	**3**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

STRANDHERD DR @ LONGFIELDS DR

Survey Date: Thursday, January 16, 2020 **WO No:** 39327

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

Full Study Pedestrian Volume

Time Period	LONGFIELDS DR NB Approach (E or W Crossing)	LONGFIELDS DR SB Approach (E or W Crossing)	LONGFIELDS DR Total	STRANDHERD DR EB Approach (N or S Crossing)	STRANDHERD DR WB Approach (N or S Crossing)	STRANDHERD DR Total	Grand Total
07:00 07:15	0	0	**0**	0	1	**1**	**1**
07:15 07:30	0	0	**0**	2	0	**2**	**2**
07:30 07:45	2	4	**6**	4	5	**9**	**15**
07:45 08:00	4	6	**10**	2	15	**17**	**27**
08:00 08:15	2	0	**2**	0	10	**10**	**12**
08:15 08:30	3	2	**5**	2	2	**4**	**9**
08:30 08:45	1	0	**1**	1	4	**5**	**6**
08:45 09:00	0	1	**1**	2	6	**8**	**9**
09:00 09:15	2	2	**4**	3	2	**5**	**9**
09:15 09:30	2	0	**2**	1	3	**4**	**6**
09:30 09:45	7	0	**7**	0	7	**7**	**14**
09:45 10:00	2	0	**2**	0	4	**4**	**6**
11:30 11:45	5	1	**6**	5	8	**13**	**19**
11:45 12:00	1	3	**4**	2	3	**5**	**9**
12:00 12:15	4	1	**5**	0	5	**5**	**10**
12:15 12:30	8	6	**14**	1	5	**6**	**20**
12:30 12:45	2	0	**2**	1	6	**7**	**9**
12:45 13:00	1	0	**1**	0	2	**2**	**3**
13:00 13:15	0	0	**0**	0	0	**0**	**0**
13:15 13:30	0	1	**1**	1	0	**1**	**2**
15:00 15:15	0	1	**1**	0	5	**5**	**6**
15:15 15:30	4	2	**6**	2	9	**11**	**17**
15:30 15:45	1	1	**2**	2	6	**8**	**10**
15:45 16:00	4	3	**7**	4	3	**7**	**14**
16:00 16:15	0	1	**1**	4	2	**6**	**7**
16:15 16:30	1	1	**2**	2	1	**3**	**5**
16:30 16:45	3	0	**3**	3	7	**10**	**13**
16:45 17:00	1	2	**3**	3	2	**5**	**8**
17:00 17:15	0	1	**1**	2	2	**4**	**5**
17:15 17:30	1	1	**2**	1	3	**4**	**6**
17:30 17:45	0	0	**0**	0	0	**0**	**0**
17:45 18:00	0	1	**1**	3	0	**3**	**4**
Total	61	41	**102**	53	128	**181**	**283**

5470812 - THU JAN 16, 2020 - 8HRS - LORETTA

Transportation Services - Traffic Services

Turning Movement Count - Study Results

STRANDHERD DR @ LONGFIELDS DR

Survey Date: Thursday, January 16, 2020 **WO No:** 39327

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

Full Study Heavy Vehicles

		LONGFIELDS DR									STRANDHERD 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	0	1	**1**	0	1	0	**1**	**2**	0	4	3	**7**	0	3	0	**3**	**10**	**12**
07:15	07:30	0	0	1	**1**	0	1	0	**1**	**2**	1	8	2	**11**	0	2	1	**3**	**14**	**16**
07:30	07:45	1	2	2	**5**	0	0	0	**0**	**5**	1	9	4	**14**	2	4	1	**7**	**21**	**26**
07:45	08:00	5	1	1	**7**	0	3	1	**4**	**11**	3	13	2	**18**	4	10	2	**16**	**34**	**45**
08:00	08:15	3	1	3	**7**	1	1	0	**2**	**9**	1	2	3	**6**	3	6	1	**10**	**16**	**25**
08:15	08:30	0	0	3	**3**	0	2	1	**3**	**6**	1	8	2	**11**	2	8	0	**10**	**21**	**27**
08:30	08:45	3	2	2	**7**	0	2	0	**2**	**9**	1	7	4	**12**	6	6	0	**12**	**24**	**33**
08:45	09:00	4	1	1	**6**	1	0	0	**1**	**7**	2	12	1	**15**	1	13	0	**14**	**29**	**36**
09:00	09:15	1	0	3	**4**	3	5	0	**8**	**12**	1	9	3	**13**	1	11	0	**12**	**25**	**37**
09:15	09:30	2	0	1	**3**	0	1	1	**2**	**5**	0	7	1	**8**	1	14	0	**15**	**23**	**28**
09:30	09:45	0	0	2	**2**	0	1	2	**3**	**5**	1	7	1	**9**	1	6	0	**7**	**16**	**21**
09:45	10:00	2	2	2	**6**	0	2	2	**4**	**10**	3	8	3	**14**	2	7	0	**9**	**23**	**33**
11:30	11:45	0	1	1	**2**	0	2	1	**3**	**5**	0	5	1	**6**	3	7	0	**10**	**16**	**22**
11:45	12:00	0	0	3	**3**	0	3	1	**4**	**7**	1	4	2	**7**	1	7	0	**8**	**15**	**22**
12:00	12:15	1	2	1	**4**	1	1	0	**2**	**6**	0	7	0	**7**	2	4	0	**6**	**13**	**19**
12:15	12:30	1	0	1	**2**	0	1	0	**1**	**3**	0	6	2	**8**	1	5	1	**7**	**15**	**18**
12:30	12:45	0	1	3	**4**	0	1	2	**3**	**7**	0	3	1	**4**	1	6	0	**7**	**11**	**18**
12:45	13:00	1	0	2	**3**	0	0	0	**0**	**3**	1	9	5	**15**	1	5	0	**6**	**21**	**24**
13:00	13:15	1	0	0	**1**	1	1	0	**2**	**3**	1	5	2	**8**	1	3	0	**4**	**12**	**15**
13:15	13:30	0	1	3	**4**	1	0	2	**3**	**7**	1	10	0	**11**	5	4	1	**10**	**21**	**28**
15:00	15:15	1	3	1	**5**	0	0	1	**1**	**6**	0	10	2	**12**	2	4	1	**7**	**19**	**25**
15:15	15:30	0	2	3	**5**	1	1	2	**4**	**9**	2	10	0	**12**	4	6	0	**10**	**22**	**31**
15:30	15:45	2	0	5	**7**	0	0	2	**2**	**9**	0	8	3	**11**	2	7	0	**9**	**20**	**29**
15:45	16:00	0	0	0	**0**	0	1	2	**3**	**3**	1	5	2	**8**	0	3	0	**3**	**11**	**14**
16:00	16:15	0	0	3	**3**	0	1	1	**2**	**5**	1	5	4	**10**	2	6	0	**8**	**18**	**23**
16:15	16:30	2	2	0	**4**	0	1	2	**3**	**7**	3	7	0	**10**	1	4	1	**6**	**16**	**23**
16:30	16:45	0	2	1	**3**	0	2	1	**3**	**6**	1	4	0	**5**	1	6	0	**7**	**12**	**18**
16:45	17:00	1	0	0	**1**	0	1	3	**4**	**5**	1	3	0	**4**	1	5	0	**6**	**10**	**15**
17:00	17:15	0	0	2	**2**	0	0	0	**0**	**2**	2	1	0	**3**	1	3	0	**4**	**7**	**9**
17:15	17:30	1	0	0	**1**	0	0	0	**0**	**1**	1	3	0	**4**	0	6	0	**6**	**10**	**11**
17:30	17:45	0	0	1	**1**	0	0	1	**1**	**2**	0	1	1	**2**	1	1	1	**3**	**5**	**7**
17:45	18:00	0	0	0	**0**	0	0	1	**1**	**1**	0	5	0	**5**	2	0	0	**2**	**7**	**8**
Total:	None	32	23	52	**107**	9	35	29	**73**	**180**	31	205	54	**290**	55	182	10	**247**	**537**	**718**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

STRANDHERD DR @ LONGFIELDS DR

Survey Date: Thursday, January 16, 2020 **WO No:** 39327

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

Full Study 15 Minute U-Turn Total

		LONGFIELDS DR	STRANDHERD DR			
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	1	0	**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	1	1	**2**
08:00	08:15	0	0	1	0	**1**
08:15	08:30	0	0	0	1	**1**
08:30	08:45	0	0	0	1	**1**
08:45	09:00	0	0	1	0	**1**
09:00	09:15	0	0	0	3	**3**
09:15	09:30	0	0	1	0	**1**
09:30	09:45	0	0	0	1	**1**
09:45	10:00	0	0	0	0	**0**
11:30	11:45	2	0	1	1	**4**
11:45	12:00	0	0	0	1	**1**
12:00	12:15	0	0	1	2	**3**
12:15	12:30	0	0	2	0	**2**
12:30	12:45	0	0	0	2	**2**
12:45	13:00	0	0	0	1	**1**
13:00	13:15	0	0	0	2	**2**
13:15	13:30	0	0	1	0	**1**
15:00	15:15	0	0	1	1	**2**
15:15	15:30	0	0	0	2	**2**
15:30	15:45	0	0	1	0	**1**
15:45	16:00	0	0	0	0	**0**
16:00	16:15	0	0	0	1	**1**
16:15	16:30	0	0	2	2	**4**
16:30	16:45	0	0	0	1	**1**
16:45	17:00	0	1	0	0	**1**
17:00	17:15	0	0	1	4	**5**
17:15	17:30	0	0	1	2	**3**
17:30	17:45	0	0	0	2	**2**
17:45	18:00	0	0	0	1	**1**
Total		2	1	16	32	**51**

Appendix C

Synchro Intersection Worksheets – Existing Conditions

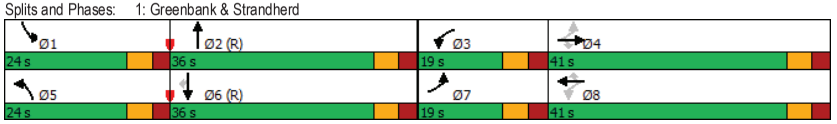
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	162	624	128	58	738	314	164	556	169	194	81
Future Volume (vph)	162	624	128	58	738	314	164	556	169	194	81
Lane Group Flow (vph)	180	693	142	64	820	349	182	680	188	216	90
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases	4		4	8		8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.6	33.5	33.5	11.6	33.5	33.5	11.3	35.5	11.3	35.5	35.5
Total Split (s)	19.0	41.0	41.0	19.0	41.0	41.0	24.0	36.0	24.0	36.0	36.0
Total Split (%)	15.8%	34.2%	34.2%	15.8%	34.2%	34.2%	20.0%	30.0%	20.0%	30.0%	30.0%
Maximum Green (s)	12.4	34.5	34.5	12.4	34.5	34.5	17.7	29.5	17.7	29.5	29.5
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
All-Red Time (s)	2.9	2.8	2.8	2.9	2.8	2.8	2.6	2.8	2.6	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.5	6.5	6.6	6.5	6.5	6.3	6.5	6.3	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	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	Max	Max	None	Max	Max	None	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0		7.0	7.0
Flash Dont Walk (s)		20.0	20.0		20.0	20.0		22.0		22.0	22.0
Pedestrian Calls (#/hr)		7	7		3	3		7		3	3
Act Effct Green (s)	51.0	41.2	41.2	43.1	35.1	35.1	12.1	34.9	12.3	35.1	35.1
Actuated g/C Ratio	0.42	0.34	0.34	0.36	0.29	0.29	0.10	0.29	0.10	0.29	0.29
v/c Ratio	0.75	0.61	0.24	0.25	0.85	0.52	0.56	0.71	0.57	0.22	0.17
Control Delay	42.6	36.6	5.4	17.3	35.0	6.7	77.2	39.5	57.9	33.6	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.6	36.6	5.4	17.3	35.0	6.7	77.2	39.5	57.9	33.6	1.3
LOS	D	D	A	B	C	A	E	D	E	C	A
Approach Delay		33.3			26.1			47.4		36.9	
Approach LOS		C			C			D		D	
Queue Length 50th (m)	25.9	73.2	0.0	3.4	89.8	16.7	22.9	76.3	22.0	20.2	0.0
Queue Length 95th (m)	#55.1	96.6	13.0	m10.8	#107.5	24.3	35.5	50.7	32.8	31.6	1.6
Internal Link Dist (m)		384.5			263.2			179.3		219.3	
Turn Bay Length (m)	60.0		100.0	120.0			65.0		75.0		150.0
Base Capacity (vph)	248	1139	596	320	968	673	474	954	474	969	532
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	0.73	0.61	0.24	0.20	0.85	0.52	0.38	0.71	0.40	0.22	0.17

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 94 (78%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 95

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 34.7 — Intersection LOS: C
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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Greenbank & Strandherd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	13	17	50	29	79	703	40	243
Future Volume (vph)	13	17	50	29	79	703	40	243
Lane Group Flow (vph)	14	50	56	105	88	855	44	291
Turn Type	pm+pt	NA	pm+pt	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8					
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	11.4	34.5	11.4	34.5	11.3	31.2	11.3	31.2
Total Split (s)	12.0	35.0	12.0	35.0	15.0	58.0	15.0	58.0
Total Split (%)	10.0%	29.2%	10.0%	29.2%	12.5%	48.3%	12.5%	48.3%
Maximum Green (s)	5.6	28.5	5.6	28.5	8.7	51.8	8.7	51.8
Yellow Time (s)	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	3.1	3.2	3.1	3.2	2.6	2.5	2.6	2.5
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	6.5	6.4	6.5	6.3	6.2	6.3	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	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
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Walk Time (s)		7.0		7.0		7.0		7.0
Flash Dont Walk (s)		21.0		21.0		18.0		18.0
Pedestrian Calls (#/hr)		9		1		3		1
Act Effct Green (s)	18.2	13.7	20.8	18.5	10.8	73.0	7.1	67.0
Actuated g/C Ratio	0.15	0.11	0.17	0.15	0.09	0.61	0.06	0.56
v/c Ratio	0.07	0.24	0.26	0.35	0.59	0.43	0.23	0.16
Control Delay	34.7	24.9	39.5	19.5	63.8	15.9	62.6	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.7	24.9	39.5	19.5	63.8	15.9	62.6	11.1
LOS	C	C	D	B	E	B	E	B
Approach Delay		27.1		26.5		20.4		17.8
Approach LOS		C		C		C		B
Queue Length 50th (m)	2.7	4.2	11.3	6.4	20.8	41.6	5.5	10.4
Queue Length 95th (m)	6.9	13.7	18.6	20.3	m#31.7	91.1	11.8	20.4
Internal Link Dist (m)		208.1		171.2		275.5		179.3
Turn Bay Length (m)	25.0		55.0		55.0		50.0	
Base Capacity (vph)	203	394	215	423	151	1992	233	1830
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.13	0.26	0.25	0.58	0.43	0.19	0.16

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 89 (74%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 20.7 Intersection LOS: C
Intersection Capacity Utilization 55.0% ICU Level of Service B
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: Greenbank & Marketplace

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	4	0	50	0	267	1	643	65	267
Future Volume (vph)	4	0	50	0	267	1	643	65	267
Lane Group Flow (vph)	0	4	0	56	297	0	803	72	299
Turn Type	Perm	NA	Perm	NA	pm+ov	Perm	NA	pm+pt	NA
Protected Phases		4		8	1		2	1	6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	1	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	26.4	26.4	26.4	26.4	12.1	34.1	34.1	12.1	34.1
Total Split (s)	27.0	27.0	27.0	27.0	20.0	73.0	73.0	20.0	93.0
Total Split (%)	22.5%	22.5%	22.5%	22.5%	16.7%	60.8%	60.8%	16.7%	77.5%
Maximum Green (s)	20.6	20.6	20.6	20.6	12.9	65.9	65.9	12.9	85.9
Yellow Time (s)	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	3.4	3.4	3.4	3.4	3.4
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		6.4		6.4	7.1		7.1	7.1	7.1
Lead/Lag					Lead	Lag	Lag	Lead	
Lead-Lag Optimize?					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
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0		7.0	7.0		7.0
Flash Dont Walk (s)	13.0	13.0	13.0	13.0		20.0	20.0		20.0
Pedestrian Calls (#/hr)	2	2	1	1		18	18		0
Act Effct Green (s)		12.6		12.6	17.1		83.0	97.2	98.6
Actuated g/C Ratio		0.10		0.10	0.14		0.69	0.81	0.82
v/c Ratio		0.03		0.41	0.81		0.68	0.14	0.21
Control Delay		45.5		58.0	33.7		16.7	4.5	4.1
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		45.5		58.0	33.7		16.7	4.5	4.1
LOS		D		E	C		B	A	A
Approach Delay		45.5		37.5			16.7		4.2
Approach LOS		D		D			B		A
Queue Length 50th (m)		0.9		12.8	24.9		100.0	3.0	12.8
Queue Length 95th (m)		4.0		24.1	49.0		193.0	6.5	21.0
Internal Link Dist (m)		290.6		555.5			536.8		275.5
Turn Bay Length (m)									
Base Capacity (vph)		215		224	428		1183	558	1432
Starvation Cap Reductn		0		0	0		0	0	0
Spillback Cap Reductn		0		0	0		0	0	0
Storage Cap Reductn		0		0	0		0	0	0
Reduced v/c Ratio		0.02		0.25	0.69		0.68	0.13	0.21

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 18.5 — Intersection LOS: B
Intersection Capacity Utilization 84.6% — ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 3: Greenbank & Jockvale

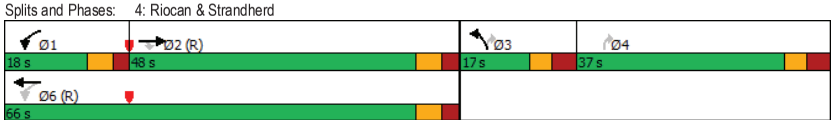
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø4
Lane Configurations							
Traffic Volume (vph)	706	78	98	1206	51	57	
Future Volume (vph)	706	78	98	1206	51	57	
Lane Group Flow (vph)	784	87	109	1340	57	63	
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm	
Protected Phases	2		1	6	3		4
Permitted Phases		2	6			3 4	
Detector Phase	2	2	1	6	3	3 4	
Switch Phase							
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0		5.0
Minimum Split (s)	36.3	36.3	11.0	36.3	16.8		35.8
Total Split (s)	48.0	48.0	18.0	66.0	17.0		37.0
Total Split (%)	40.0%	40.0%	15.0%	55.0%	14.2%		31%
Maximum Green (s)	41.7	41.7	12.0	59.7	10.2		30.2
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3		3.3
All-Red Time (s)	2.6	2.6	2.3	2.6	3.5		3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.3	6.3	6.0	6.3	6.8		
Lead/Lag	Lag	Lag	Lead		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
Recall Mode	C-Max	C-Max	None	C-Max	None		None
Walk Time (s)	7.0	7.0		7.0			7.0
Flash Dont Walk (s)	23.0	23.0		23.0			22.0
Pedestrian Calls (#/hr)	2	2		0			5
Act Effct Green (s)	71.3	71.3	86.0	87.0	10.0	24.6	
Actuated g/C Ratio	0.59	0.59	0.72	0.72	0.08	0.20	
v/c Ratio	0.40	0.10	0.25	0.56	0.21	0.18	
Control Delay	11.5	2.7	2.1	4.1	53.5	8.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	11.5	2.7	2.1	4.1	53.5	8.3	
LOS	B	A	A	A	D	A	
Approach Delay	10.6			4.0	29.8		
Approach LOS	B			A	C		
Queue Length 50th (m)	30.6	0.3	0.7	4.6	6.5	0.0	
Queue Length 95th (m)	38.8	m2.5	m5.7	178.7	13.2	8.9	
Internal Link Dist (m)	263.2			413.3	180.6		
Turn Bay Length (m)		80.0	150.0		40.0		
Base Capacity (vph)	1969	895	472	2403	273	517	
Starvation Cap Reductn	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	
Reduced v/c Ratio	0.40	0.10	0.23	0.56	0.21	0.12	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 30 (25%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 100

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.56
Intersection Signal Delay: 7.6 — Intersection LOS: A
Intersection Capacity Utilization 55.0% — ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Riocan & Strandherd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	529	141	140	789	128	381	450	318	100	168	124
Future Volume (vph)	90	529	141	140	789	128	381	450	318	100	168	124
Lane Group Flow (vph)	100	588	157	156	877	142	423	500	353	111	187	138
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)	11.6	36.6	36.6	11.6	35.4	35.4	11.7	35.7	35.7	11.7	35.7	35.7
Total Split (s)	22.0	37.0	37.0	22.0	37.0	37.0	25.0	36.0	36.0	25.0	36.0	36.0
Total Split (%)	18.3%	30.8%	30.8%	18.3%	30.8%	30.8%	20.8%	30.0%	30.0%	20.8%	30.0%	30.0%
Maximum Green (s)	15.4	30.6	30.6	15.4	30.6	30.6	18.3	29.3	29.3	18.3	29.3	29.3
Yellow Time (s)	4.2	4.2	4.2	4.2	4.2	4.2	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.4	2.2	2.2	2.4	2.2	2.2	3.4	3.4	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.4	6.4	6.6	6.4	6.4	6.7	6.7	6.7	6.7	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)		22.0	22.0		22.0	22.0		22.0	22.0		22.0	22.0
Pedestrian Calls (#/hr)		11	11		12	12		32	32		8	8
Act Effct Green (s)	9.1	34.9	34.9	11.1	36.9	36.9	17.9	34.3	34.3	13.3	29.7	29.7
Actuated g/C Ratio	0.08	0.29	0.29	0.09	0.31	0.31	0.15	0.29	0.29	0.11	0.25	0.25
v/c Ratio	0.41	0.61	0.30	0.53	0.86	0.26	0.88	1.00	0.54	0.61	0.43	0.29
Control Delay	32.4	44.2	18.2	58.0	49.4	5.2	70.3	84.4	7.1	64.3	42.0	6.1
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	32.4	44.2	18.2	58.0	49.4	5.2	70.3	84.4	7.1	64.3	42.0	6.1
LOS	C	D	B	E	D	A	E	F	A	E	D	A
Approach Delay		38.0			45.2			58.4			36.3	
Approach LOS		D			D			E			D	
Queue Length 50th (m)	9.5	77.5	16.1	18.3	102.1	0.0	50.7	~118.4	0.0	25.3	37.4	0.0
Queue Length 95th (m)	15.9	96.0	45.2	28.4	#143.4	12.2	#76.2	#204.8	24.7	42.1	59.4	12.8
Internal Link Dist (m)		413.3			403.0			212.7			202.0	
Turn Bay Length (m)	90.0		55.0	80.0		195.0	50.0		90.0	50.0		50.0
Base Capacity (vph)	412	964	531	412	1019	551	490	499	654	252	431	473
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	0.24	0.61	0.30	0.38	0.86	0.26	0.86	1.00	0.54	0.44	0.43	0.29

Intersection Summary

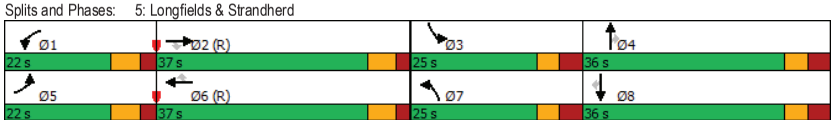
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 100

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 47.0 — Intersection LOS: D
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: 5: Longfields & Strandherd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	42	23	21	38	108	870	31	233
Future Volume (vph)	42	23	21	38	108	870	31	233
Lane Group Flow (vph)	47	106	0	216	120	988	34	295
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	34.8	34.8	34.8	34.8	10.6	24.8	24.8	24.8
Total Split (s)	35.0	35.0	35.0	35.0	15.0	50.0	35.0	35.0
Total Split (%)	41.2%	41.2%	41.2%	41.2%	17.6%	58.8%	41.2%	41.2%
Maximum Green (s)	28.2	28.2	28.2	28.2	9.4	44.2	29.2	29.2
Yellow Time (s)	3.0	3.0	3.0	3.0	3.3	3.3	3.3	3.3
All-Red Time (s)	3.8	3.8	3.8	3.8	2.3	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8		6.8	5.6	5.8	5.8	5.8
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	3.0	3.0
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max
Walk Time (s)	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		12.0	12.0	12.0
Pedestrian Calls (#/hr)	3	3	17	17		22	1	1
Act Effct Green (s)	18.0	18.0		18.0	54.6	54.4	43.3	43.3
Actuated g/C Ratio	0.21	0.21		0.21	0.64	0.64	0.51	0.51
v/c Ratio	0.25	0.27		0.57	0.19	0.47	0.13	0.18
Control Delay	27.5	9.9		22.7	8.7	10.3	19.3	14.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	27.5	9.9		22.7	8.7	10.3	19.3	14.1
LOS	C	A		C	A	B	B	B
Approach Delay		15.3		22.7		10.1		14.6
Approach LOS		B		C		B		B
Queue Length 50th (m)	6.9	3.7		20.5	5.4	31.2	2.6	11.0
Queue Length 95th (m)	13.2	13.3		34.0	17.8	71.5	10.9	26.1
Internal Link Dist (m)		257.2		427.6		400.4		212.7
Turn Bay Length (m)	30.0				75.0		100.0	
Base Capacity (vph)	300	561		546	651	2115	254	1662
Starvation Cap Reductn	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0
Reduced v/c Ratio	0.16	0.19		0.40	0.18	0.47	0.13	0.18

Intersection Summary

Cycle Length: 85
Actuated Cycle Length: 85
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 75

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.57
Intersection Signal Delay: 12.9 Intersection LOS: B
Intersection Capacity Utilization 71.2% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 6: Longfields & Marketplace/Clearbrook

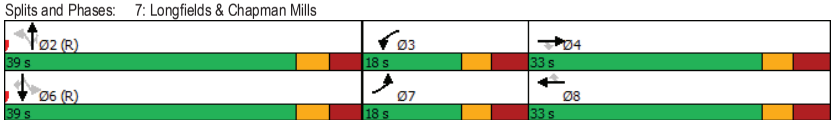
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	5	8	34	2	150	3	834	54	87	237	11
Future Volume (vph)	5	5	8	34	2	150	3	834	54	87	237	11
Lane Group Flow (vph)	6	6	9	38	2	167	3	927	60	97	263	12
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	2	2	2	6	6	6
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	10.0
Minimum Split (s)	12.3	32.5	32.5	12.3	32.5	32.5	38.3	38.3	38.3	38.3	38.3	38.3
Total Split (s)	18.0	33.0	33.0	18.0	33.0	33.0	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	20.0%	36.7%	36.7%	20.0%	36.7%	36.7%	43.3%	43.3%	43.3%	43.3%	43.3%	43.3%
Maximum Green (s)	10.7	25.5	25.5	10.7	25.5	25.5	31.7	31.7	31.7	31.7	31.7	31.7
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	4.0	4.2	4.2	4.0	4.2	4.2	3.6	3.6	3.6	3.6	3.6	3.6
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)	7.3	7.5	7.5	7.3	7.5	7.5	7.3	7.3	7.3	7.3	7.3	7.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	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	None	None	None	None	None	C-Max	C-Max	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	7.0	7.0
Flash Dont Walk (s)		18.0	18.0		18.0	18.0	24.0	24.0	24.0	24.0	24.0	24.0
Pedestrian Calls (#/hr)		0	0		3	3	16	16	16	5	5	5
Act Effct Green (s)	6.0	12.3	12.3	8.1	16.1	16.1	56.2	56.2	56.2	56.2	56.2	56.2
Actuated g/C Ratio	0.07	0.14	0.14	0.09	0.18	0.18	0.62	0.62	0.62	0.62	0.62	0.62
v/c Ratio	0.06	0.03	0.03	0.26	0.01	0.42	0.00	0.45	0.07	0.34	0.13	0.01
Control Delay	40.2	30.6	0.1	41.7	24.5	7.7	12.7	10.0	10.3	17.7	9.7	0.0
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	40.2	30.6	0.1	41.7	24.5	7.7	12.7	10.0	10.3	17.7	9.7	0.0
LOS	D	C	A	D	C	A	B	A	B	B	A	A
Approach Delay		20.3			14.1			10.0			11.5	
Approach LOS		C			B			A			B	
Queue Length 50th (m)	1.0	1.0	0.0	6.1	0.3	0.0	0.2	24.6	2.3	4.9	6.0	0.0
Queue Length 95th (m)	4.7	3.8	0.0	15.2	1.9	14.0	m0.6	50.7	10.6	29.8	23.4	0.0
Internal Link Dist (m)		59.7			203.2			375.7			400.4	
Turn Bay Length (m)	50.0		50.0	40.0		40.0	90.0		65.0	65.0		75.0
Base Capacity (vph)	197	494	521	197	495	534	639	2072	870	285	2072	955
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	0.03	0.01	0.02	0.19	0.00	0.31	0.00	0.45	0.07	0.34	0.13	0.01

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 45 (50%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 85

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.45
Intersection Signal Delay: 11.0 Intersection LOS: B
Intersection Capacity Utilization 62.4% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Longfields & Chapman Mills

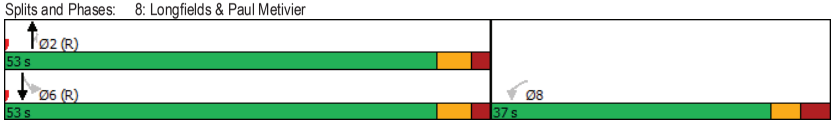


Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	69	776	100	37	253
Future Volume (vph)	69	776	100	37	253
Lane Group Flow (vph)	194	862	111	41	281
Turn Type	Perm	NA	Perm	Perm	NA
Protected Phases		2			6
Permitted Phases	8		2	6	
Detector Phase	8	2	2	6	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	36.6	36.0	36.0	24.0	24.0
Total Split (s)	37.0	53.0	53.0	53.0	53.0
Total Split (%)	41.1%	58.9%	58.9%	58.9%	58.9%
Maximum Green (s)	30.4	47.0	47.0	47.0	47.0
Yellow Time (s)	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	3.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.0	6.0	6.0	6.0
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	14.0	14.0		
Flash Dont Walk (s)	23.0	16.0	16.0		
Pedestrian Calls (#/hr)	3	6	6		
Act Effct Green (s)	15.2	62.2	62.2	62.2	62.2
Actuated g/C Ratio	0.17	0.69	0.69	0.69	0.69
v/c Ratio	0.57	0.38	0.11	0.11	0.12
Control Delay	23.4	7.6	2.1	6.4	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	23.4	7.6	2.1	6.4	4.8
LOS	C	A	A	A	A
Approach Delay	23.4	7.0			5.0
Approach LOS	C	A			A
Queue Length 50th (m)	16.7	23.6	0.0	1.5	5.2
Queue Length 95th (m)	28.8	62.5	7.3	6.0	13.0
Internal Link Dist (m)	403.8	379.4			375.7
Turn Bay Length (m)			50.0	70.0	
Base Capacity (vph)	587	2291	1027	373	2291
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	0.33	0.38	0.11	0.11	0.12

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 35 (39%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 75

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.57
Intersection Signal Delay: 8.7 — Intersection LOS: A
Intersection Capacity Utilization 53.8% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 8: Longfields & Paul Metivier



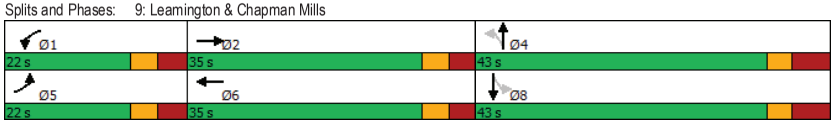
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	33	67	69	67	93	26	38	24
Future Volume (vph)	33	67	69	67	93	26	38	24
Lane Group Flow (vph)	37	121	77	111	0	218	0	106
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		4		8
Permitted Phases					4		8	
Detector Phase	5	2	1	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.8	22.6	11.8	22.6	41.7	41.7	41.7	41.7
Total Split (s)	22.0	35.0	22.0	35.0	43.0	43.0	43.0	43.0
Total Split (%)	22.0%	35.0%	22.0%	35.0%	43.0%	43.0%	43.0%	43.0%
Maximum Green (s)	15.2	28.4	15.2	28.4	35.3	35.3	35.3	35.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.3	3.5	3.3	4.7	4.7	4.7	4.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	6.8	6.6	6.8	6.6		7.7		7.7
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	None	Max	None	None	None	None
Walk Time (s)		7.0		7.0	15.0	15.0	15.0	15.0
Flash Dont Walk (s)		9.0		9.0	19.0	19.0	19.0	19.0
Pedestrian Calls (#/hr)		41		5	1	1	5	5
Act Effct Green (s)	7.4	30.1	9.1	34.5		18.9		18.9
Actuated g/C Ratio	0.10	0.39	0.12	0.45		0.25		0.25
v/c Ratio	0.23	0.19	0.39	0.15		0.68		0.33
Control Delay	39.8	16.8	40.5	15.2		37.7		26.9
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	39.8	16.8	40.5	15.2		37.7		26.9
LOS	D	B	D	B		D		C
Approach Delay		22.2		25.5		37.7		26.9
Approach LOS		C		C		D		C
Queue Length 50th (m)	5.1	8.4	10.5	7.7		29.0		12.8
Queue Length 95th (m)	15.9	26.5	26.8	23.8		53.1		26.5
Internal Link Dist (m)		203.2		520.9		265.7		233.3
Turn Bay Length (m)	40.0		50.0					
Base Capacity (vph)	341	630	341	753		622		625
Starvation Cap Reductn	0	0	0	0		0		0
Spillback Cap Reductn	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0		0		0
Reduced v/c Ratio	0.11	0.19	0.23	0.15		0.35		0.17

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 76.4
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 28.9	Intersection LOS: C
Intersection Capacity Utilization 42.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 9: Leamington & Chapman Mills



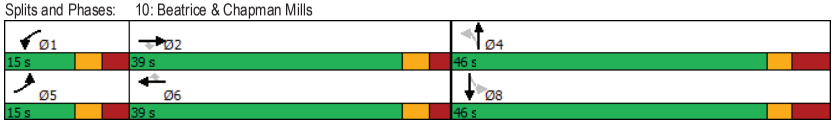
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	65	159	27	14	56	18	7	53	58	38
Future Volume (vph)	65	159	27	14	56	18	7	53	58	38
Lane Group Flow (vph)	72	177	30	16	62	20	0	124	0	120
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			4		8
Permitted Phases			2			6	4		8	
Detector Phase	5	2	2	1	6	6	4	4	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
Minimum Split (s)	11.5	25.9	25.9	11.5	25.9	25.9	45.7	45.7	45.7	45.7
Total Split (s)	15.0	39.0	39.0	15.0	39.0	39.0	46.0	46.0	46.0	46.0
Total Split (%)	15.0%	39.0%	39.0%	15.0%	39.0%	39.0%	46.0%	46.0%	46.0%	46.0%
Maximum Green (s)	8.5	33.1	33.1	8.5	33.1	33.1	38.3	38.3	38.3	38.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.0	3.0	3.0	3.0
All-Red Time (s)	3.2	2.6	2.6	3.2	2.6	2.6	4.7	4.7	4.7	4.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	6.5	5.9	5.9	6.5	5.9	5.9		7.7		7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	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)		13.0	13.0		13.0	13.0	31.0	31.0	31.0	31.0
Pedestrian Calls (#/hr)		36	36		24	24	55	55	14	14
Act Effct Green (s)	8.0	47.9	47.9	6.8	42.2	42.2		31.0		31.0
Actuated g/C Ratio	0.09	0.53	0.53	0.08	0.47	0.47		0.34		0.34
v/c Ratio	0.49	0.19	0.04	0.13	0.08	0.03		0.13		0.15
Control Delay	55.7	20.8	0.1	45.6	23.6	0.1		20.5		20.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	55.7	20.8	0.1	45.6	23.6	0.1		20.5		20.8
LOS	E	C	A	D	C	A		C		C
Approach Delay		27.6			22.4			20.5		20.8
Approach LOS		C			C			C		C
Queue Length 50th (m)	13.6	19.0	0.0	3.0	8.2	0.0		8.0		7.8
Queue Length 95th (m)	27.5	42.1	0.0	9.3	17.4	0.0		14.1		13.8
Internal Link Dist (m)		520.9			367.7			322.5		353.5
Turn Bay Length (m)	40.0		40.0	45.0		60.0				
Base Capacity (vph)	165	922	790	165	813	723		1243		1056
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	0.44	0.19	0.04	0.10	0.08	0.03		0.10		0.11

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 90.5
Natural Cycle: 85
Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.49
Intersection Signal Delay: 24.0 — Intersection LOS: C
Intersection Capacity Utilization 65.5% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 10: Beatrice & Chapman Mills



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	206	825	171	173	842	252	222	432	398	650	207
Future Volume (vph)	206	825	171	173	842	252	222	432	398	650	207
Lane Group Flow (vph)	229	917	190	192	936	280	247	542	442	722	230
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases	4		4	8		8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.6	33.5	33.5	11.6	33.5	33.5	11.3	35.5	11.3	35.5	35.5
Total Split (s)	18.0	41.0	41.0	18.0	41.0	41.0	24.0	37.0	24.0	37.0	37.0
Total Split (%)	15.0%	34.2%	34.2%	15.0%	34.2%	34.2%	20.0%	30.8%	20.0%	30.8%	30.8%
Maximum Green (s)	11.4	34.5	34.5	11.4	34.5	34.5	17.7	30.5	17.7	30.5	30.5
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
All-Red Time (s)	2.9	2.8	2.8	2.9	2.8	2.8	2.6	2.8	2.6	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.5	6.5	6.6	6.5	6.5	6.3	6.5	6.3	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	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	Max	Max	None	Max	Max	None	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0		7.0	7.0
Flash Dont Walk (s)		20.0	20.0		20.0	20.0		22.0		22.0	22.0
Pedestrian Calls (#/hr)		3	3		4	4		6		6	6
Act Effct Green (s)	45.8	34.5	34.5	45.8	34.5	34.5	14.3	30.5	17.7	33.9	33.9
Actuated g/C Ratio	0.38	0.29	0.29	0.38	0.29	0.29	0.12	0.25	0.15	0.28	0.28
v/c Ratio	1.07	0.96	0.34	0.89	0.98	0.46	0.64	0.65	0.93	0.77	0.40
Control Delay	110.9	63.8	6.4	73.7	58.4	8.6	72.2	34.3	78.4	46.6	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	110.9	63.8	6.4	73.7	58.4	8.6	72.2	34.3	78.4	46.6	6.7
LOS	F	E	A	E	E	A	E	C	E	D	A
Approach Delay		63.7			50.6			46.2		50.1	
Approach LOS		E			D			D		D	
Queue Length 50th (m)	~44.9	111.9	0.0	23.9	122.5	13.3	32.0	40.2	53.7	82.3	0.0
Queue Length 95th (m)	#94.7	#153.2	16.7	#75.3	#154.4	22.8	45.3	64.5	#83.5	#115.1	19.1
Internal Link Dist (m)		384.5			263.2			179.3		219.3	
Turn Bay Length (m)	60.0		100.0	120.0			65.0		75.0		150.0
Base Capacity (vph)	215	953	554	215	953	606	474	834	474	936	575
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	1.07	0.96	0.34	0.89	0.98	0.46	0.52	0.65	0.93	0.77	0.40

Intersection Summary

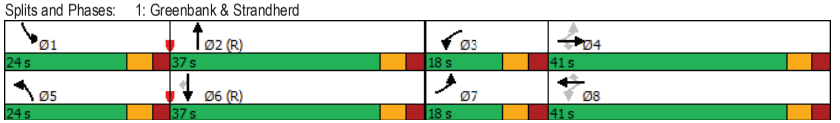
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 7 (6%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 115

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 53.3 Intersection LOS: D
Intersection Capacity Utilization 94.3% ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Splits and Phases: 1: Greenbank & Strandherd



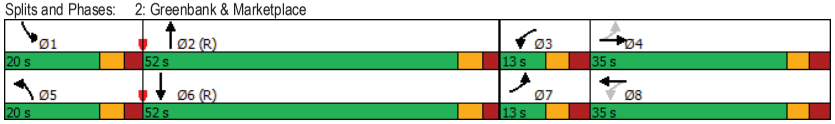
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	74	80	147	71	139	466	176	692
Future Volume (vph)	74	80	147	71	139	466	176	692
Lane Group Flow (vph)	82	190	163	267	154	584	196	820
Turn Type	pm+pt	NA	pm+pt	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8					
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	11.4	34.5	11.4	34.5	11.3	31.2	11.3	31.2
Total Split (s)	13.0	35.0	13.0	35.0	20.0	52.0	20.0	52.0
Total Split (%)	10.8%	29.2%	10.8%	29.2%	16.7%	43.3%	16.7%	43.3%
Maximum Green (s)	6.6	28.5	6.6	28.5	13.7	45.8	13.7	45.8
Yellow Time (s)	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	3.1	3.2	3.1	3.2	2.6	2.5	2.6	2.5
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	6.5	6.4	6.5	6.3	6.2	6.3	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	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
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Walk Time (s)		7.0		7.0		7.0		7.0
Flash Dont Walk (s)		21.0		21.0		18.0		18.0
Pedestrian Calls (#/hr)		34		10		3		0
Act Effct Green (s)	28.7	22.1	30.0	24.7	13.7	53.9	12.1	52.2
Actuated g/C Ratio	0.24	0.18	0.25	0.21	0.11	0.45	0.10	0.44
v/c Ratio	0.39	0.59	0.65	0.69	0.81	0.40	0.61	0.57
Control Delay	35.3	40.0	47.5	37.4	86.5	21.6	62.8	19.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.3	40.0	47.5	37.4	86.5	21.6	62.8	19.3
LOS	D	D	D	D	F	C	E	B
Approach Delay		38.6		41.2		35.2		27.7
Approach LOS		D		D		D		C
Queue Length 50th (m)	13.3	29.4	27.9	36.6	34.0	51.4	24.7	34.8
Queue Length 95th (m)	24.9	51.8	45.1	65.1	#72.4	47.4	m32.3	m58.5
Internal Link Dist (m)		208.1		171.2		275.5		179.3
Turn Bay Length (m)	25.0		55.0		55.0		50.0	
Base Capacity (vph)	209	404	249	435	195	1467	369	1433
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.47	0.65	0.61	0.79	0.40	0.53	0.57

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 117 (98%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 33.5 Intersection LOS: C
Intersection Capacity Utilization 79.3% 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Greenbank & Marketplace



Lane Group	EBT	WBL	WBT	WBR	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	1	1	0	214	411	335	588
Future Volume (vph)	1	1	0	214	411	335	588
Lane Group Flow (vph)	1	0	1	238	457	372	653
Turn Type	NA	Perm	NA	pm+ov	NA	pm+pt	NA
Protected Phases	4		8	1	2	1	6
Permitted Phases		8		8		6	
Detector Phase	4	8	8	1	2	1	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	26.4	26.4	26.4	12.1	34.1	12.1	34.1
Total Split (s)	27.0	27.0	27.0	30.0	63.0	30.0	93.0
Total Split (%)	22.5%	22.5%	22.5%	25.0%	52.5%	25.0%	77.5%
Maximum Green (s)	20.6	20.6	20.6	22.9	55.9	22.9	85.9
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4		6.4	7.1	7.1	7.1	7.1
Lead/Lag				Lead	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
Recall Mode	None	None	None	None	C-Max	None	C-Max
Walk Time (s)	7.0	7.0	7.0		7.0		7.0
Flash Dont Walk (s)	13.0	13.0	13.0		20.0		20.0
Pedestrian Calls (#/hr)	0	0	0		3		0
Act Effct Green (s)	10.0		10.0	12.8	93.0	109.6	115.3
Actuated g/C Ratio	0.08		0.08	0.11	0.78	0.91	0.96
v/c Ratio	0.01		0.01	0.64	0.34	0.48	0.39
Control Delay	51.0		51.0	13.4	6.5	5.9	1.4
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	51.0		51.0	13.4	6.5	5.9	1.4
LOS	D		D	B	A	A	A
Approach Delay	51.0		13.5		6.5		3.1
Approach LOS	D		B		A		A
Queue Length 50th (m)	0.2		0.2	0.0	20.5	4.9	2.0
Queue Length 95th (m)	2.0		2.0	18.5	77.0	31.2	34.1
Internal Link Dist (m)	290.6		555.5		536.8		275.5
Turn Bay Length (m)							
Base Capacity (vph)	299		299	509	1352	872	1677
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	0.00		0.00	0.47	0.34	0.43	0.39

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 10 (8%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 80

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 5.5 — Intersection LOS: A
Intersection Capacity Utilization 81.0% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: Greenbank & Jockvale

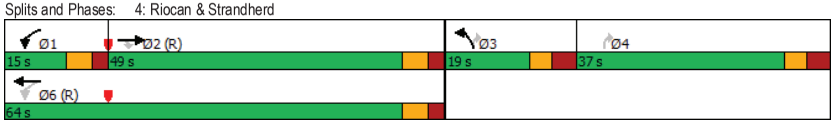
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø4
Lane Configurations							
Traffic Volume (vph)	960	180	247	989	186	134	
Future Volume (vph)	960	180	247	989	186	134	
Lane Group Flow (vph)	1067	200	274	1099	207	149	
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm	
Protected Phases	2		1	6	3		4
Permitted Phases		2	6			3 4	
Detector Phase	2	2	1	6	3	3 4	
Switch Phase							
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0		5.0
Minimum Split (s)	36.3	36.3	11.0	36.3	16.8		35.8
Total Split (s)	49.0	49.0	15.0	64.0	19.0		37.0
Total Split (%)	40.8%	40.8%	12.5%	53.3%	15.8%		31%
Maximum Green (s)	42.7	42.7	9.0	57.7	12.2		30.2
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3		3.3
All-Red Time (s)	2.6	2.6	2.3	2.6	3.5		3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.3	6.3	6.0	6.3	6.8		
Lead/Lag	Lag	Lag	Lead		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
Recall Mode	C-Max	C-Max	None	C-Max	None		None
Walk Time (s)	7.0	7.0		7.0			7.0
Flash Dont Walk (s)	23.0	23.0		23.0			22.0
Pedestrian Calls (#/hr)	2	2		0			9
Act Effct Green (s)	45.7	45.7	78.6	78.3	11.6	28.6	
Actuated g/C Ratio	0.38	0.38	0.66	0.65	0.10	0.24	
v/c Ratio	0.85	0.30	0.62	0.51	0.67	0.32	
Control Delay	27.3	5.2	21.9	6.7	63.3	6.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	27.3	5.2	21.9	6.7	63.3	6.4	
LOS	C	A	C	A	E	A	
Approach Delay	23.8			9.7	39.4		
Approach LOS	C			A	D		
Queue Length 50th (m)	50.5	7.0	8.1	5.3	24.5	0.0	
Queue Length 95th (m)	m72.9	m7.8	m#99.4	161.1	37.0	12.4	
Internal Link Dist (m)	263.2			413.3	180.6		
Turn Bay Length (m)		80.0	150.0		40.0		
Base Capacity (vph)	1262	669	439	2162	326	654	
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	0.85	0.30	0.62	0.51	0.63	0.23	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 70 (58%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 120

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 19.2 — Intersection LOS: B
Intersection Capacity Utilization 66.7% — 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: 4: Riocan & Strandherd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	816	188	285	958	127	115	189	175	116	316	152
Future Volume (vph)	172	816	188	285	958	127	115	189	175	116	316	152
Lane Group Flow (vph)	191	907	209	317	1064	141	128	210	194	129	351	169
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)	11.6	36.6	36.6	11.6	35.4	35.4	11.7	35.7	35.7	11.7	35.7	35.7
Total Split (s)	13.0	42.0	42.0	24.0	53.0	53.0	18.0	36.0	36.0	18.0	36.0	36.0
Total Split (%)	10.8%	35.0%	35.0%	20.0%	44.2%	44.2%	15.0%	30.0%	30.0%	15.0%	30.0%	30.0%
Maximum Green (s)	6.4	35.6	35.6	17.4	46.6	46.6	11.3	29.3	29.3	11.3	29.3	29.3
Yellow Time (s)	4.2	4.2	4.2	4.2	4.2	4.2	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.4	2.2	2.2	2.4	2.2	2.2	3.4	3.4	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.4	6.4	6.6	6.4	6.4	6.7	6.7	6.7	6.7	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)		22.0	22.0		22.0	22.0		22.0	22.0		22.0	22.0
Pedestrian Calls (#/hr)		5	5		4	4		12	12		10	10
Act Effct Green (s)	9.4	40.7	40.7	15.9	47.2	47.2	9.8	25.9	25.9	11.1	27.3	27.3
Actuated g/C Ratio	0.08	0.34	0.34	0.13	0.39	0.39	0.08	0.22	0.22	0.09	0.23	0.23
v/c Ratio	0.76	0.81	0.33	0.74	0.82	0.21	0.49	0.56	0.41	0.84	0.89	0.34
Control Delay	56.9	44.4	17.4	61.3	38.9	3.7	59.0	47.3	6.4	94.2	69.0	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.9	44.4	17.4	61.3	38.9	3.7	59.0	47.3	6.4	94.2	69.0	3.9
LOS	E	D	B	E	D	A	E	D	A	F	E	A
Approach Delay		41.9			40.3			35.2			57.1	
Approach LOS		D			D			D			E	
Queue Length 50th (m)	~22.6	119.0	26.7	37.1	117.3	0.0	15.1	43.0	0.0	30.3	78.0	0.0
Queue Length 95th (m)	m#36.7	#150.8	m37.8	52.0	144.9	10.2	24.7	66.6	14.2	#63.7	#124.9	8.3
Internal Link Dist (m)		413.3			403.0			212.7			202.0	
Turn Bay Length (m)	90.0		55.0	80.0		195.0	50.0		90.0	50.0		50.0
Base Capacity (vph)	251	1124	636	466	1304	667	302	426	512	156	428	514
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	0.76	0.81	0.33	0.68	0.82	0.21	0.42	0.49	0.38	0.83	0.82	0.33

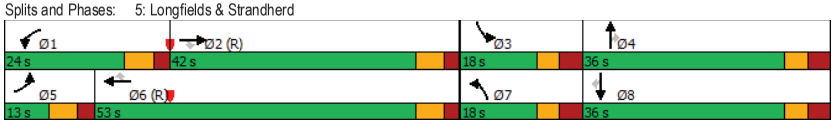
Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 18 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 100

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 42.8 Intersection LOS: D
Intersection Capacity Utilization 78.7% 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Longfields & Strandherd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	107	68	17	49	148	346	100	532
Future Volume (vph)	107	68	17	49	148	346	100	532
Lane Group Flow (vph)	119	356	0	133	164	401	111	773
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	34.8	34.8	34.8	34.8	10.6	24.8	24.8	24.8
Total Split (s)	35.0	35.0	35.0	35.0	15.0	50.0	35.0	35.0
Total Split (%)	41.2%	41.2%	41.2%	41.2%	17.6%	58.8%	41.2%	41.2%
Maximum Green (s)	28.2	28.2	28.2	28.2	9.4	44.2	29.2	29.2
Yellow Time (s)	3.0	3.0	3.0	3.0	3.3	3.3	3.3	3.3
All-Red Time (s)	3.8	3.8	3.8	3.8	2.3	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8		6.8	5.6	5.8	5.8	5.8
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	3.0	3.0
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max
Walk Time (s)	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		12.0	12.0	12.0
Pedestrian Calls (#/hr)	1	1	7	7		5	2	2
Act Effct Green (s)	16.0	16.0		16.0	56.6	56.4	42.6	42.6
Actuated g/C Ratio	0.19	0.19		0.19	0.67	0.66	0.50	0.50
v/c Ratio	0.53	0.75		0.70	0.38	0.18	0.25	0.48
Control Delay	38.0	20.7		37.8	9.5	6.7	17.2	15.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	20.7		37.8	9.5	6.7	17.2	15.9
LOS	D	C		D	A	A	B	B
Approach Delay		25.0		37.8		7.5		16.1
Approach LOS		C		D		A		B
Queue Length 50th (m)	18.3	18.4		12.7	7.7	10.0	9.1	35.5
Queue Length 95th (m)	27.8	38.7		26.1	23.5	25.1	27.5	71.8
Internal Link Dist (m)		257.2		427.6		400.4		212.7
Turn Bay Length (m)	30.0				75.0		100.0	
Base Capacity (vph)	396	661		297	444	2186	447	1618
Starvation Cap Reductn	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0
Reduced v/c Ratio	0.30	0.54		0.45	0.37	0.18	0.25	0.48

Intersection Summary
Cycle Length: 85
Actuated Cycle Length: 85
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 75

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 17.2 Intersection LOS: B
Intersection Capacity Utilization 67.8% ICU Level of Service C
Analysis Period (min) 15

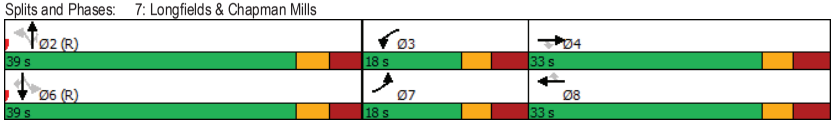
Splits and Phases: 6: Longfields & Marketplace/Clearbrook

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø4	Ø7
Lane Configurations								
Traffic Volume (vph)	65	84	434	54	165	685		
Future Volume (vph)	65	84	434	54	165	685		
Lane Group Flow (vph)	72	93	482	60	183	761		
Turn Type	Prot	Perm	NA	Perm	Perm	NA		
Protected Phases	3		2			6	4	7
Permitted Phases		8		2	6			
Detector Phase	3	8	2	2	6	6		
Switch Phase								
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0	10.0	5.0
Minimum Split (s)	12.3	32.5	38.3	38.3	38.3	38.3	32.5	12.3
Total Split (s)	18.0	33.0	39.0	39.0	39.0	39.0	33.0	18.0
Total Split (%)	20.0%	36.7%	43.3%	43.3%	43.3%	43.3%	37%	20%
Maximum Green (s)	10.7	25.5	31.7	31.7	31.7	31.7	25.5	10.7
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7	3.3	3.3
All-Red Time (s)	4.0	4.2	3.6	3.6	3.6	3.6	4.2	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	7.3	7.5	7.3	7.3	7.3	7.3		
Lead/Lag	Lead	Lag					Lag	Lead
Lead-Lag Optimize?	Yes	Yes					Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		18.0	24.0	24.0	24.0	24.0	18.0	
Pedestrian Calls (#/hr)		5	7	7	17	17	8	
Act Effct Green (s)	9.5	16.7	63.5	63.5	63.5	63.5		
Actuated g/C Ratio	0.11	0.19	0.71	0.71	0.71	0.71		
v/c Ratio	0.41	0.16	0.21	0.06	0.31	0.33		
Control Delay	44.5	0.5	9.9	12.4	13.3	9.9		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	44.5	0.5	9.9	12.4	13.3	9.9		
LOS	D	A	A	B	B	A		
Approach Delay			10.2			10.6		
Approach LOS			B			B		
Queue Length 50th (m)	11.7	0.0	10.1	2.2	9.4	20.6		
Queue Length 95th (m)	24.4	0.0	43.1	15.5	49.3	75.9		
Internal Link Dist (m)			375.7			400.4		
Turn Bay Length (m)	40.0	40.0		65.0	65.0			
Base Capacity (vph)	197	742	2338	1011	583	2338		
Starvation Cap Reductn	0	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0	0		
Reduced v/c Ratio	0.37	0.13	0.21	0.06	0.31	0.33		

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 33 (37%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 85

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.41
Intersection Signal Delay: 11.4 Intersection LOS: B
Intersection Capacity Utilization 66.0% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 7: Longfields & Chapman Mills

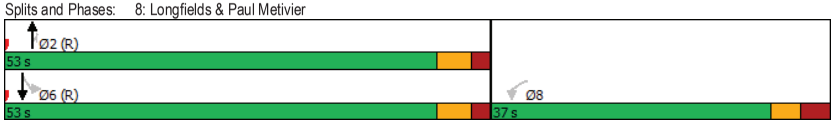


Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	91	412	68	104	657
Future Volume (vph)	91	412	68	104	657
Lane Group Flow (vph)	198	458	76	116	730
Turn Type	Perm	NA	Perm	Perm	NA
Protected Phases		2			6
Permitted Phases	8		2	6	
Detector Phase	8	2	2	6	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	36.6	36.0	36.0	24.0	24.0
Total Split (s)	37.0	53.0	53.0	53.0	53.0
Total Split (%)	41.1%	58.9%	58.9%	58.9%	58.9%
Maximum Green (s)	30.4	47.0	47.0	47.0	47.0
Yellow Time (s)	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	3.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.0	6.0	6.0	6.0
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	14.0	14.0		
Flash Dont Walk (s)	23.0	16.0	16.0		
Pedestrian Calls (#/hr)	7	9	9		
Act Effct Green (s)	16.2	61.2	61.2	61.2	61.2
Actuated g/C Ratio	0.18	0.68	0.68	0.68	0.68
v/c Ratio	0.60	0.20	0.08	0.20	0.32
Control Delay	29.9	6.8	2.5	4.4	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	29.9	6.8	2.5	4.4	4.0
LOS	C	A	A	A	A
Approach Delay	29.9	6.2			4.0
Approach LOS	C	A			A
Queue Length 50th (m)	22.9	12.0	0.0	3.4	11.4
Queue Length 95th (m)	34.9	30.6	6.0	6.2	14.5
Internal Link Dist (m)	403.8	379.4			375.7
Turn Bay Length (m)			50.0	70.0	
Base Capacity (vph)	570	2254	999	575	2254
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	0.35	0.20	0.08	0.20	0.32

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 35 (39%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 75

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 8.0 Intersection LOS: A
Intersection Capacity Utilization 60.3% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 8: Longfields & Paul Metivier



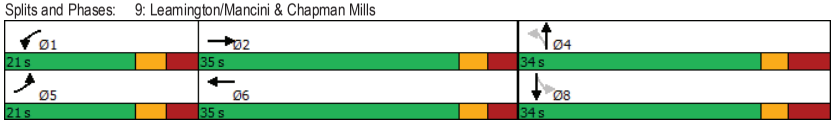
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	15	105	42	99	55	10	20	12
Future Volume (vph)	15	105	42	99	55	10	20	12
Lane Group Flow (vph)	17	204	47	144	0	106	0	43
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		4		8
Permitted Phases					4		8	
Detector Phase	5	2	1	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.8	22.6	11.8	22.6	33.7	33.7	33.7	33.7
Total Split (s)	21.0	35.0	21.0	35.0	34.0	34.0	34.0	34.0
Total Split (%)	23.3%	38.9%	23.3%	38.9%	37.8%	37.8%	37.8%	37.8%
Maximum Green (s)	14.2	28.4	14.2	28.4	26.3	26.3	26.3	26.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.0	3.0	3.0	3.0
All-Red Time (s)	3.5	3.3	3.5	3.3	4.7	4.7	4.7	4.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	6.8	6.6	6.8	6.6		7.7		7.7
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	None	Max	None	None	None	None
Walk Time (s)		7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		9.0		9.0	19.0	19.0	19.0	19.0
Pedestrian Calls (#/hr)		1		2	0	0	1	1
Act Effct Green (s)	6.4	36.7	7.5	42.7		13.4		13.4
Actuated g/C Ratio	0.10	0.55	0.11	0.64		0.20		0.20
v/c Ratio	0.11	0.22	0.25	0.13		0.40		0.16
Control Delay	34.1	13.1	34.1	9.9		29.4		24.9
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	34.1	13.1	34.1	9.9		29.4		24.9
LOS	C	B	C	A		C		C
Approach Delay		14.7		15.8		29.4		24.9
Approach LOS		B		B		C		C
Queue Length 50th (m)	2.0	12.5	5.5	5.5		12.4		4.8
Queue Length 95th (m)	8.7	37.0	17.0	27.3		26.0		12.6
Internal Link Dist (m)		203.2		520.9		265.7		233.3
Turn Bay Length (m)	40.0		50.0					
Base Capacity (vph)	364	908	364	1078		542		541
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	0.22	0.13	0.13		0.20		0.08

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 66.7
Natural Cycle: 70
Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.40
Intersection Signal Delay: 18.6 — Intersection LOS: B
Intersection Capacity Utilization 43.9% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 9: Leamington/Mancini & Chapman Mills



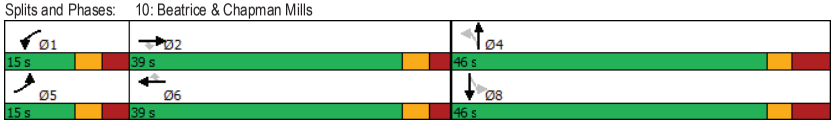
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	39	107	5	22	145	25	7	42	25	51
Future Volume (vph)	39	107	5	22	145	25	7	42	25	51
Lane Group Flow (vph)	43	119	6	24	161	28	0	73	0	117
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			4		8
Permitted Phases			2			6	4		8	
Detector Phase	5	2	2	1	6	6	4	4	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
Minimum Split (s)	11.5	25.9	25.9	11.5	25.9	25.9	45.7	45.7	45.7	45.7
Total Split (s)	15.0	39.0	39.0	15.0	39.0	39.0	46.0	46.0	46.0	46.0
Total Split (%)	15.0%	39.0%	39.0%	15.0%	39.0%	39.0%	46.0%	46.0%	46.0%	46.0%
Maximum Green (s)	8.5	33.1	33.1	8.5	33.1	33.1	38.3	38.3	38.3	38.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.0	3.0	3.0	3.0
All-Red Time (s)	3.2	2.6	2.6	3.2	2.6	2.6	4.7	4.7	4.7	4.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	6.5	5.9	5.9	6.5	5.9	5.9		7.7		7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	None	Max	Max	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)		13.0	13.0		13.0	13.0	31.0	31.0	31.0	31.0
Pedestrian Calls (#/hr)		9	9		9	9	3	3	28	28
Act Effct Green (s)	7.4	44.8	44.8	6.9	41.7	41.7		19.3		19.3
Actuated g/C Ratio	0.10	0.59	0.59	0.09	0.55	0.55		0.25		0.25
v/c Ratio	0.27	0.12	0.01	0.16	0.17	0.03		0.10		0.17
Control Delay	43.6	17.6	0.0	42.5	19.0	0.1		21.6		22.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	43.6	17.6	0.0	42.5	19.0	0.1		21.6		22.4
LOS	D	B	A	D	B	A		C		C
Approach Delay		23.6			19.2			21.6		22.4
Approach LOS		C			B			C		C
Queue Length 50th (m)	5.3	4.8	0.0	3.0	11.7	0.0		4.5		7.3
Queue Length 95th (m)	18.5	29.6	0.0	12.2	38.6	0.0		9.1		13.5
Internal Link Dist (m)		520.9			367.7			322.5		353.5
Turn Bay Length (m)	40.0		40.0	45.0		60.0				
Base Capacity (vph)	197	1023	898	197	952	844		1553		1447
Starvation Cap Reductn	0	0	0	0	0	0		0		0
Spillback Cap Reductn	0	0	0	0	0	0		0		0
Storage Cap Reductn	0	0	0	0	0	0		0		0
Reduced v/c Ratio	0.22	0.12	0.01	0.12	0.17	0.03		0.05		0.08

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 76.4
Natural Cycle: 85
Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.27
Intersection Signal Delay: 21.4 — Intersection LOS: C
Intersection Capacity Utilization 60.1% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 10: Beatrice & Chapman Mills



Appendix D

Collision Data

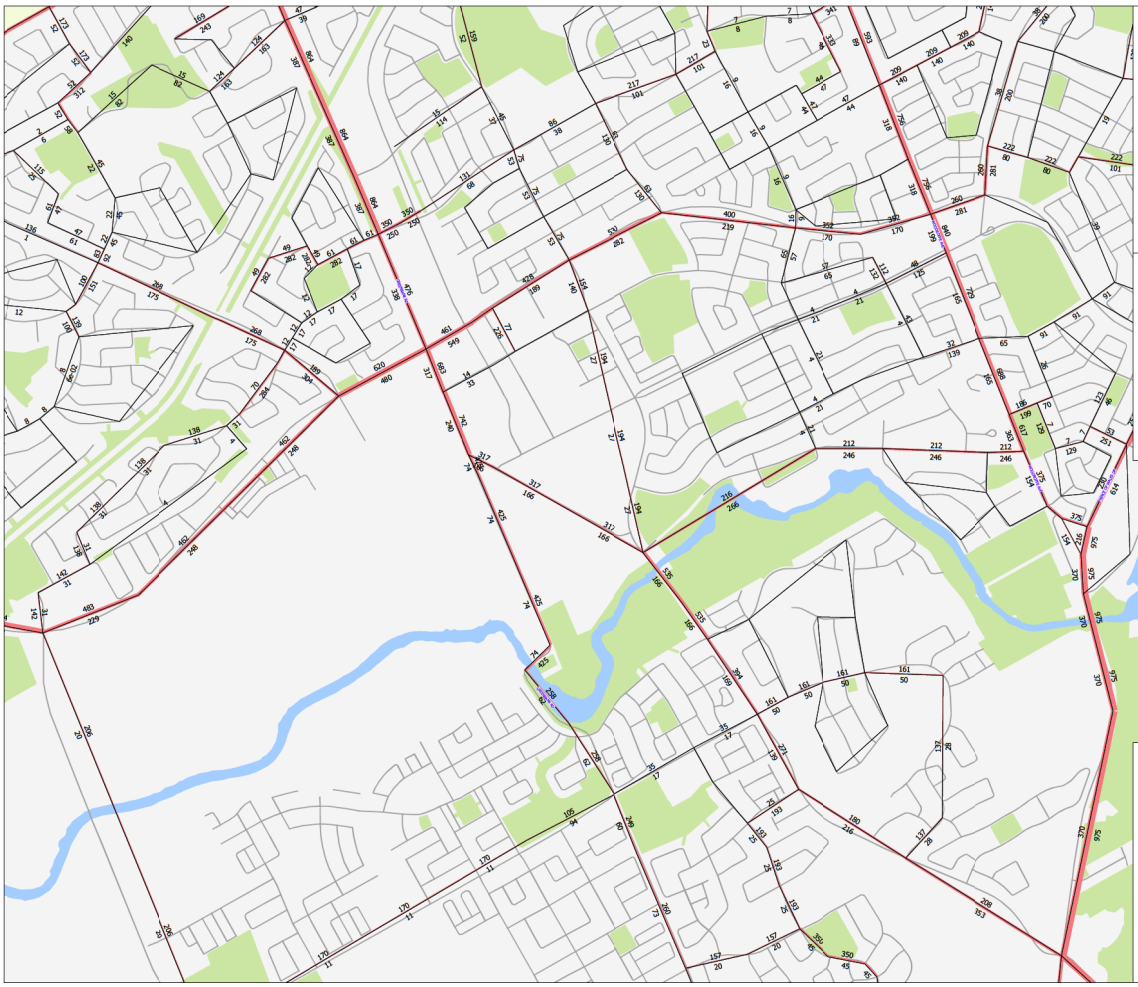
CGH TRANSPORTATION

Accident Date	Accident Year	Accident Time	Location	Environment Condition	Light	Traffic Control	Traffic Control Condition	Classification Of Accident	Initial Impact Type	Road Surface Condition
2015-01-11	2015	13:03	MARKETPLACE AVE @ RIOCAN AVE	01 - Clear	01 - Daylight	02 - Stop sign		02 - Non-fatal injury	07 - SMV other	02 - Wet
2015-12-22	2015	14:15	MARKETPLACE AVE @ RIOCAN AVE	01 - Clear	01 - Daylight	02 - Stop sign		02 - Non-fatal injury	07 - SMV other	02 - Wet
2015-12-21	2015	11:30	MARKETPLACE AVE @ RIOCAN AVE	02 - Rain	01 - Daylight	02 - Stop sign		02 - Non-fatal injury	02 - Angle	02 - Wet
2016-08-28	2016	19:08	MARKETPLACE AVE @ RIOCAN AVE	01 - Clear	01 - Daylight	02 - Stop sign		02 - Non-fatal injury	07 - SMV other	01 - Dry
2016-12-24	2016	12:47	MARKETPLACE AVE @ RIOCAN AVE	01 - Clear	01 - Daylight	02 - Stop sign		02 - Non-fatal injury	07 - SMV other	02 - Wet
2016-05-14	2016	16:43	MARKETPLACE AVE @ RIOCAN AVE	01 - Clear	01 - Daylight	02 - Stop sign		03 - P.D. only	02 - Angle	01 - Dry
2016-03-28	2016	18:49	MARKETPLACE AVE @ RIOCAN AVE	02 - Rain	05 - Dusk	02 - Stop sign		03 - P.D. only	02 - Angle	02 - Wet
2016-01-13	2016	20:26	MARKETPLACE AVE @ RIOCAN AVE	01 - Clear	07 - Dark	02 - Stop sign		03 - P.D. only	02 - Angle	02 - Wet
2016-05-03	2016	17:25	MARKETPLACE AVE @ RIOCAN AVE	01 - Clear	01 - Daylight	02 - Stop sign		03 - P.D. only	03 - Rear end	01 - Dry
2016-05-28	2016	15:55	MARKETPLACE AVE @ RIOCAN AVE	01 - Clear	01 - Daylight	02 - Stop sign		03 - P.D. only	02 - Angle	01 - Dry
2017-06-25	2017	14:45	MARKETPLACE AVE @ RIOCAN AVE	06 - Strong wind	01 - Daylight	02 - Stop sign		03 - P.D. only	07 - SMV other	02 - Wet
2017-06-30	2017	15:11	MARKETPLACE AVE @ RIOCAN AVE	02 - Rain	01 - Daylight	02 - Stop sign		03 - P.D. only	04 - Sideswipe	02 - Wet
2017-08-25	2017	13:10	MARKETPLACE AVE @ RIOCAN AVE	01 - Clear	01 - Daylight	02 - Stop sign		02 - Non-fatal injury	02 - Angle	01 - Dry
2017-10-21	2017	14:42	MARKETPLACE AVE @ RIOCAN AVE	01 - Clear	01 - Daylight	02 - Stop sign		02 - Non-fatal injury	07 - SMV other	01 - Dry
2015-06-18	2015	15:15	MARKETPLACE AVE @ RIOCAN AVE	01 - Clear	01 - Daylight	02 - Stop sign		03 - P.D. only	02 - Angle	01 - Dry
2015-07-03	2015	0:38	MARKETPLACE AVE @ RIOCAN AVE	01 - Clear	07 - Dark	02 - Stop sign		03 - P.D. only	02 - Angle	01 - Dry
2017-12-11	2017	19:16	MARKETPLACE AVE @ RIOCAN AVE	01 - Clear	07 - Dark	02 - Stop sign		03 - P.D. only	02 - Angle	01 - Dry
2017-11-20	2017	11:45	MARKETPLACE AVE @ RIOCAN AVE	01 - Clear	01 - Daylight	02 - Stop sign		03 - P.D. only	05 - Turning movement	01 - Dry
2017-03-04	2017	17:06	MARKETPLACE AVE @ RIOCAN AVE	01 - Clear	01 - Daylight	02 - Stop sign		03 - P.D. only	04 - Sideswipe	01 - Dry
2017-03-14	2017	15:28	MARKETPLACE AVE @ RIOCAN AVE	03 - Snow	01 - Daylight	02 - Stop sign		03 - P.D. only	02 - Angle	02 - Wet
2018-09-29	2018	13:49	MARKETPLACE AVE @ RIOCAN AVE (0010995)	01 - Clear	01 - Daylight	02 - Stop sign		03 - P.D. only	02 - Angle	01 - Dry
2019-07-23	2019	19:00	MARKETPLACE AVE @ RIOCAN AVE (0010995)	01 - Clear	01 - Daylight	02 - Stop sign		03 - P.D. only	02 - Angle	01 - Dry
2019-09-04	2019	16:25	MARKETPLACE AVE @ RIOCAN AVE (0010995)	01 - Clear	01 - Daylight	02 - Stop sign		02 - Non-fatal injury	02 - Angle	01 - Dry
2019-11-13	2019	8:55	MARKETPLACE AVE @ RIOCAN AVE (0010995)	01 - Clear	01 - Daylight	02 - Stop sign		03 - P.D. only	03 - Rear end	01 - Dry
2019-12-14	2019	21:46	MARKETPLACE AVE @ RIOCAN AVE (0010995)	03 - Snow	07 - Dark	02 - Stop sign		02 - Non-fatal injury	02 - Angle	03 - Loose snow
2015-11-27	2015	13:30	RIOCAN AVE @ STRANDHERD DR	02 - Rain	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	05 - Turning movement	02 - Wet
2015-03-05	2015	18:55	RIOCAN AVE @ STRANDHERD DR	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2015-06-29	2015	17:46	RIOCAN AVE @ STRANDHERD DR	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2015-09-29	2015	13:50	RIOCAN AVE @ STRANDHERD DR	02 - Rain	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	02 - Wet
2015-12-26	2015	10:32	RIOCAN AVE @ STRANDHERD DR	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2016-12-15	2016	20:06	RIOCAN AVE @ STRANDHERD DR	01 - Clear	07 - Dark	01 - Traffic signal		02 - Non-fatal injury	05 - Turning movement	06 - Ice
2016-01-07	2016	19:36	RIOCAN AVE @ STRANDHERD DR	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	03 - Rear end	06 - Ice
2016-07-13	2016	9:57	RIOCAN AVE @ STRANDHERD DR	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	02 - Angle	01 - Dry
2015-01-13	2015	12:29	RIOCAN AVE @ STRANDHERD DR	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2015-04-04	2015	16:06	RIOCAN AVE @ STRANDHERD DR	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2015-03-08	2015	10:16	RIOCAN AVE @ STRANDHERD DR	03 - Snow	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	02 - Wet
2017-11-23	2017	17:22	RIOCAN AVE @ STRANDHERD DR	03 - Snow	07 - Dark	01 - Traffic signal		03 - P.D. only	05 - Turning movement	03 - Loose snow
2017-05-06	2017	14:25	RIOCAN AVE @ STRANDHERD DR	02 - Rain	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	02 - Wet
2017-05-08	2017	16:27	RIOCAN AVE @ STRANDHERD DR	03 - Snow	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	02 - Wet
2017-06-03	2017	17:00	RIOCAN AVE @ STRANDHERD DR	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2017-08-01	2017	9:00	RIOCAN AVE @ STRANDHERD DR	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	02 - Angle	01 - Dry
2017-10-29	2017	20:30	RIOCAN AVE @ STRANDHERD DR	02 - Rain	07 - Dark	01 - Traffic signal		03 - P.D. only	05 - Turning movement	02 - Wet
2017-11-06	2017	19:43	RIOCAN AVE @ STRANDHERD DR	01 - Clear	07 - Dark	01 - Traffic signal		02 - Non-fatal injury	05 - Turning movement	01 - Dry
2017-11-06	2017	13:30	RIOCAN AVE @ STRANDHERD DR	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2017-04-06	2017	17:28	RIOCAN AVE @ STRANDHERD DR	02 - Rain	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	02 - Wet
2017-02-19	2017	14:20	RIOCAN AVE @ STRANDHERD DR	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2017-11-06	2017	21:14	RIOCAN AVE @ STRANDHERD DR	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2017-03-12	2017	13:14	RIOCAN AVE @ STRANDHERD DR	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	01 - Dry
2018-02-15	2018	18:05	RIOCAN AVE @ STRANDHERD DR (0010997)	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	05 - Turning movement	04 - Slush
2018-01-17	2018	19:34	RIOCAN AVE @ STRANDHERD DR (0010997)	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2018-02-07	2018	17:28	RIOCAN AVE @ STRANDHERD DR (0010997)	03 - Snow	07 - Dark	01 - Traffic signal		02 - Non-fatal injury	05 - Turning movement	03 - Loose snow
2018-07-05	2018	12:05	RIOCAN AVE @ STRANDHERD DR (0010997)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2018-07-21	2018	22:48	RIOCAN AVE @ STRANDHERD DR (0010997)	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	07 - SMV other	01 - Dry
2018-12-02	2018	13:28	RIOCAN AVE @ STRANDHERD DR (0010997)	02 - Rain	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	02 - Wet
2019-05-02	2019	14:57	RIOCAN AVE @ STRANDHERD DR (0010997)	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	07 - SMV other	01 - Dry
2019-05-02	2019	18:15	RIOCAN AVE @ STRANDHERD DR (0010997)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2018-02-10	2018	17:51	RIOCAN AVE @ STRANDHERD DR (0010997)	03 - Snow	05 - Dusk	01 - Traffic signal		03 - P.D. only	05 - Turning movement	03 - Loose snow
2018-05-24	2018	10:09	RIOCAN AVE @ STRANDHERD DR (0010997)	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	01 - Dry
2018-12-21	2018	15:24	RIOCAN AVE @ STRANDHERD DR (0010997)	02 - Rain	01 - Daylight	01 - Traffic signal		03 - P.D. only	02 - Angle	04 - Slush
2018-06-12	2018	18:00	RIOCAN AVE @ STRANDHERD DR (0010997)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2018-07-16	2018	13:03	RIOCAN AVE @ STRANDHERD DR (0010997)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2018-11-06	2018	13:10	RIOCAN AVE @ STRANDHERD DR (0010997)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	01 - Dry
2019-05-16	2019	17:26	RIOCAN AVE @ STRANDHERD DR (0010997)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2019-07-10	2019	12:08	RIOCAN AVE @ STRANDHERD DR (0010997)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2019-10-05	2019	10:15	RIOCAN AVE @ STRANDHERD DR (0010997)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	01 - Dry
2019-10-24	2019	15:19	RIOCAN AVE @ STRANDHERD DR (0010997)	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	01 - Dry
2019-10-26	2019	13:45	RIOCAN AVE @ STRANDHERD DR (0010997)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2019-11-20	2019	19:30	RIOCAN AVE @ STRANDHERD DR (0010997)	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2019-11-09	2019	17:08	RIOCAN AVE @ STRANDHERD DR (0010997)	04 - Freezing Rain	05 - Dusk	01 - Traffic signal		03 - P.D. only	03 - Rear end	02 - Wet
2019-12-19	2019	16:25	RIOCAN AVE @ STRANDHERD DR (0010997)	01 - Clear	05 - Dusk	01 - Traffic signal		03 - P.D. only	03 - Rear end	06 - Ice
2019-12-22	2019	14:58	RIOCAN AVE @ STRANDHERD DR (0010997)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	02 - Angle	02 - Wet
2019-12-24	2019	7:09	RIOCAN AVE @ STRANDHERD DR (0010997)	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2015-07-09	2015	14:58	RIOCAN AVE btwn MARKETPLACE AVE & END	01 - Clear	01 - Daylight	10 - No control		02 - Non-fatal injury	02 - Angle	01 - Dry
2015-03-21	2015	15:53	RIOCAN AVE btwn MARKETPLACE AVE & END	02 - Rain	01 - Daylight	10 - No control		03 - P.D. only	02 - Angle	02 - Wet
2016-01-26	2016	11:23	RIOCAN AVE btwn MARKETPLACE AVE & END	01 - Clear	01 - Daylight	10 - No control		02 - Non-fatal injury	02 - Angle	02 - Wet
2016-09-20	2016	17:24	RIOCAN AVE btwn MARKETPLACE AVE & END	01 - Clear	01 - Daylight	10 - No control		03 - P.D. only	02 - Angle	01 - Dry
2015-07-18	2015	18:08	RIOCAN AVE btwn MARKETPLACE AVE & END	01 - Clear	01 - Daylight	10 - No control		03 - P.D. only	02 - Angle	01 - Dry
2017-11-26	2017	11:28	RIOCAN AVE btwn MARKETPLACE AVE & END	01 - Clear	01 - Daylight	10 - No control		03 - P.D. only	02 - Angle	01 - Dry
2017-03-01	2017	13:27	RIOCAN AVE btwn MARKETPLACE AVE & END	01 - Clear	01 - Daylight	10 - No control		03 - P.D. only	01 - Approaching	01 - Dry
2018-01-23	2018	14:38	RIOCAN AVE btwn MARKETPLACE AVE & END (__4LZBNN)	02 - Rain	01 - Daylight	10 - No control		03 - P.D. only	02 - Angle	02 - Wet
2018-04-06	2018	20:46	RIOCAN AVE btwn MARKETPLACE AVE & END (__4LZBNN)	01 - Clear	07 - Dark	10 - No control		03 - P.D. only	02 - Angle	01 - Dry
2015-10-14	2015	15:58	RIOCAN AVE btwn STRANDHERD DR & MARKETPLACE AVE	01 - Clear	01 - Daylight	10 - No control		02 - Non-fatal injury	02 - Angle	01 - Dry
2015-05-15	2015	18:51	RIOCAN AVE btwn STRANDHERD DR & MARKETPLACE AVE	01 - Clear	01 - Daylight	10 - No control		03 - P.D. only	02 - Angle	01 - Dry
2015-02-23	2015	7:50	RIOCAN AVE btwn STRANDHERD DR & MARKETPLACE AVE	01 - Clear	01 - Daylight	10 - No control		03 - P.D. only	05 - Turning movement	02 - Wet
2015-12-08	2015	14:25	RIOCAN AVE btwn STRANDHERD DR & MARKETPLACE AVE	01 - Clear	01 - Daylight	10 - No control		03 - P.D. only	02 - Angle	01 - Dry
2016-05-04	2016	21:15	RIOCAN AVE btwn STRANDHERD DR & MARKETPLACE AVE	02 - Rain	07 - Dark	10 - No control		03 - P.D. only	05 - Turning movement	02 - Wet
2016-11-11	2016	14:15	RIOCAN AVE btwn STRANDHERD DR & MARKETPLACE AVE	01 - Clear	01 - Daylight	10 - No control		03 - P.D. only	05 - Turning movement	01 - Dry
2017-09-21	2017	14:36	RIOCAN AVE btwn STRANDHERD DR & MARKETPLACE AVE	01 - Clear	01 - Daylight	10 - No control		03 - P.D. only	03 - Rear end	01 - Dry
2018-02-18	2018	14:45	RIOCAN AVE btwn STRANDHERD DR & MARKETPLACE AVE (__4LZBMJ)	01 - Clear	01 - Daylight	10 - No control		03 - P.D. only	05 - Turning movement	01 - Dry
2018-07-05	2018	12:39	RIOCAN AVE btwn STRANDHERD DR & MARKETPLACE AVE (__4LZBMJ)	01 - Clear	01 - Daylight	10 - No control		03 - P.D. only	05 - Turning movement	01 - Dry
2018-12-22	2018	14:20	RIOCAN AVE btwn STRANDHERD DR & MARKETPLACE AVE (__4LZBMJ)	01 - Clear	01 - Daylight	10 - No control		03 - P.D. only	04 - Sideswipe	04 - Slush
2019-01-12	2019	13:12	RIOCAN AVE btwn STRANDHERD DR & MARKETPLACE AVE (__4LZBMJ)	01 - Clear	01 - Daylight	10 - No control		03 - P.D. only	02 - Angle	01 - Dry
2019-08-04	2019	12:08	RIOCAN AVE btwn STRANDHERD DR & MARKETPLACE AVE (__4LZBMJ)	01 - Clear	01 - Daylight	10 - No control		02 - Non-fatal injury	04 - Sideswipe	01 - Dry
2019-07-26	2019	15:46	RIOCAN AVE btwn STRANDHERD DR & MARKETPLACE AVE (__4LZBMJ)	01 - Clear	01 - Daylight	10 - No control		03 - P.D. only	04 - Sideswipe	01 - Dry
2015-02-14	2015	12:58	LONGFIELDS DR btwn CHAPMAN MILLS DR & GLENROY GILBERT DR	01 - Clear	01 - Daylight	10 - No control		03 - P.D. only	07 - SMV other	03 - Loose snow

2015-07-27	2015	5:47	LONGFIELDS DR btwn CHAPMAN MILLS DR & GLENROY GILBERT DR	01 - Clear	03 - Dawn	10 - No control	03 - P.D. only	07 - SMV other	01 - Dry
2016-12-02	2016	19:31	LONGFIELDS DR btwn CHAPMAN MILLS DR & GLENROY GILBERT DR	01 - Clear	07 - Dark	10 - No control	03 - P.D. only	04 - Sideswipe	01 - Dry
2019-02-21	2019	17:55	GLENROY GILBERT DR @ LONGFIELDS DR (0013785)	01 - Clear	05 - Dusk	02 - Stop sign	03 - P.D. only	04 - Sideswipe	02 - Wet
2015-01-02	2015	15:52	CHAPMAN MILLS DR @ LONGFIELDS DR	01 - Clear	01 - Daylight	02 - Stop sign	03 - P.D. only	02 - Angle	01 - Dry
2016-10-31	2016	21:15	CHAPMAN MILLS DR @ LONGFIELDS DR	01 - Clear	07 - Dark	02 - Stop sign	03 - P.D. only	07 - SMV other	01 - Dry
2016-12-17	2016	13:02	CHAPMAN MILLS DR @ LONGFIELDS DR	03 - Snow	01 - Daylight	02 - Stop sign	03 - P.D. only	01 - Approaching	03 - Loose snow
2017-08-17	2017	16:26	CHAPMAN MILLS DR @ LONGFIELDS DR	01 - Clear	01 - Daylight	02 - Stop sign	03 - P.D. only	06 - SMV unattended vehicle	01 - Dry
2017-11-15	2017	15:35	CHAPMAN MILLS DR @ LONGFIELDS DR	01 - Clear	01 - Daylight	02 - Stop sign	03 - P.D. only	02 - Angle	01 - Dry
2017-02-15	2017	9:24	CHAPMAN MILLS DR @ LONGFIELDS DR	03 - Snow	01 - Daylight	02 - Stop sign	03 - P.D. only	02 - Angle	03 - Loose snow
2018-06-28	2018	19:16	CHAPMAN MILLS DR @ LONGFIELDS DR (0013784)	01 - Clear	01 - Daylight	02 - Stop sign	03 - P.D. only	03 - Rear end	01 - Dry
2019-06-17	2019	7:49	CHAPMAN MILLS DR @ LONGFIELDS DR (0013784)	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry

Appendix E

TRANS Model Plots



TRANS Regional Model

Version 2.15 - Assigned June 16, 2020

AM Peak Hour Total Traffic Volume

3265 Jockavle Road

2011 Model - Basecase

N/A

User Initials: TIMW
Plot Prepared: October 25, 2020
EMME Scenario: 21711

TRANS

Legend

AM Peak Hour Total Traffic Volume

1000 2000 3000 4000 5000

N

Distance (m)

200 400 600 800 1000

TRANS Regional Model

Version 2.15 - Assigned June 16, 2020

AM Peak Hour Total Traffic Volume

3265 Jockvale Road

2031 Model - Basecase

N/A

User Initials: TIMW
Plot Prepared: October 25, 2020
EMME Scenario: 21711

TRANS

Legend

AM Peak Hour Total Traffic Volume

1000 2000 3000 4000 5000

N

Distance (m)

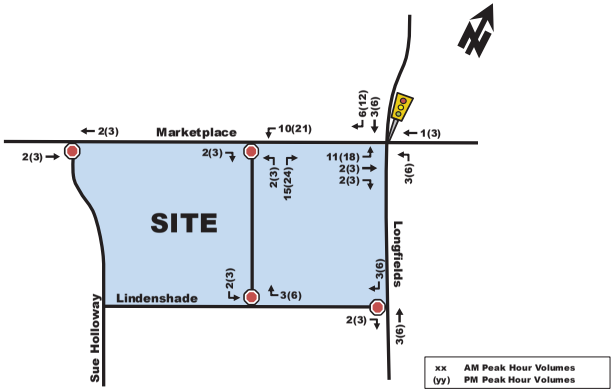
200 400 600 800 1000

Appendix F

Adjacent Development Volumes

CGH TRANSPORTATION

Figure 7: 'New' Site-Generated Traffic Volumes



Based on these distributions, 'new' site-generated trips were assigned to the study area, which are illustrated as Figure 7.

Figure 7: 'New' Site-Generated Traffic Volumes

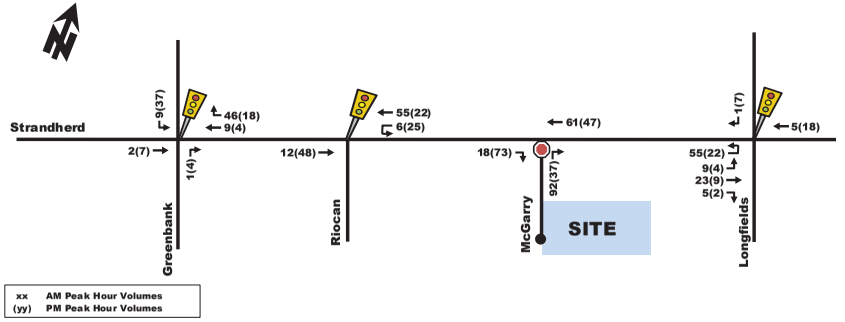


Figure 10: New Site Generation Auto Volumes

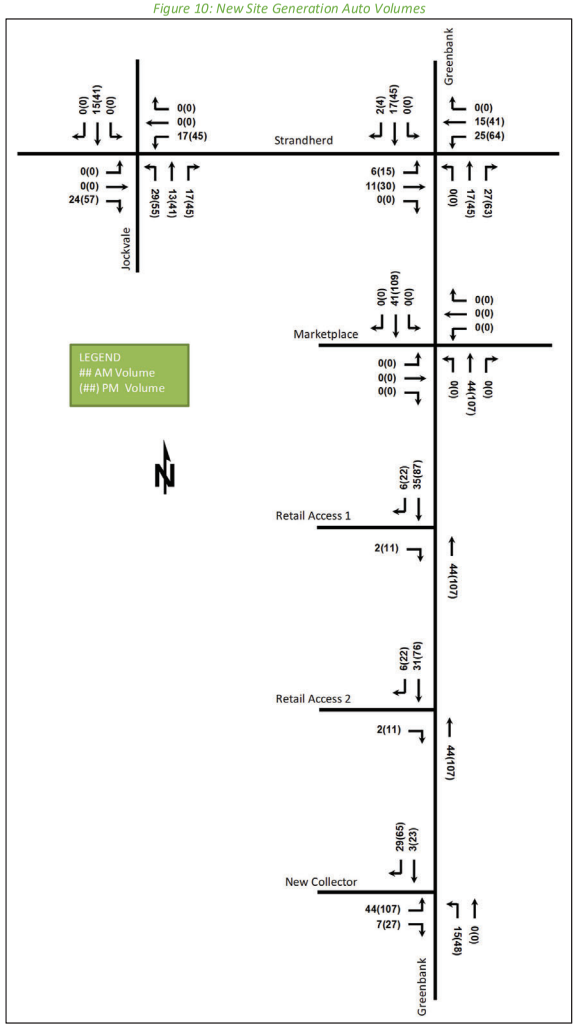
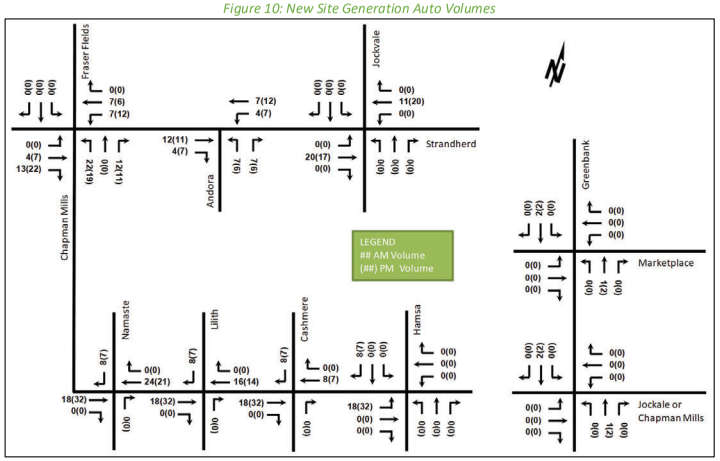


Figure 10: New Site Generation Auto Volumes



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. Figure 11 illustrates the new site generated volumes.

Figure 11: New Site Generation Auto Volumes

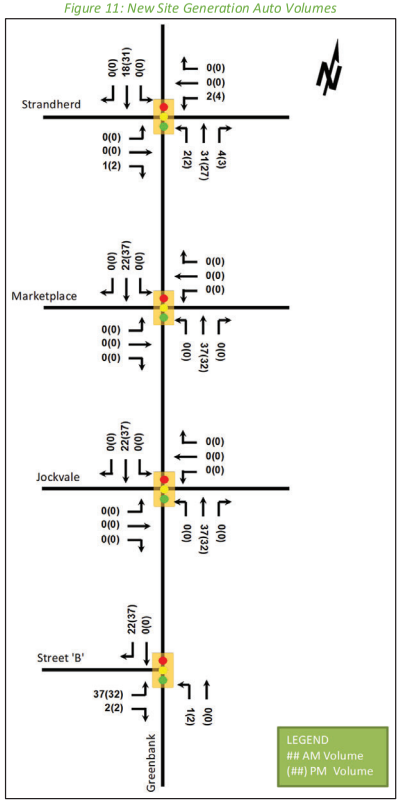
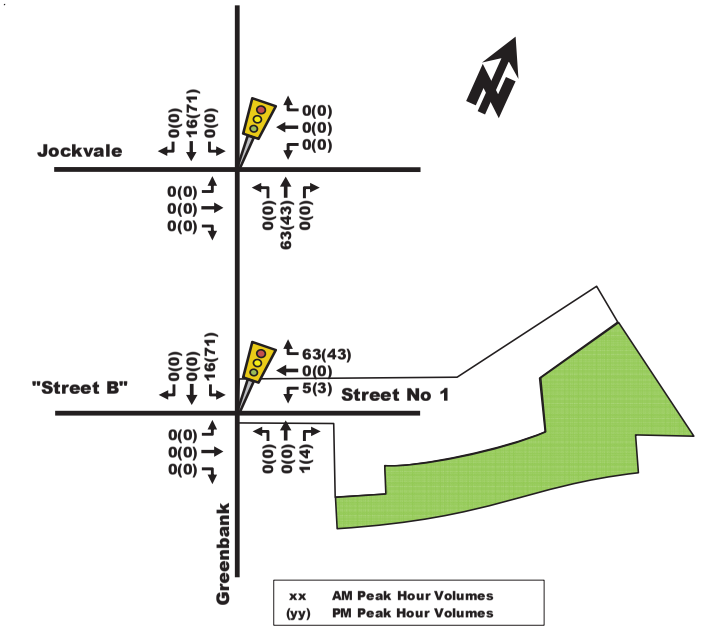
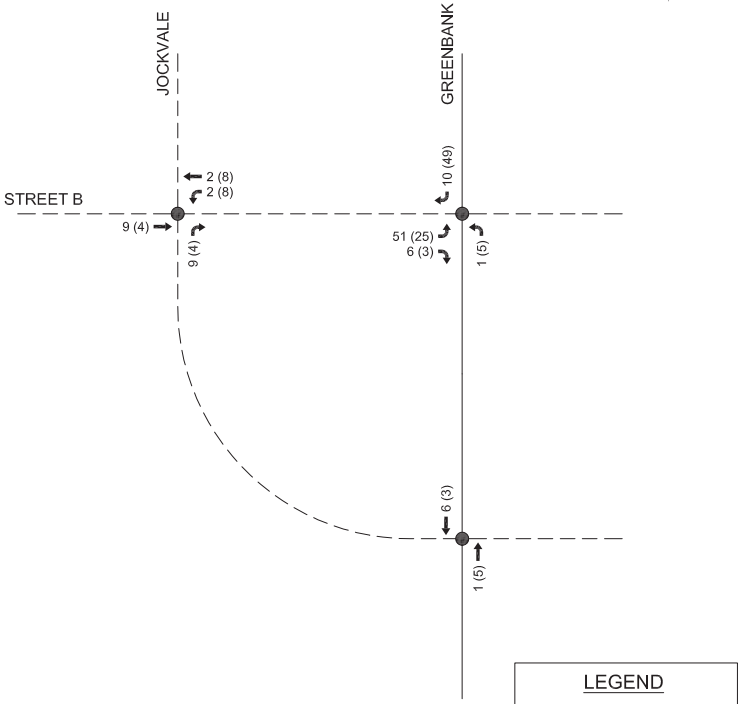


Figure 8: 'New' Site Generated Auto Volumes





LEGEND

- Unsignalized Intersection
- Signalized Intersection
- xx VPH AM Peak Hour
- (xx) VPH PM Peak Hour
- Existing Roadway
- Proposed Roadway

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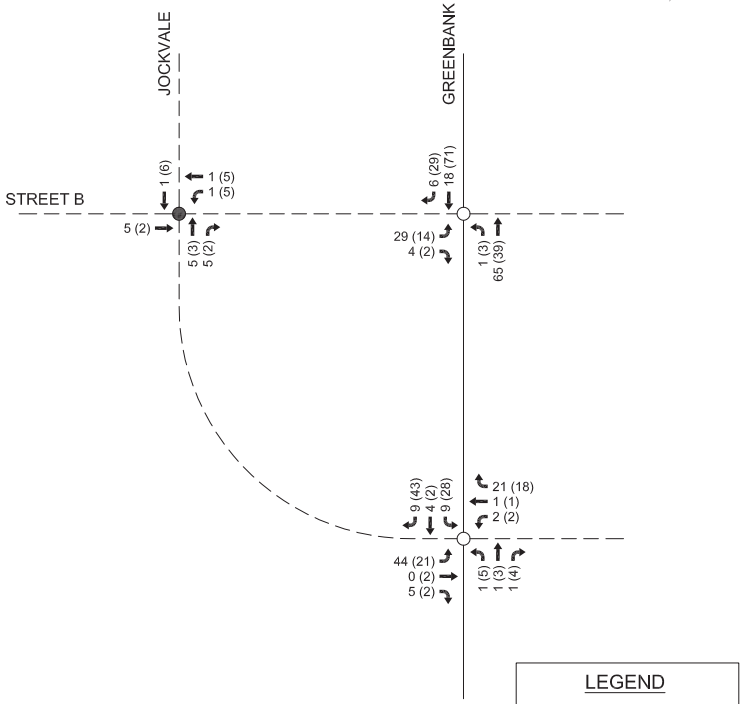
3370 GREENBANK ROAD
BURNETT LANDS

PHASE 1 SITE GENERATED TRAFFIC

JAN 2018 111117 FIGURE 5



LEGEND

- Unsignalized Intersection
- Signalized Intersection
- xx VPH AM Peak Hour
- (xx) VPH PM Peak Hour
- Existing Roadway
- Proposed Roadway

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3370 GREENBANK ROAD
BURNETT LANDS

ULTIMATE SITE GENERATED TRAFFIC

JAN 2018 111117 FIGURE 7

Appendix G

Synchro Intersection Worksheets – 2026 Future Background Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	168	715	137	88	786	361	187	725	95	179	257	83
Future Volume (vph)	168	715	137	88	786	361	187	725	95	179	257	83
Satd. Flow (prot)	1658	3316	1483	1658	3316	1483	3216	3252	0	3216	3316	1483
Flt Permitted	0.156			0.241			0.950			0.950		
Satd. Flow (perm)	272	3316	1452	420	3316	1460	3202	3252	0	3201	3316	1460
Satd. Flow (RTOR)			149			361		11				149
Lane Group Flow (vph)	168	715	137	88	786	361	187	820	0	179	257	83
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	11.6	33.5	33.5	11.6	33.5	33.5	11.3	35.5		11.3	35.5	35.5
Total Split (s)	19.0	41.0	41.0	19.0	41.0	41.0	24.0	36.0		24.0	36.0	36.0
Total Split (%)	15.8%	34.2%	34.2%	15.8%	34.2%	34.2%	20.0%	30.0%		20.0%	30.0%	30.0%
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
All-Red Time (s)	2.9	2.8	2.8	2.9	2.8	2.8	2.6	2.8		2.6	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.6	6.5	6.5	6.6	6.5	6.5	6.3	6.5		6.3	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	49.0	37.7	37.7	44.6	35.4	35.4	12.3	35.2		12.0	34.9	34.9
Actuated g/C Ratio	0.41	0.31	0.31	0.37	0.30	0.30	0.10	0.29		0.10	0.29	0.29
v/c Ratio	0.69	0.69	0.25	0.35	0.80	0.53	0.57	0.85		0.56	0.27	0.16
Control Delay	37.5	40.6	5.3	17.8	30.4	6.3	77.1	46.1		57.9	34.3	0.6
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	37.5	40.6	5.3	17.8	30.4	6.3	77.1	46.1		57.9	34.3	0.6
LOS	D	D	A	B	C	A	E	D		E	C	A
Approach Delay		35.3			22.5			51.9			37.0	
Approach LOS		D			C			D			D	
Queue Length 50th (m)	23.9	77.3	0.0	4.5	84.5	15.2	23.4	97.4		21.0	24.4	0.0
Queue Length 95th (m)	#44.8	102.4	12.2	14.5	93.2	24.9	36.3	#131.1		31.6	37.2	0.0
Internal Link Dist (m)		384.5			263.2			179.3			219.3	
Turn Bay Length (m)	60.0		100.0	120.0			65.0			75.0		150.0
Base Capacity (vph)	256	1040	557	294	978	685	474	961		474	964	530
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	0.66	0.69	0.25	0.30	0.80	0.53	0.39	0.85		0.38	0.27	0.16

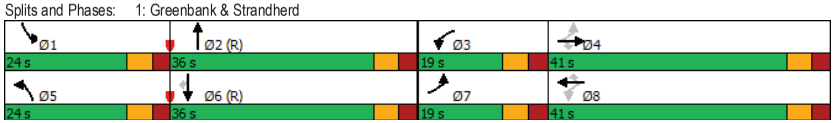
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 94 (78%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 35.8	Intersection LOS: D
Intersection Capacity Utilization 84.2%	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: 1: Greenbank & Strandherd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	168	715	137	88	786	361	187	725	95	179	257	83
Future Volume (vph)	168	715	137	88	786	361	187	725	95	179	257	83
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.6	6.5	6.5	6.6	6.5	6.5	6.3	6.5		6.3	6.5	6.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95		0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1658	3316	1452	1657	3316	1460	3216	3250		3216	3316	1460
Flt Permitted	0.16	1.00	1.00	0.24	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	273	3316	1452	420	3316	1460	3216	3250		3216	3316	1460
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	168	715	137	88	786	361	187	725	95	179	257	83
RTOR Reduction (vph)	0	0	94	0	0	255	0	8	0	0	0	59
Lane Group Flow (vph)	168	715	43	88	786	106	187	812	0	179	257	24
Confl. Peds. (#/hr)	3		7	7		3	3		7	7		3
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						6
Actuated Green, G (s)	49.2	37.7	37.7	44.6	35.4	35.4	12.3	35.2		12.0	34.9	34.9
Effective Green, g (s)	49.2	37.7	37.7	44.6	35.4	35.4	12.3	35.2		12.0	34.9	34.9
Actuated g/C Ratio	0.41	0.31	0.31	0.37	0.29	0.29	0.10	0.29		0.10	0.29	0.29
Clearance Time (s)	6.6	6.5	6.5	6.6	6.5	6.5	6.3	6.5		6.3	6.5	6.5
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
Lane Grp Cap (vph)	244	1041	456	250	978	430	329	953		321	964	424
v/s Ratio Prot	c0.07	0.22		0.03	c0.24		c0.06	c0.25		0.06	0.08	
v/s Ratio Perm	0.22		0.03	0.10		0.07						0.02
v/c Ratio	0.69	0.69	0.09	0.35	0.80	0.25	0.57	0.85		0.56	0.27	0.06
Uniform Delay, d1	25.8	36.0	29.1	25.8	39.1	32.2	51.3	40.0		51.5	32.7	30.7
Progression Factor	1.00	1.00	1.00	0.72	0.61	1.09	1.39	0.93		1.00	1.00	1.00
Incremental Delay, d2	7.8	3.7	0.4	0.7	6.0	1.2	2.0	8.6		2.1	0.7	0.3
Delay (s)	33.6	39.7	29.5	19.3	29.9	36.2	73.5	45.7		53.6	33.4	30.9
Level of Service	C	D	C	B	C	D	E	D		D	C	C
Approach Delay (s)		37.3			31.0			50.8			40.0	
Approach LOS		D			C			D			D	

Intersection Summary					
HCM 2000 Control Delay	39.2	HCM 2000 Level of Service		D	
HCM 2000 Volume to Capacity ratio	0.78				
Actuated Cycle Length (s)	120.0	Sum of lost time (s)		25.9	
Intersection Capacity Utilization	84.2%	ICU Level of Service		E	
Analysis Period (min)	15				
c Critical Lane Group					

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	17	30	57	29	66	89	948	78	40	350	19
Future Volume (vph)	13	17	30	57	29	66	89	948	78	40	350	19
Satd. Flow (prot)	1658	1554	0	1658	1549	0	1658	3275	0	3216	3285	0
Flt Permitted	0.695			0.636			0.950			0.950		
Satd. Flow (perm)	1211	1554	0	1098	1549	0	1655	3275	0	3211	3285	0
Satd. Flow (RTOR)		30			66			9			6	
Lane Group Flow (vph)	13	47	0	57	95	0	89	1026	0	40	369	0
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8								
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	11.4	34.5		11.4	34.5		11.3	31.2		11.3	31.2	
Total Split (s)	12.0	35.0		12.0	35.0		15.0	58.0		15.0	58.0	
Total Split (%)	10.0%	29.2%		10.0%	29.2%		12.5%	48.3%		12.5%	48.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.1	3.2		3.1	3.2		2.6	2.5		2.6	2.5	
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	6.5		6.4	6.5		6.3	6.2		6.3	6.2	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	18.2	13.6		20.7	18.4		10.9	73.2		7.0	66.9	
Actuated g/C Ratio	0.15	0.11		0.17	0.15		0.09	0.61		0.06	0.56	
v/c Ratio	0.06	0.23		0.27	0.32		0.59	0.51		0.22	0.20	
Control Delay	34.6	24.6		39.7	19.5		59.8	18.2		62.5	11.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	34.6	24.6		39.7	19.5		59.8	18.2		62.5	11.1	
LOS	C	C		D	B		E	B		E	B	
Approach Delay		26.8			27.1			21.5			16.2	
Approach LOS		C			C			C			B	
Queue Length 50th (m)	2.6	3.8		11.4	5.7		21.0	65.3		4.8	14.1	
Queue Length 95th (m)	6.6	12.9		18.9	19.2		m26.9	107.6		10.9	24.5	
Internal Link Dist (m)		208.1			171.2			275.5			179.3	
Turn Bay Length (m)	25.0			55.0			55.0			50.0		
Base Capacity (vph)	204	391		215	418		152	2001		233	1835	
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	0.06	0.12		0.27	0.23		0.59	0.51		0.17	0.20	

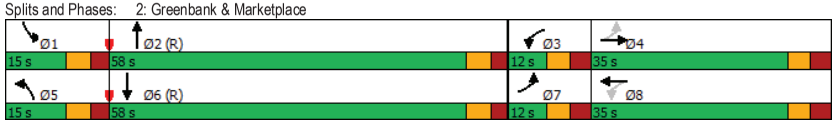
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 89 (74%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 20.9	Intersection LOS: C
Intersection Capacity Utilization 62.5%	ICU Level of Service B
Analysis Period (min) 15	

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

Splits and Phases: 2: Greenbank & Marketplace



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	17	30	57	29	66	89	948	78	40	350	19
Future Volume (vph)	13	17	30	57	29	66	89	948	78	40	350	19
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.4	6.5		6.4	6.5		6.3	6.2		6.3	6.2	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		0.97	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	0.90		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1657	1555		1647	1549		1658	3274		3216	3286	
Flt Permitted	0.70	1.00		0.64	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1213	1555		1102	1549		1658	3274		3216	3286	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	13	17	30	57	29	66	89	948	78	40	350	19
RTOR Reduction (vph)	0	26	0	0	56	0	0	4	0	0	3	0
Lane Group Flow (vph)	13	21	0	57	39	0	89	1022	0	40	366	0
Confl. Peds. (#/hr)	1		9	9		1	1		3	3		1
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	18.3	16.1		22.9	18.4		10.9	68.1		5.9	63.1	
Effective Green, g (s)	18.3	16.1		22.9	18.4		10.9	68.1		5.9	63.1	
Actuated g/C Ratio	0.15	0.13		0.19	0.15		0.09	0.57		0.05	0.53	
Clearance Time (s)	6.4	6.5		6.4	6.5		6.3	6.2		6.3	6.2	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	193	208		230	237		150	1857		158	1727	
v/s Ratio Prot	0.00	0.01		c0.01	0.03		c0.05	c0.31		0.01	0.11	
v/s Ratio Perm	0.01			c0.04								
v/c Ratio	0.07	0.10		0.25	0.17		0.59	0.55		0.25	0.21	
Uniform Delay, d1	43.4	45.6		40.7	44.1		52.4	16.3		54.9	15.2	
Progression Factor	1.00	1.00		1.00	1.00		0.94	1.09		1.12	0.73	
Incremental Delay, d2	0.1	0.2		0.6	0.3		3.7	0.7		0.8	0.3	
Delay (s)	43.6	45.8		41.3	44.5		53.0	18.5		62.3	11.4	
Level of Service	D	D		D	D		D	B		E	B	
Approach Delay (s)		45.3			43.3			21.2			16.4	
Approach LOS		D			D			C			B	

Intersection Summary					
HCM 2000 Control Delay	22.9	HCM 2000 Level of Service		C	
HCM 2000 Volume to Capacity ratio	0.52				
Actuated Cycle Length (s)	120.0	Sum of lost time (s)		25.4	
Intersection Capacity Utilization	62.5%	ICU Level of Service		B	
Analysis Period (min)	15				
c Critical Lane Group					

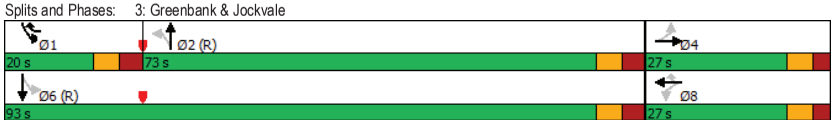
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	0	50	0	267	1	873	79	65	354	2
Future Volume (vph)	4	0	0	50	0	267	1	873	79	65	354	2
Satd. Flow (prot)	0	1658	0	0	1658	1483	0	1717	0	1658	1743	0
Flt Permitted		0.724			0.755					0.261		
Satd. Flow (perm)	0	1261	0	0	1310	1463	0	1717	0	455	1743	0
Satd. Flow (RTOR)						122		6			1	
Lane Group Flow (vph)	0	4	0	0	50	267	0	953	0	65	356	0
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		pm+pt	NA	
Protected Phases		4			8	1		2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	1	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	5.0	10.0	10.0		5.0	10.0	
Minimum Split (s)	26.4	26.4		26.4	26.4	12.1	34.1	34.1		12.1	34.1	
Total Split (s)	27.0	27.0		27.0	27.0	20.0	73.0	73.0		20.0	93.0	
Total Split (%)	22.5%	22.5%		22.5%	22.5%	16.7%	60.8%	60.8%		16.7%	77.5%	
Yellow Time (s)	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	3.4	3.4	3.4		3.4	3.4	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)		6.4			6.4	7.1		7.1		7.1	7.1	
Lead/Lag						Lead	Lag	Lag		Lead		
Lead-Lag Optimize?						Yes	Yes	Yes		Yes		
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Act Effct Green (s)		12.3			12.3	18.6		81.6		97.4	98.9	
Actuated g/C Ratio		0.10			0.10	0.16		0.68		0.81	0.82	
v/c Ratio		0.03			0.37	0.81		0.82		0.14	0.25	
Control Delay		46.0			56.9	41.1		23.5		4.0	3.8	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		46.0			56.9	41.1		23.5		4.0	3.8	
LOS		D			E	D		C		A	A	
Approach Delay		46.0			43.6			23.5			3.8	
Approach LOS		D			D			C			A	
Queue Length 50th (m)		0.9			11.4	31.3		150.9		2.2	12.3	
Queue Length 95th (m)		4.0			22.2	53.6		#295.7		4.9	19.4	
Internal Link Dist (m)		290.6			555.5			536.8			275.5	
Turn Bay Length (m)												
Base Capacity (vph)		216			224	377		1168		498	1436	
Starvation Cap Reductn		0			0	0		0		0	0	
Spillback Cap Reductn		0			0	0		0		0	0	
Storage Cap Reductn		0			0	0		0		0	0	
Reduced v/c Ratio		0.02			0.22	0.71		0.82		0.13	0.25	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82
Intersection Signal Delay: 22.4 — Intersection LOS: C
Intersection Capacity Utilization 97.4% — ICU Level of Service F
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Greenbank & Jockvale



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	0	50	0	267	1	873	79	65	354	2
Future Volume (vph)	4	0	0	50	0	267	1	873	79	65	354	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		6.4			6.4	7.1		7.1		7.1	7.1	
Lane Util. Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.99		1.00		1.00	1.00	
Flpb, ped/bikes		1.00			0.99	1.00		1.00		1.00	1.00	
Frt		1.00			1.00	0.85		0.99		1.00	1.00	
Flt Protected		0.95			0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1655			1648	1472		1717		1655	1744	
Flt Permitted		0.72			0.76	1.00		1.00		0.26	1.00	
Satd. Flow (perm)		1262			1310	1472		1717		455	1744	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	4	0	0	50	0	267	1	873	79	65	354	2
RTOR Reduction (vph)	0	0	0	0	0	103	0	2	0	0	0	0
Lane Group Flow (vph)	0	4	0	0	50	164	0	951	0	65	356	0
Confl. Peds. (#/hr)	1		2	2		1			18	18		
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		pm+pt	NA	
Protected Phases		4			8	1		2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		10.3			10.3	19.1		80.3		96.2	96.2	
Effective Green, g (s)		10.3			10.3	19.1		80.3		96.2	96.2	
Actuated g/C Ratio		0.09			0.09	0.16		0.67		0.80	0.80	
Clearance Time (s)		6.4			6.4	7.1		7.1		7.1	7.1	
Vehicle Extension (s)		3.0			3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		108			112	234		1148		452	1398	
v/s Ratio Prot						c0.05				0.01	0.20	
v/s Ratio Perm		0.00			0.04	0.06		0.55		0.10		
v/c Ratio		0.04			0.45	0.70		0.83		0.14	0.25	
Uniform Delay, d1		50.3			52.1	47.8		14.7		4.6	3.0	
Progression Factor		1.00			1.00	1.00		1.00		0.97	0.94	
Incremental Delay, d2		0.1			2.8	9.2		6.9		0.1	0.4	
Delay (s)		50.4			55.0	56.9		21.7		4.6	3.2	
Level of Service		D			D	E		C		A	A	
Approach Delay (s)		50.4			56.6			21.7			3.4	
Approach LOS		D			E			C			A	

Intersection Summary				
HCM 2000 Control Delay	23.8	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.80			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.6	
Intersection Capacity Utilization	97.4%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø4
Lane Configurations							
Traffic Volume (vph)	854	78	104	1338	51	57	
Future Volume (vph)	854	78	104	1338	51	57	
Satd. Flow (prot)	3316	1483	1658	3316	3216	1483	
Flt Permitted			0.257		0.950		
Satd. Flow (perm)	3316	1448	448	3316	3159	1483	
Satd. Flow (RTOR)		78				57	
Lane Group Flow (vph)	854	78	104	1338	51	57	
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm	
Protected Phases	2		1	6	3		4
Permitted Phases		2	6			3 4	
Detector Phase	2	2	1	6	3	3 4	
Switch Phase							
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0		5.0
Minimum Split (s)	36.3	36.3	11.0	36.3	16.8		35.8
Total Split (s)	48.0	48.0	18.0	66.0	17.0		37.0
Total Split (%)	40.0%	40.0%	15.0%	55.0%	14.2%		31%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3		3.3
All-Red Time (s)	2.6	2.6	2.3	2.6	3.5		3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.3	6.3	6.0	6.3	6.8		
Lead/Lag	Lag	Lag	Lead		Lead		Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes		Yes
Recall Mode	C-Max	C-Max	None	C-Max	None		None
Act Effct Green (s)	71.4	71.4	86.0	87.0	10.0	24.6	
Actuated g/C Ratio	0.60	0.60	0.72	0.72	0.08	0.20	
v/c Ratio	0.43	0.09	0.26	0.56	0.19	0.16	
Control Delay	12.4	3.6	2.5	4.4	53.2	8.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	12.4	3.6	2.5	4.4	53.2	8.5	
LOS	B	A	A	A	D	A	
Approach Delay	11.7			4.3	29.6		
Approach LOS	B			A	C		
Queue Length 50th (m)	32.7	0.1	0.9	6.4	5.8	0.0	
Queue Length 95th (m)	m50.9	m2.0	m4.5	m180.6	12.1	8.4	
Internal Link Dist (m)	263.2			413.3	180.6		
Turn Bay Length (m)		80.0	150.0		40.0		
Base Capacity (vph)	1973	893	442	2403	273	513	
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	0.43	0.09	0.24	0.56	0.19	0.11	

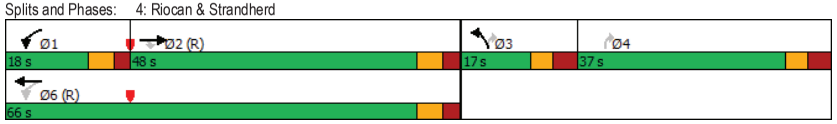
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 30 (25%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 8.1	Intersection LOS: A
Intersection Capacity Utilization 58.3%	ICU Level of Service B
Analysis Period (min) 15	

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

Splits and Phases: 4: Riocan & Strandherd



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	854	78	104	1338	51	57
Future Volume (vph)	854	78	104	1338	51	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.3	6.3	6.0	6.3	6.8	6.8
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3316	1448	1658	3316	3216	1483
Flt Permitted	1.00	1.00	0.26	1.00	0.95	1.00
Satd. Flow (perm)	3316	1448	448	3316	3216	1483
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	854	78	104	1338	51	57
RTOR Reduction (vph)	0	33	0	0	0	46
Lane Group Flow (vph)	854	45	104	1338	51	11
Confl. Peds. (#/hr)		2	2		5	
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	
Permitted Phases		2	6			3 4
Actuated Green, G (s)	68.7	68.7	83.0	83.0	8.0	23.9
Effective Green, g (s)	68.7	68.7	83.0	83.0	8.0	23.9
Actuated g/C Ratio	0.57	0.57	0.69	0.69	0.07	0.20
Clearance Time (s)	6.3	6.3	6.0	6.3	6.8	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1898	828	393	2293	214	295
v/s Ratio Prot	0.26		0.02	c0.40	c0.02	
v/s Ratio Perm		0.03	0.16			c0.01
v/c Ratio	0.45	0.05	0.26	0.58	0.24	0.04
Uniform Delay, d1	14.8	11.3	7.5	9.6	53.1	38.8
Progression Factor	0.68	0.72	0.17	0.32	1.00	1.00
Incremental Delay, d2	0.6	0.1	0.2	0.7	0.6	0.1
Delay (s)	10.6	8.3	1.5	3.7	53.7	38.8
Level of Service	B	A	A	A	D	D
Approach Delay (s)	10.4			3.6	45.8	
Approach LOS	B			A	D	

Intersection Summary				
HCM 2000 Control Delay	8.0	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.54			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.9	
Intersection Capacity Utilization	58.3%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

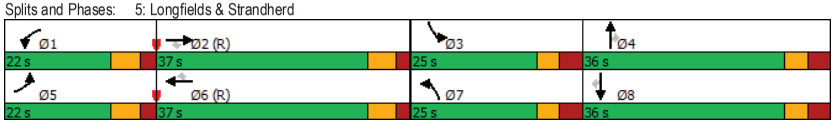
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	662	149	143	856	128	385	526	321	100	198	130
Future Volume (vph)	160	662	149	143	856	128	385	526	321	100	198	130
Satd. Flow (prot)	3216	3316	1483	3216	3316	1483	3216	1745	1483	1658	1745	1483
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3192	3316	1446	3187	3316	1444	3176	1745	1407	1626	1745	1451
Satd. Flow (RTOR)			155			155			311			152
Lane Group Flow (vph)	160	662	149	143	856	128	385	526	321	100	198	130
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)	11.6	36.6	36.6	11.6	35.4	35.4	11.7	35.7	35.7	11.7	35.7	35.7
Total Split (s)	22.0	37.0	37.0	22.0	37.0	37.0	25.0	36.0	36.0	25.0	36.0	36.0
Total Split (%)	18.3%	30.8%	30.8%	18.3%	30.8%	30.8%	20.8%	30.0%	30.0%	20.8%	30.0%	30.0%
Yellow Time (s)	4.2	4.2	4.2	4.2	4.2	4.2	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.4	2.2	2.2	2.4	2.2	2.2	3.4	3.4	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.4	6.4	6.6	6.4	6.4	6.7	6.7	6.7	6.7	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
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	11.3	35.3	35.3	10.7	34.7	34.7	17.5	35.1	35.1	12.5	30.1	30.1
Actuated g/C Ratio	0.09	0.29	0.29	0.09	0.29	0.29	0.15	0.29	0.29	0.10	0.25	0.25
v/c Ratio	0.53	0.68	0.28	0.50	0.89	0.24	0.82	1.03	0.51	0.58	0.45	0.27
Control Delay	32.5	44.8	16.3	57.9	54.0	4.1	64.9	91.0	7.7	63.8	42.3	5.2
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	32.5	44.8	16.3	57.9	54.0	4.1	64.9	91.0	7.7	63.8	42.3	5.2
LOS	C	D	B	E	D	A	E	F	A	E	D	A
Approach Delay		38.4			48.9			61.1			36.0	
Approach LOS		D			D			E			D	
Queue Length 50th (m)	15.4	86.7	13.5	16.8	101.6	0.0	45.5	~132.7	1.7	22.8	40.0	0.0
Queue Length 95th (m)	23.0	106.4	40.6	26.5	#147.7	9.4	#65.8	#216.2	25.8	38.8	63.0	10.8
Internal Link Dist (m)		413.3			403.0			212.7			202.0	
Turn Bay Length (m)	90.0		55.0	80.0		195.0	50.0		90.0	50.0		50.0
Base Capacity (vph)	412	976	535	412	959	527	490	509	631	252	438	478
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	0.39	0.68	0.28	0.35	0.89	0.24	0.79	1.03	0.51	0.40	0.45	0.27

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: 100
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.03
Intersection Signal Delay: 48.7 Intersection LOS: D
Intersection Capacity Utilization 86.9% 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: Longfields & Strandherd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	662	149	143	856	128	385	526	321	100	198	130
Future Volume (vph)	160	662	149	143	856	128	385	526	321	100	198	130
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.6	6.4	6.4	6.6	6.4	6.4	6.7	6.7	6.7	6.7	6.7	6.7
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.95	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3216	3316	1446	3216	3316	1444	3216	1745	1407	1658	1745	1451
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3216	3316	1446	3216	3316	1444	3216	1745	1407	1658	1745	1451
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	160	662	149	143	856	128	385	526	321	100	198	130
RTOR Reduction (vph)	0	0	105	0	0	91	0	0	220	0	0	97
Lane Group Flow (vph)	160	662	44	143	856	37	385	526	101	100	198	33
Confl. Peds. (#/hr)	12		11	11		12	8		32	32		8
Confl. Bikes (#/hr)									1			
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
Actuated Green, G (s)	11.3	35.3	35.3	10.7	34.7	34.7	17.5	35.1	35.1	12.5	30.1	30.1
Effective Green, g (s)	11.3	35.3	35.3	10.7	34.7	34.7	17.5	35.1	35.1	12.5	30.1	30.1
Actuated g/C Ratio	0.09	0.29	0.29	0.09	0.29	0.29	0.15	0.29	0.29	0.10	0.25	0.25
Clearance Time (s)	6.6	6.4	6.4	6.6	6.4	6.4	6.7	6.7	6.7	6.7	6.7	6.7
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
Lane Grp Cap (vph)	302	975	425	286	958	417	469	510	411	172	437	363
v/s Ratio Prot	c0.05	0.20		0.04	c0.26		c0.12	c0.30		0.06	0.11	
v/s Ratio Perm			0.03			0.03			0.07			0.02
v/c Ratio	0.53	0.68	0.10	0.50	0.89	0.09	0.82	1.03	0.25	0.58	0.45	0.09
Uniform Delay, d1	51.8	37.4	30.8	52.1	40.9	31.1	49.7	42.5	32.4	51.3	38.0	34.5
Progression Factor	0.51	1.08	3.08	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.6	3.6	0.5	1.4	12.5	0.4	11.0	48.1	0.3	4.9	0.7	0.1
Delay (s)	28.2	44.0	95.5	53.5	53.4	31.5	60.7	90.6	32.7	56.2	38.7	34.6
Level of Service	C	D	F	D	D	C	E	F	C	E	D	C
Approach Delay (s)		49.3			50.9			66.2			41.5	
Approach LOS		D			D			E			D	

Intersection Summary				
HCM 2000 Control Delay	54.4	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.93			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	26.4	
Intersection Capacity Utilization	86.9%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	25	74	21	39	136	111	1009	19	31	278	38
Future Volume (vph)	53	25	74	21	39	136	111	1009	19	31	278	38
Satd. Flow (prot)	1658	1532	0	0	1543	0	1658	3302	0	1658	3247	0
Flt Permitted	0.558				0.957		0.495			0.279		
Satd. Flow (perm)	963	1532	0	0	1484	0	863	3302	0	481	3247	0
Satd. Flow (RTOR)		74			73			3			19	
Lane Group Flow (vph)	53	99	0	0	196	0	111	1028	0	31	316	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	34.8	34.8		34.8	34.8		10.6	24.8		24.8	24.8	
Total Split (s)	35.0	35.0		35.0	35.0		15.0	50.0		35.0	35.0	
Total Split (%)	41.2%	41.2%		41.2%	41.2%		17.6%	58.8%		41.2%	41.2%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.8	3.8		3.8	3.8		2.3	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.8	6.8			6.8		5.6	5.8		5.8	5.8	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	
Act Effct Green (s)	17.7	17.7			17.7		54.9	54.7		43.6	43.6	
Actuated g/C Ratio	0.21	0.21			0.21		0.65	0.64		0.51	0.51	
v/c Ratio	0.26	0.26			0.53		0.18	0.48		0.13	0.19	
Control Delay	28.0	10.1			22.0		8.6	10.5		19.1	14.1	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay	28.0	10.1			22.0		8.6	10.5		19.1	14.1	
LOS	C	B			C		A	B		B	B	
Approach Delay		16.4			22.0			10.3			14.5	
Approach LOS		B			C			B			B	
Queue Length 50th (m)	7.9	3.6			18.8		4.8	31.9		2.3	11.6	
Queue Length 95th (m)	14.5	12.9			31.2		16.7	75.6		10.4	27.8	
Internal Link Dist (m)		257.2			427.6			400.4			212.7	
Turn Bay Length (m)	30.0						75.0			100.0		
Base Capacity (vph)	319	557			541		645	2124		246	1675	
Starvation Cap Reductn	0	0			0		0	0		0	0	
Spillback Cap Reductn	0	0			0		0	0		0	0	
Storage Cap Reductn	0	0			0		0	0		0	0	
Reduced v/c Ratio	0.17	0.18			0.36		0.17	0.48		0.13	0.19	

Intersection Summary
Cycle Length: 85
Actuated Cycle Length: 85
Offset: 0 (0%), 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: 12.8	Intersection LOS: B
Intersection Capacity Utilization 75.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 6: Longfields & Marketplace/Clearbrook

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	25	74	21	39	136	111	1009	19	31	278	38
Future Volume (vph)	53	25	74	21	39	136	111	1009	19	31	278	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.8	6.8			6.8		5.6	5.8		5.8	5.8	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99			0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00			1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.89			0.91		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1640	1531			1543		1657	3302		1638	3247	
Flt Permitted	0.56	1.00			0.96		0.49	1.00		0.28	1.00	
Satd. Flow (perm)	964	1531			1484		863	3302		481	3247	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	53	25	74	21	39	136	111	1009	19	31	278	38
RTOR Reduction (vph)	0	59	0	0	58	0	0	1	0	0	10	0
Lane Group Flow (vph)	53	40	0	0	138	0	111	1027	0	31	307	0
Confl. Peds. (#/hr)	17		3	3		17	1		22	22		1
Confl. Bikes (#/hr)			1									
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	17.7	17.7			17.7		54.7	54.7		42.5	42.5	
Effective Green, g (s)	17.7	17.7			17.7		54.7	54.7		42.5	42.5	
Actuated g/C Ratio	0.21	0.21			0.21		0.64	0.64		0.50	0.50	
Clearance Time (s)	6.8	6.8			6.8		5.6	5.8		5.8	5.8	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	200	318			309		617	2124		240	1623	
v/s Ratio Prot		0.03					0.01	c0.31			0.09	
v/s Ratio Perm	0.05				c0.09		0.10			0.06		
v/c Ratio	0.27	0.13			0.45		0.18	0.48		0.13	0.19	
Uniform Delay, d1	28.2	27.4			29.4		6.0	7.8		11.4	11.7	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.2			1.0		0.1	0.8		1.1	0.3	
Delay (s)	28.9	27.5			30.4		6.1	8.6		12.5	12.0	
Level of Service	C	C			C		A	A		B	B	
Approach Delay (s)		28.0			30.4			8.4			12.0	
Approach LOS		C			C			A			B	

Intersection Summary					
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B		
HCM 2000 Volume to Capacity ratio	0.51				
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	18.2		
Intersection Capacity Utilization	75.3%	ICU Level of Service	D		
Analysis Period (min)	15				

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	5	8	34	2	150	3	970	54	87	282	11
Future Volume (vph)	5	5	8	34	2	150	3	970	54	87	282	11
Satd. Flow (prot)	1658	1745	1483	1658	1745	1483	1658	3316	1483	1658	3316	1483
Flt Permitted	0.950			0.950			0.579			0.256		
Satd. Flow (perm)	1652	1745	1483	1658	1745	1461	1005	3316	1394	445	3316	1443
Satd. Flow (RTOR)			141			150						143
Lane Group Flow (vph)	5	5	8	34	2	150	3	970	54	87	282	11
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	2	2	2	6	6	6
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	10.0
Minimum Split (s)	12.3	32.5	32.5	12.3	32.5	32.5	38.3	38.3	38.3	38.3	38.3	38.3
Total Split (s)	18.0	33.0	33.0	18.0	33.0	33.0	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	20.0%	36.7%	36.7%	20.0%	36.7%	36.7%	43.3%	43.3%	43.3%	43.3%	43.3%	43.3%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	4.0	4.2	4.2	4.0	4.2	4.2	3.6	3.6	3.6	3.6	3.6	3.6
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)	7.3	7.5	7.5	7.3	7.5	7.5	7.3	7.3	7.3	7.3	7.3	7.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	5.9	12.4	12.4	8.4	13.0	13.0	59.4	59.4	59.4	59.4	59.4	59.4
Actuated g/C Ratio	0.07	0.14	0.14	0.09	0.14	0.14	0.66	0.66	0.66	0.66	0.66	0.66
v/c Ratio	0.05	0.02	0.02	0.22	0.01	0.44	0.00	0.44	0.06	0.30	0.13	0.01
Control Delay	40.0	30.4	0.1	40.5	28.5	9.5	12.3	9.3	9.7	14.8	8.2	0.0
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	40.0	30.4	0.1	40.5	28.5	9.5	12.3	9.3	9.7	14.8	8.2	0.0
LOS	D	C	A	D	C	A	B	A	A	B	A	A
Approach Delay		19.6			15.4			9.3			9.5	
Approach LOS		B			B			A			A	
Queue Length 50th (m)	0.8	0.8	0.0	5.4	0.3	0.0	0.2	28.7	2.3	4.3	6.4	0.0
Queue Length 95th (m)	4.1	3.3	0.0	14.2	1.9	13.2	m0.8	54.1	10.0	26.8	24.9	0.0
Internal Link Dist (m)		59.7			203.2			375.7			400.4	
Turn Bay Length (m)	50.0		50.0	40.0		40.0	90.0		65.0	65.0		75.0
Base Capacity (vph)	197	494	521	197	494	521	663	2188	919	293	2188	1000
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	0.03	0.01	0.02	0.17	0.00	0.29	0.00	0.44	0.06	0.30	0.13	0.01

Intersection Summary

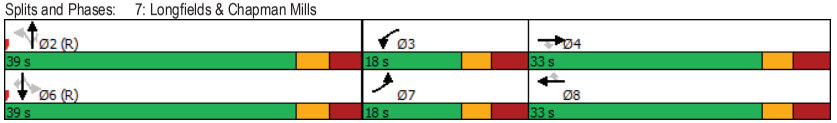
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 45 (50%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.44

Intersection Signal Delay: 10.2	Intersection LOS: B
Intersection Capacity Utilization 64.9%	ICU Level of Service C
Analysis Period (min) 15	

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

Splits and Phases: 7: Longfields & Chapman Mills



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	5	8	34	2	150	3	970	54	87	282	11
Future Volume (vph)	5	5	8	34	2	150	3	970	54	87	282	11
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	7.3	7.5	7.5	7.3	7.5	7.5	7.3	7.3	7.3	7.3	7.3	7.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.95	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1658	1745	1483	1658	1745	1461	1650	3316	1405	1649	3316	1443
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.58	1.00	1.00	0.26	1.00	1.00
Satd. Flow (perm)	1658	1745	1483	1658	1745	1461	1005	3316	1405	444	3316	1443
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	5	5	8	34	2	150	3	970	54	87	282	11
RTOR Reduction (vph)	0	0	7	0	0	128	0	0	0	0	0	4
Lane Group Flow (vph)	5	5	1	34	2	22	3	970	54	87	282	7
Confl. Peds. (#/hr)	3					3	5		16	16		5
Confl. Bikes (#/hr)									17			
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2		2	6		6
Actuated Green, G (s)	1.3	8.4	8.4	6.0	13.1	13.1	53.5	53.5	53.5	53.5	53.5	53.5
Effective Green, g (s)	1.3	8.4	8.4	6.0	13.1	13.1	53.5	53.5	53.5	53.5	53.5	53.5
Actuated g/C Ratio	0.01	0.09	0.09	0.07	0.15	0.15	0.59	0.59	0.59	0.59	0.59	0.59
Clearance Time (s)	7.3	7.5	7.5	7.3	7.5	7.5	7.3	7.3	7.3	7.3	7.3	7.3
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
Lane Grp Cap (vph)	23	162	138	110	253	212	597	1971	835	263	1971	857
v/s Ratio Prot	0.00	0.00		c0.02	0.00			c0.29			0.09	
v/s Ratio Perm			0.00			c0.01	0.00		0.04	0.20		0.00
v/c Ratio	0.22	0.03	0.01	0.31	0.01	0.10	0.01	0.49	0.06	0.33	0.14	0.01
Uniform Delay, d1	43.8	37.1	37.0	40.0	32.9	33.4	7.4	10.5	7.7	9.2	8.1	7.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.12	0.87	1.02	1.00	1.00	1.00
Incremental Delay, d2	4.7	0.1	0.0	1.6	0.0	0.2	0.0	0.8	0.1	3.3	0.2	0.0
Delay (s)	48.6	37.2	37.0	41.6	32.9	33.6	8.3	10.0	8.0	12.6	8.2	7.5
Level of Service	D	D	D	D	C	C	A	A	A	B	A	A
Approach Delay (s)		40.3			35.0			9.9			9.2	
Approach LOS		D			D			A			A	

Intersection Summary				
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.43			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	22.1	
Intersection Capacity Utilization	64.9%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

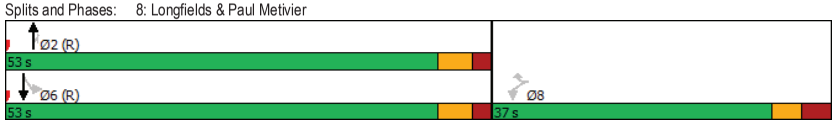
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	69	105	903	100	37	300
Future Volume (vph)	69	105	903	100	37	300
Satd. Flow (prot)	1658	1483	3316	1483	1658	3316
Flt Permitted	0.950				0.302	
Satd. Flow (perm)	1653	1464	3316	1437	526	3316
Satd. Flow (RTOR)		105		100		
Lane Group Flow (vph)	69	105	903	100	37	300
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)	36.6	36.6	36.0	36.0	24.0	24.0
Total Split (s)	37.0	37.0	53.0	53.0	53.0	53.0
Total Split (%)	41.1%	41.1%	58.9%	58.9%	58.9%	58.9%
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	3.3	3.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	14.1	14.1	67.8	67.8	67.8	67.8
Actuated g/C Ratio	0.16	0.16	0.75	0.75	0.75	0.75
v/c Ratio	0.27	0.33	0.36	0.09	0.09	0.12
Control Delay	33.5	8.5	6.7	2.1	5.9	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.5	8.5	6.7	2.1	5.9	4.2
LOS	C	A	A	A	A	A
Approach Delay	18.4		6.3			4.4
Approach LOS	B		A			A
Queue Length 50th (m)	11.2	0.0	22.9	0.0	1.2	5.4
Queue Length 95th (m)	17.5	10.4	66.4	6.9	5.1	13.1
Internal Link Dist (m)	403.8		379.4			375.7
Turn Bay Length (m)	45.0			50.0	70.0	
Base Capacity (vph)	558	564	2498	1107	396	2498
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.19	0.36	0.09	0.09	0.12

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 35 (39%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.36

Intersection Signal Delay: 7.2	Intersection LOS: A
Intersection Capacity Utilization 51.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 8: Longfields & Paul Metivier



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	69	105	903	100	37	300
Future Volume (vph)	69	105	903	100	37	300
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.6	6.6	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	0.98	1.00	0.97	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1653	1461	3316	1438	1654	3316
Flt Permitted	0.95	1.00	1.00	1.00	0.30	1.00
Satd. Flow (perm)	1653	1461	3316	1438	525	3316
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	69	105	903	100	37	300
RTOR Reduction (vph)	0	91	0	27	0	0
Lane Group Flow (vph)	69	14	903	73	37	300
Confl. Peds. (#/hr)	3			6	6	
Confl. Bikes (#/hr)		2		3		
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Actuated Green, G (s)	12.1	12.1	65.3	65.3	65.3	65.3
Effective Green, g (s)	12.1	12.1	65.3	65.3	65.3	65.3
Actuated g/C Ratio	0.13	0.13	0.73	0.73	0.73	0.73
Clearance Time (s)	6.6	6.6	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	222	196	2405	1043	380	2405
v/s Ratio Prot			c0.27			0.09
v/s Ratio Perm	c0.04	0.01		0.05	0.07	
v/c Ratio	0.31	0.07	0.38	0.07	0.10	0.12
Uniform Delay, d1	35.2	34.0	4.7	3.6	3.6	3.7
Progression Factor	1.00	1.00	1.00	1.00	0.77	0.77
Incremental Delay, d2	0.8	0.2	0.4	0.1	0.5	0.1
Delay (s)	36.0	34.2	5.1	3.7	3.3	3.0
Level of Service	D	C	A	A	A	A
Approach Delay (s)	34.9		5.0			3.0
Approach LOS	C		A			A

Intersection Summary				
HCM 2000 Control Delay	8.0	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.37			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.6	
Intersection Capacity Utilization	51.3%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	67	42	69	67	33	93	26	77	38	24	33
Future Volume (vph)	33	67	42	69	67	33	93	26	77	38	24	33
Satd. Flow (prot)	1658	1552	0	1658	1639	0	0	1600	0	0	1614	0
Flt Permitted	0.950			0.950				0.802			0.805	
Satd. Flow (perm)	1635	1552	0	1475	1639	0	0	1310	0	0	1326	0
Satd. Flow (RTOR)		32			25							
Lane Group Flow (vph)	33	109	0	69	100	0	0	196	0	0	95	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.8	22.6		11.8	22.6		41.7	41.7		41.7	41.7	
Total Split (s)	22.0	35.0		22.0	35.0		43.0	43.0		43.0	43.0	
Total Split (%)	22.0%	35.0%		22.0%	35.0%		43.0%	43.0%		43.0%	43.0%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	3.5	3.3		3.5	3.3		4.7	4.7		4.7	4.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	6.8	6.6		6.8	6.6			7.7			7.7	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	Max		None	Max		None	None		None	None	
Act Effct Green (s)	7.2	30.8		8.7	37.9			17.8			17.8	
Actuated g/C Ratio	0.09	0.41		0.11	0.50			0.23			0.23	
v/c Ratio	0.21	0.17		0.37	0.12			0.64			0.31	
Control Delay	39.0	15.7		39.6	13.2			36.1			26.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	39.0	15.7		39.6	13.2			36.1			26.5	
LOS	D	B		D	B			D			C	
Approach Delay		21.1			24.0			36.1			26.5	
Approach LOS		C			C			D			C	
Queue Length 50th (m)	4.4	6.8		9.1	4.1			25.3			11.2	
Queue Length 95th (m)	14.7	23.7		24.5	21.3			47.1			23.9	
Internal Link Dist (m)		203.2			520.9			265.7			233.3	
Turn Bay Length (m)	40.0			50.0								
Base Capacity (vph)	341	650		341	831			625			633	
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	0.17		0.20	0.12			0.31			0.15	

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 75.8
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.64

Intersection Signal Delay: 27.6 — Intersection LOS: C
Intersection Capacity Utilization 42.1% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 9: Leamington & Chapman Mills

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	67	42	69	67	33	93	26	77	38	24	33
Future Volume (vph)	33	67	42	69	67	33	93	26	77	38	24	33
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.8	6.6		6.8	6.6			7.7			7.7	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.95		1.00	0.99			0.99			0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.94		1.00	0.95			0.95			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.98	
Satd. Flow (prot)	1658	1568		1658	1641			1596			1616	
Flt Permitted	0.95	1.00		0.95	1.00			0.80			0.81	
Satd. Flow (perm)	1658	1568		1658	1641			1310			1327	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	33	67	42	69	67	33	93	26	77	38	24	33
RTOR Reduction (vph)	0	18	0	0	13	0	0	0	0	0	0	0
Lane Group Flow (vph)	33	91	0	69	87	0	0	196	0	0	95	0
Confl. Peds. (#/hr)	5		41	41		5	5		1	1		5
Confl. Bikes (#/hr)									1			
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Actuated Green, G (s)	3.0	33.7		7.2	37.9			17.8			17.8	
Effective Green, g (s)	3.0	33.7		7.2	37.9			17.8			17.8	
Actuated g/C Ratio	0.04	0.42		0.09	0.47			0.22			0.22	
Clearance Time (s)	6.8	6.6		6.8	6.6			7.7			7.7	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	62	662		149	779			292			295	
v/s Ratio Prot	0.02	c0.06		c0.04	c0.05							
v/s Ratio Perm								c0.15			0.07	
v/c Ratio	0.53	0.14		0.46	0.11			0.67			0.32	
Uniform Delay, d1	37.7	14.1		34.5	11.6			28.3			25.9	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	8.5	0.4		2.3	0.3			6.0			0.6	
Delay (s)	46.2	14.6		36.7	11.9			34.3			26.6	
Level of Service	D	B		D	B			C			C	
Approach Delay (s)		21.9			22.0			34.3			26.6	
Approach LOS		C			C			C			C	

Intersection Summary				
HCM 2000 Control Delay	26.7	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.34			
Actuated Cycle Length (s)	79.8	Sum of lost time (s)	21.1	
Intersection Capacity Utilization	42.1%	ICU Level of Service	A	
Analysis Period (min)	15			

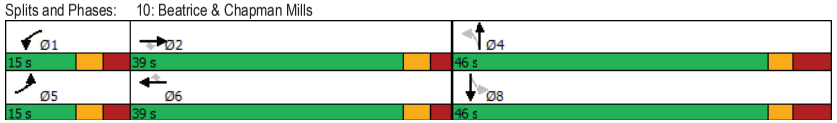
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	159	27	14	56	18	7	53	51	58	38	13
Future Volume (vph)	65	159	27	14	56	18	7	53	51	58	38	13
Satd. Flow (prot)	1658	1745	1483	1658	1745	1483	0	2949	0	0	3157	0
Flt Permitted	0.950			0.950				0.938			0.758	
Satd. Flow (perm)	1603	1745	1387	1586	1745	1413	0	2772	0	0	2376	0
Satd. Flow (RTOR)			122			122						
Lane Group Flow (vph)	65	159	27	14	56	18	0	111	0	0	109	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases			2			6	4			8		
Detector Phase	5	2	2	1	6	6	4	4		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	
Minimum Split (s)	11.5	25.9	25.9	11.5	25.9	25.9	45.7	45.7		45.7	45.7	
Total Split (s)	15.0	39.0	39.0	15.0	39.0	39.0	46.0	46.0		46.0	46.0	
Total Split (%)	15.0%	39.0%	39.0%	15.0%	39.0%	39.0%	46.0%	46.0%		46.0%	46.0%	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.0	3.0		3.0	3.0	
All-Red Time (s)	3.2	2.6	2.6	3.2	2.6	2.6	4.7	4.7		4.7	4.7	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)	6.5	5.9	5.9	6.5	5.9	5.9		7.7			7.7	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Max	Max	None	Max	Max	None	None		None	None	
Act Effct Green (s)	7.9	50.3	50.3	6.7	42.1	42.1		31.0			31.0	
Actuated g/C Ratio	0.09	0.56	0.56	0.07	0.47	0.47		0.34			0.34	
v/c Ratio	0.45	0.16	0.03	0.11	0.07	0.02		0.12			0.13	
Control Delay	54.1	18.3	0.1	45.4	23.5	0.1		20.3			20.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	
Total Delay	54.1	18.3	0.1	45.4	23.5	0.1		20.3			20.6	
LOS	D	B	A	D	C	A		C			C	
Approach Delay		25.6			22.2			20.3			20.6	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	12.2	16.8	0.0	2.6	7.4	0.0		7.1			7.0	
Queue Length 95th (m)	25.6	38.1	0.0	8.6	16.0	0.0		12.9			12.8	
Internal Link Dist (m)		520.9			367.7			322.5			353.5	
Turn Bay Length (m)	40.0		40.0	45.0		60.0						
Base Capacity (vph)	165	970	825	165	813	723		1246			1068	
Starvation Cap Reductn	0	0	0	0	0	0		0			0	
Spillback Cap Reductn	0	0	0	0	0	0		0			0	
Storage Cap Reductn	0	0	0	0	0	0		0			0	
Reduced v/c Ratio	0.39	0.16	0.03	0.08	0.07	0.02		0.09			0.10	

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 90.4
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.45

Intersection Signal Delay: 23.0 Intersection LOS: C
Intersection Capacity Utilization 65.5% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 10: Beatrice & Chapman Mills



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	159	27	14	56	18	7	53	51	58	38	13
Future Volume (vph)	65	159	27	14	56	18	7	53	51	58	38	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.5	5.9	5.9	6.5	5.9	5.9		7.7			7.7	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		0.95			0.95	
Frpb, ped/bikes	1.00	1.00	0.94	1.00	1.00	0.95		0.96			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00			0.97	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.93			0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00			0.97	
Satd. Flow (prot)	1658	1745	1389	1658	1745	1415		2949			3056	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.94			0.76	
Satd. Flow (perm)	1658	1745	1389	1658	1745	1415		2774			2379	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	65	159	27	14	56	18	7	53	51	58	38	13
RTOR Reduction (vph)	0	0	14	0	0	10	0	0	0	0	0	0
Lane Group Flow (vph)	65	159	13	14	56	8	0	111	0	0	109	0
Confl. Peds. (#/hr)	24		36	36		24	14		55	55		14
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases			2			6	4			8		
Actuated Green, G (s)	6.1	48.3	48.3	1.5	43.7	43.7		27.6			27.6	
Effective Green, g (s)	6.1	48.3	48.3	1.5	43.7	43.7		27.6			27.6	
Actuated g/C Ratio	0.06	0.50	0.50	0.02	0.45	0.45		0.28			0.28	
Clearance Time (s)	6.5	5.9	5.9	6.5	5.9	5.9		7.7			7.7	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	103	864	688	25	782	634		785			673	
v/s Ratio Prot	c0.04	c0.09		0.01	0.03							
v/s Ratio Perm			0.01			0.01		0.04			c0.05	
v/c Ratio	0.63	0.18	0.02	0.56	0.07	0.01		0.14			0.16	
Uniform Delay, d1	44.6	13.7	12.5	47.7	15.3	14.9		26.1			26.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	11.9	0.5	0.1	25.6	0.2	0.0		0.1			0.1	
Delay (s)	56.5	14.1	12.6	73.3	15.5	15.0		26.2			26.4	
Level of Service	E	B	B	E	B	B		C			C	
Approach Delay (s)		24.9			24.6			26.2			26.4	
Approach LOS		C			C			C			C	

Intersection Summary				
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.22			
Actuated Cycle Length (s)	97.5	Sum of lost time (s)	20.1	
Intersection Capacity Utilization	65.5%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	221	892	188	255	987	271	240	588	131	436	838	211
Future Volume (vph)	221	892	188	255	987	271	240	588	131	436	838	211
Satd. Flow (prot)	1658	3316	1483	1658	3316	1483	3216	3215	0	3216	3316	1483
Flt Permitted	0.116			0.116			0.950			0.950		
Satd. Flow (perm)	202	3316	1459	202	3316	1457	3206	3215	0	3202	3316	1453
Satd. Flow (RTOR)			188			242		21				211
Lane Group Flow (vph)	221	892	188	255	987	271	240	719	0	436	838	211
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	11.6	33.5	33.5	11.6	33.5	33.5	11.3	35.5		11.3	35.5	35.5
Total Split (s)	18.0	41.0	41.0	18.0	41.0	41.0	24.0	37.0		24.0	37.0	37.0
Total Split (%)	15.0%	34.2%	34.2%	15.0%	34.2%	34.2%	20.0%	30.8%		20.0%	30.8%	30.8%
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
All-Red Time (s)	2.9	2.8	2.8	2.9	2.8	2.8	2.6	2.8		2.6	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.6	6.5	6.5	6.6	6.5	6.5	6.3	6.5		6.3	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	45.8	34.5	34.5	45.8	34.5	34.5	14.1	30.5		17.7	34.1	34.1
Actuated g/C Ratio	0.38	0.29	0.29	0.38	0.29	0.29	0.12	0.25		0.15	0.28	0.28
v/c Ratio	1.03	0.94	0.34	1.19	1.04	0.46	0.64	0.86		0.92	0.89	0.37
Control Delay	100.4	59.3	6.3	153.8	69.3	9.1	74.3	40.1		76.3	54.3	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	100.4	59.3	6.3	153.8	69.3	9.1	74.3	40.1		76.3	54.3	6.7
LOS	F	E	A	F	E	A	E	D		E	D	A
Approach Delay		58.6			72.8			48.7			54.0	
Approach LOS		E			E			D			D	
Queue Length 50th (m)	~40.9	107.7	0.0	~55.2	~135.6	11.2	31.1	60.4		52.8	99.6	0.0
Queue Length 95th (m)	#90.2	#146.5	16.7	#112.8	#168.4	27.8	44.2	#112.5		#82.0	#146.3	18.3
Internal Link Dist (m)		384.5			263.2			179.3			219.3	
Turn Bay Length (m)	60.0		100.0	120.0			65.0			75.0		150.0
Base Capacity (vph)	215	953	553	215	953	591	474	832		474	942	563
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	1.03	0.94	0.34	1.19	1.04	0.46	0.51	0.86		0.92	0.89	0.37

Intersection Summary

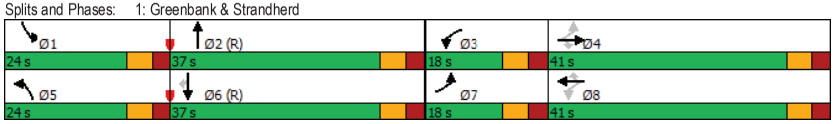
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 7 (6%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.19
Intersection Signal Delay: 59.6 — Intersection LOS: E
Intersection Capacity Utilization 100.6% — ICU Level of Service G
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Splits and Phases: 1: Greenbank & Strandherd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	221	892	188	255	987	271	240	588	131	436	838	211
Future Volume (vph)	221	892	188	255	987	271	240	588	131	436	838	211
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.6	6.5	6.5	6.6	6.5	6.5	6.3	6.5		6.3	6.5	6.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95		0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1658	3316	1459	1658	3316	1457	3216	3214		3216	3316	1454
Flt Permitted	0.12	1.00	1.00	0.12	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	202	3316	1459	202	3316	1457	3216	3214		3216	3316	1454
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	221	892	188	255	987	271	240	588	131	436	838	211
RTOR Reduction (vph)	0	0	134	0	0	172	0	16	0	0	0	151
Lane Group Flow (vph)	221	892	54	255	987	99	240	703	0	436	838	60
Confl. Peds. (#/hr)	4		3	3		4	6		6	6		6
Confl. Bikes (#/hr)			1			1						1
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						6
Actuated Green, G (s)	45.9	34.5	34.5	45.9	34.5	34.5	14.1	30.5		17.7	34.1	34.1
Effective Green, g (s)	45.9	34.5	34.5	45.9	34.5	34.5	14.1	30.5		17.7	34.1	34.1
Actuated g/C Ratio	0.38	0.29	0.29	0.38	0.29	0.29	0.12	0.25		0.15	0.28	0.28
Clearance Time (s)	6.6	6.5	6.5	6.6	6.5	6.5	6.3	6.5		6.3	6.5	6.5
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
Lane Grp Cap (vph)	215	953	419	215	953	418	377	816		474	942	413
v/s Ratio Prot	0.10	0.27		c0.11	0.30		0.07	0.22		c0.14	c0.25	
v/s Ratio Perm	0.29		0.04	c0.34		0.07						0.04
v/c Ratio	1.03	0.94	0.13	1.19	1.04	0.24	0.64	0.86		0.92	0.89	0.15
Uniform Delay, d1	31.8	41.7	31.6	31.2	42.8	32.7	50.5	42.7		50.5	41.1	32.1
Progression Factor	1.00	1.00	1.00	1.41	0.75	1.13	1.34	0.70		1.00	1.00	1.00
Incremental Delay, d2	68.8	17.3	0.6	116.3	36.5	1.1	3.1	10.4		22.8	12.3	0.7
Delay (s)	100.7	58.9	32.3	160.3	68.7	38.0	70.9	40.3		73.3	53.5	32.8
Level of Service	F	E	C	F	E	D	E	D		E	D	C
Approach Delay (s)		62.2			78.6			48.0			56.4	
Approach LOS		E			E			D			E	

Intersection Summary				
HCM 2000 Control Delay	62.7	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	1.07			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.9	
Intersection Capacity Utilization	100.6%	ICU Level of Service	G	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	80	107	176	71	169	155	701	68	176	983	46
Future Volume (vph)	74	80	107	176	71	169	155	701	68	176	983	46
Satd. Flow (prot)	1658	1545	0	1658	1533	0	1658	3268	0	3216	3292	0
Flt Permitted	0.425			0.480			0.950			0.950		
Satd. Flow (perm)	736	1545	0	811	1533	0	1658	3268	0	3208	3292	0
Satd. Flow (RTOR)		53			94			10			4	
Lane Group Flow (vph)	74	187	0	176	240	0	155	769	0	176	1029	0
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8								
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	11.4	34.5		11.4	34.5		11.3	31.2		11.3	31.2	
Total Split (s)	13.0	35.0		13.0	35.0		20.0	52.0		20.0	52.0	
Total Split (%)	10.8%	29.2%		10.8%	29.2%		16.7%	43.3%		16.7%	43.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.1	3.2		3.1	3.2		2.6	2.5		2.6	2.5	
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	6.5		6.4	6.5		6.3	6.2		6.3	6.2	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	28.2	21.6		29.5	24.2		13.9	54.8		11.7	52.6	
Actuated g/C Ratio	0.24	0.18		0.25	0.20		0.12	0.46		0.10	0.44	
v/c Ratio	0.33	0.58		0.72	0.63		0.81	0.51		0.56	0.71	
Control Delay	33.7	37.9		52.4	33.4		87.0	24.4		59.0	22.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	33.7	37.9		52.4	33.4		87.0	24.4		59.0	22.4	
LOS	C	D		D	C		F	C		E	C	
Approach Delay		36.7			41.5			34.9			27.8	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	11.9	26.9		30.3	30.0		37.2	73.5		22.2	50.1	
Queue Length 95th (m)	23.0	49.3		48.8	56.4		#71.3	72.1		m25.0	m68.5	
Internal Link Dist (m)		208.1			171.2			275.5			179.3	
Turn Bay Length (m)	25.0			55.0			55.0			50.0		
Base Capacity (vph)	224	407		246	435		197	1497		370	1443	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.33	0.46		0.72	0.55		0.79	0.51		0.48	0.71	

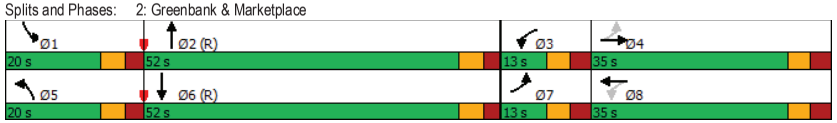
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 117 (98%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 33.0	Intersection LOS: C
Intersection Capacity Utilization 90.8%	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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Greenbank & Marketplace



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	80	107	176	71	169	155	701	68	176	983	46
Future Volume (vph)	74	80	107	176	71	169	155	701	68	176	983	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.4	6.5		6.4	6.5		6.3	6.2		6.3	6.2	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		0.97	0.95	
Frpb, ped/bikes	1.00	0.97		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.91		1.00	0.89		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1653	1545		1635	1534		1658	3267		3216	3293	
Flt Permitted	0.42	1.00		0.48	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	739	1545		826	1534		1658	3267		3216	3293	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	74	80	107	176	71	169	155	701	68	176	983	46
RTOR Reduction (vph)	0	43	0	0	75	0	0	6	0	0	2	0
Lane Group Flow (vph)	74	144	0	176	165	0	155	763	0	176	1027	0
Confl. Peds. (#/hr)	10		34	34		10			3	3		
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	28.2	22.9		30.8	24.2		13.9	53.4		11.7	51.2	
Effective Green, g (s)	28.2	22.9		30.8	24.2		13.9	53.4		11.7	51.2	
Actuated g/C Ratio	0.23	0.19		0.26	0.20		0.12	0.44		0.10	0.43	
Clearance Time (s)	6.4	6.5		6.4	6.5		6.3	6.2		6.3	6.2	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	214	294		256	309		192	1453		313	1405	
v/s Ratio Prot	0.02	0.09		c0.04	0.11		c0.09	0.23		0.05	c0.31	
v/s Ratio Perm	0.07			c0.14								
v/c Ratio	0.35	0.49		0.69	0.53		0.81	0.53		0.56	0.73	
Uniform Delay, d1	37.0	43.3		39.7	42.9		51.7	24.1		51.7	28.7	
Progression Factor	1.00	1.00		1.00	1.00		1.14	0.93		1.08	0.71	
Incremental Delay, d2	1.0	1.3		7.5	1.8		20.2	1.3		1.1	1.6	
Delay (s)	38.0	44.6		47.2	44.6		79.2	23.7		57.0	21.9	
Level of Service	D	D		D	D		E	C		E	C	
Approach Delay (s)		42.7			45.7			33.0			27.1	
Approach LOS		D			D			C			C	

Intersection Summary					
HCM 2000 Control Delay	33.2	HCM 2000 Level of Service		C	
HCM 2000 Volume to Capacity ratio	0.74				
Actuated Cycle Length (s)	120.0	Sum of lost time (s)		25.4	
Intersection Capacity Utilization	90.8%	ICU Level of Service		E	
Analysis Period (min)	15				
c Critical Lane Group					

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1	0	1	0	214	0	606	0	335	855	0
Future Volume (vph)	0	1	0	1	0	214	0	606	0	335	855	0
Satd. Flow (prot)	0	1745	0	0	1658	1483	0	1745	0	1658	1745	0
Flt Permitted										0.353		
Satd. Flow (perm)	0	1745	0	0	1745	1483	0	1745	0	616	1745	0
Satd. Flow (RTOR)						195						
Lane Group Flow (vph)	0	1	0	0	1	214	0	606	0	335	855	0
Turn Type		NA		Perm	NA	pm+ov		NA		pm+pt	NA	
Protected Phases		4			8	1		2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	1	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	5.0	10.0	10.0		5.0	10.0	
Minimum Split (s)	26.4	26.4		26.4	26.4	12.1	34.1	34.1		12.1	34.1	
Total Split (s)	27.0	27.0		27.0	27.0	30.0	63.0	63.0		30.0	93.0	
Total Split (%)	22.5%	22.5%		22.5%	22.5%	25.0%	52.5%	52.5%		25.0%	77.5%	
Yellow Time (s)	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	3.4	3.4	3.4		3.4	3.4	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)		6.4			6.4	7.1		7.1		7.1	7.1	
Lead/Lag						Lead	Lag	Lag		Lead		
Lead-Lag Optimize?						Yes	Yes	Yes		Yes		
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Act Effct Green (s)		10.0			10.0	15.2		90.6		109.6	115.3	
Actuated g/C Ratio		0.08			0.08	0.13		0.76		0.91	0.96	
v/c Ratio		0.01			0.01	0.60		0.46		0.50	0.51	
Control Delay		51.0			51.0	14.5		9.2		8.8	4.1	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		51.0			51.0	14.5		9.2		8.8	4.1	
LOS		D			D	B		A		A	A	
Approach Delay		51.0			14.6			9.2			5.5	
Approach LOS		D			B			A			A	
Queue Length 50th (m)		0.2			0.2	4.2		37.3		5.9	8.9	
Queue Length 95th (m)		2.0			2.0	20.6		125.0		41.4	118.2	
Internal Link Dist (m)		290.6			555.5			536.8			275.5	
Turn Bay Length (m)												
Base Capacity (vph)		299			299	475		1317		761	1677	
Starvation Cap Reductn		0			0	0		0		0	24	
Spillback Cap Reductn		0			0	0		0		0	0	
Storage Cap Reductn		0			0	0		0		0	0	
Reduced v/c Ratio		0.00			0.00	0.45		0.46		0.44	0.52	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 10 (8%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 7.6	Intersection LOS: A
Intersection Capacity Utilization 106.7%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 3: Greenbank & Jockvale

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1	0	1	0	214	0	606	0	335	855	0
Future Volume (vph)	0	1	0	1	0	214	0	606	0	335	855	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		6.4			6.4	7.1		7.1		7.1	7.1	
Lane Util. Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	1.00		1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00		1.00		1.00	1.00	
Frt		1.00			1.00	0.85		1.00		1.00	1.00	
Flt Protected		1.00			0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1745			1658	1483		1745		1657	1745	
Flt Permitted		1.00			1.00	1.00		1.00		0.35	1.00	
Satd. Flow (perm)		1745			1745	1483		1745		616	1745	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1	0	1	0	214	0	606	0	335	855	0
RTOR Reduction (vph)	0	0	0	0	0	172	0	0	0	0	0	0
Lane Group Flow (vph)	0	1	0	0	1	42	0	606	0	335	855	0
Confl. Peds. (#/hr)									3	3		
Turn Type		NA		Perm	NA	pm+ov		NA		pm+pt	NA	
Protected Phases		4			8	1		2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		2.0			2.0	13.9		85.5		104.5	104.5	
Effective Green, g (s)		2.0			2.0	13.9		85.5		104.5	104.5	
Actuated g/C Ratio		0.02			0.02	0.12		0.71		0.87	0.87	
Clearance Time (s)		6.4			6.4	7.1		7.1		7.1	7.1	
Vehicle Extension (s)		3.0			3.0	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		29			29	171		1243		639	1519	
v/s Ratio Prot		0.00				c0.02		0.35		0.05	c0.49	
v/s Ratio Perm					0.00	0.00				0.40		
v/c Ratio		0.03			0.03	0.24		0.49		0.52	0.56	
Uniform Delay, d1		58.1			58.1	48.3		7.6		3.5	2.0	
Progression Factor		1.00			1.00	1.00		1.00		6.45	2.30	
Incremental Delay, d2		0.5			0.5	0.7		1.4		0.6	1.1	
Delay (s)		58.5			58.5	49.0		9.0		23.4	5.6	
Level of Service		E			E	D		A		C	A	
Approach Delay (s)		58.5			49.1			9.0			10.6	
Approach LOS		E			D			A			B	

Intersection Summary				
HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.60			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.6	
Intersection Capacity Utilization	106.7%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø4
Lane Configurations							
Traffic Volume (vph)	1142	180	272	1248	186	134	
Future Volume (vph)	1142	180	272	1248	186	134	
Satd. Flow (prot)	3316	1483	1658	3316	3216	1483	
Flt Permitted			0.077		0.950		
Satd. Flow (perm)	3316	1448	134	3316	3140	1456	
Satd. Flow (RTOR)		161				134	
Lane Group Flow (vph)	1142	180	272	1248	186	134	
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm	
Protected Phases	2		1	6	3		4
Permitted Phases		2	6			3 4	
Detector Phase	2	2	1	6	3	3 4	
Switch Phase							
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0		5.0
Minimum Split (s)	36.3	36.3	11.0	36.3	16.8		35.8
Total Split (s)	49.0	49.0	15.0	64.0	19.0		37.0
Total Split (%)	40.8%	40.8%	12.5%	53.3%	15.8%		31%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3		3.3
All-Red Time (s)	2.6	2.6	2.3	2.6	3.5		3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.3	6.3	6.0	6.3	6.8		
Lead/Lag	Lag	Lag	Lead		Lead		Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes		Yes
Recall Mode	C-Max	C-Max	None	C-Max	None		None
Act Effct Green (s)	46.0	46.0	78.7	78.4	11.5	28.5	
Actuated g/C Ratio	0.38	0.38	0.66	0.65	0.10	0.24	
v/c Ratio	0.90	0.28	0.64	0.58	0.61	0.30	
Control Delay	31.1	6.1	26.9	7.5	60.8	6.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	31.1	6.1	26.9	7.5	60.8	6.4	
LOS	C	A	C	A	E	A	
Approach Delay	27.7			11.0	38.0		
Approach LOS	C			B	D		
Queue Length 50th (m)	59.1	6.0	15.0	6.3	21.8	0.0	
Queue Length 95th (m)	m#164.6	m7.0	m#89.8	m174.7	33.7	11.8	
Internal Link Dist (m)	263.2			413.3	180.6		
Turn Bay Length (m)		80.0	150.0		40.0		
Base Capacity (vph)	1270	654	423	2166	326	646	
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	0.90	0.28	0.64	0.58	0.57	0.21	

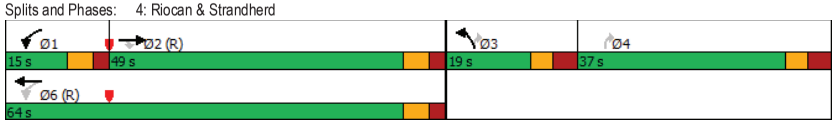
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 70 (58%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 20.7	Intersection LOS: C
Intersection Capacity Utilization 73.5%	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: 4: Riocan & Strandherd



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1142	180	272	1248	186	134
Future Volume (vph)	1142	180	272	1248	186	134
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.3	6.3	6.0	6.3	6.8	6.8
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3316	1448	1658	3316	3216	1449
Flt Permitted	1.00	1.00	0.08	1.00	0.95	1.00
Satd. Flow (perm)	3316	1448	134	3316	3216	1449
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1142	180	272	1248	186	134
RTOR Reduction (vph)	0	99	0	0	0	102
Lane Group Flow (vph)	1142	81	272	1248	186	32
Confl. Peds. (#/hr)		2	2		8	9
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	
Permitted Phases		2	6			3 4
Actuated Green, G (s)	46.0	46.0	78.4	78.4	11.5	28.5
Effective Green, g (s)	46.0	46.0	78.4	78.4	11.5	28.5
Actuated g/C Ratio	0.38	0.38	0.65	0.65	0.10	0.24
Clearance Time (s)	6.3	6.3	6.0	6.3	6.8	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1271	555	422	2166	308	344
v/s Ratio Prot	c0.34		0.14	c0.38	c0.06	
v/s Ratio Perm		0.06	0.28			c0.02
v/c Ratio	0.90	0.15	0.64	0.58	0.60	0.09
Uniform Delay, d1	34.8	24.2	29.8	11.6	52.1	35.7
Progression Factor	0.75	1.09	0.71	0.50	1.00	1.00
Incremental Delay, d2	4.2	0.2	2.0	0.7	3.3	0.1
Delay (s)	30.2	26.6	23.0	6.5	55.4	35.8
Level of Service	C	C	C	A	E	D
Approach Delay (s)	29.8			9.4	47.2	
Approach LOS	C			A	D	

Intersection Summary				
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.71			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.9	
Intersection Capacity Utilization	73.5%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	214	937	194	292	1193	127	119	226	182	116	373	173
Future Volume (vph)	214	937	194	292	1193	127	119	226	182	116	373	173
Satd. Flow (prot)	3216	3316	1483	3216	3316	1483	3216	1745	1483	1658	1745	1483
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3211	3316	1457	3207	3316	1458	3180	1745	1444	1640	1745	1447
Satd. Flow (RTOR)			215			155			212			212
Lane Group Flow (vph)	214	937	194	292	1193	127	119	226	182	116	373	173
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)	11.6	36.6	36.6	11.6	35.4	35.4	11.7	35.7	35.7	11.7	35.7	35.7
Total Split (s)	13.0	42.0	42.0	24.0	53.0	53.0	18.0	36.0	36.0	18.0	36.0	36.0
Total Split (%)	10.8%	35.0%	35.0%	20.0%	44.2%	44.2%	15.0%	30.0%	30.0%	15.0%	30.0%	30.0%
Yellow Time (s)	4.2	4.2	4.2	4.2	4.2	4.2	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.4	2.2	2.2	2.4	2.2	2.2	3.4	3.4	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.4	6.4	6.6	6.4	6.4	6.7	6.7	6.7	6.7	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
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	9.1	40.3	40.3	15.4	46.6	46.6	9.5	27.1	27.1	10.8	28.4	28.4
Actuated g/C Ratio	0.08	0.34	0.34	0.13	0.39	0.39	0.08	0.23	0.23	0.09	0.24	0.24
v/c Ratio	0.88	0.84	0.31	0.71	0.93	0.19	0.47	0.57	0.37	0.78	0.91	0.34
Control Delay	66.2	45.7	16.8	59.9	48.3	2.7	58.5	47.1	5.1	85.8	70.5	4.1
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	66.2	45.7	16.8	59.9	48.3	2.7	58.5	47.1	5.1	85.8	70.5	4.1
LOS	E	D	B	E	D	A	E	D	A	F	E	A
Approach Delay		44.8			46.8			35.2			55.8	
Approach LOS		D			D			D			E	
Queue Length 50th (m)	~31.5	123.4	24.3	34.2	139.6	0.0	14.0	46.4	0.0	27.1	83.4	0.0
Queue Length 95th (m)	m#40.2	m#148.6	m32.1	48.1	#183.1	7.5	23.1	71.5	11.6	#55.8	#136.7	9.5
Internal Link Dist (m)		413.3			403.0			212.7			202.0	
Turn Bay Length (m)	90.0		55.0	80.0		195.0	50.0		90.0	50.0		50.0
Base Capacity (vph)	242	1112	631	466	1287	660	302	426	512	156	431	517
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	0.88	0.84	0.31	0.63	0.93	0.19	0.39	0.53	0.36	0.74	0.87	0.33

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 18 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

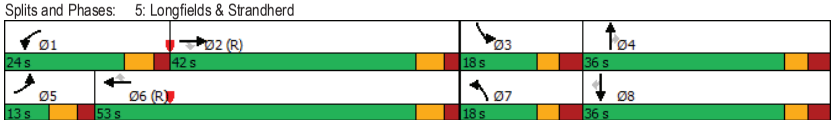
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 46.1 — Intersection LOS: D
Intersection Capacity Utilization 89.1% — ICU Level of Service E
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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

Splits and Phases: 5: Longfields & Strandherd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	214	937	194	292	1193	127	119	226	182	116	373	173
Future Volume (vph)	214	937	194	292	1193	127	119	226	182	116	373	173
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.6	6.4	6.4	6.6	6.4	6.4	6.7	6.7	6.7	6.7	6.7	6.7
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3216	3316	1457	3216	3316	1458	3216	1745	1444	1658	1745	1447
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3216	3316	1457	3216	3316	1458	3216	1745	1444	1658	1745	1447
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	214	937	194	292	1193	127	119	226	182	116	373	173
RTOR Reduction (vph)	0	0	129	0	0	78	0	0	141	0	0	132
Lane Group Flow (vph)	214	937	65	292	1193	49	119	226	41	116	373	41
Confl. Peds. (#/hr)	4		5	5		4	10		12	12		10
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
Actuated Green, G (s)	9.1	40.3	40.3	15.4	46.6	46.6	9.5	27.1	27.1	10.8	28.4	28.4
Effective Green, g (s)	9.1	40.3	40.3	15.4	46.6	46.6	9.5	27.1	27.1	10.8	28.4	28.4
Actuated g/C Ratio	0.08	0.34	0.34	0.13	0.39	0.39	0.08	0.23	0.23	0.09	0.24	0.24
Clearance Time (s)	6.6	6.4	6.4	6.6	6.4	6.4	6.7	6.7	6.7	6.7	6.7	6.7
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
Lane Grp Cap (vph)	243	1113	489	412	1287	566	254	394	326	149	412	342
v/s Ratio Prot	0.07	0.28		c0.09	c0.36		0.04	0.13		c0.07	c0.21	
v/s Ratio Perm			0.04			0.03			0.03			0.03
v/c Ratio	0.88	0.84	0.13	0.71	0.93	0.09	0.47	0.57	0.13	0.78	0.91	0.12
Uniform Delay, d1	54.9	36.9	27.7	50.1	35.1	23.2	52.8	41.3	37.0	53.4	44.5	36.0
Progression Factor	0.68	1.07	5.18	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	19.4	4.8	0.3	5.5	12.8	0.3	1.4	2.0	0.2	22.2	22.8	0.2
Delay (s)	56.8	44.2	143.8	55.7	47.9	23.5	54.2	43.3	37.2	75.6	67.3	36.1
Level of Service	E	D	F	E	D	C	D	D	D	E	E	D
Approach Delay (s)		60.5			47.4			43.7			60.6	
Approach LOS		E			D			D			E	

Intersection Summary				
HCM 2000 Control Delay	53.3	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.92			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	26.4	
Intersection Capacity Utilization	89.1%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	71	255	17	52	54	154	401	15	100	625	176
Future Volume (vph)	125	71	255	17	52	54	154	401	15	100	625	176
Satd. Flow (prot)	1658	1525	0	0	1618	0	1658	3295	0	1658	3189	0
Flt Permitted	0.713				0.595		0.258			0.508		
Satd. Flow (perm)	1238	1525	0	0	969	0	450	3295	0	881	3189	0
Satd. Flow (RTOR)		228			50			6			46	
Lane Group Flow (vph)	125	326	0	0	123	0	154	416	0	100	801	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	34.8	34.8		34.8	34.8		10.6	24.8		24.8	24.8	
Total Split (s)	35.0	35.0		35.0	35.0		15.0	50.0		35.0	35.0	
Total Split (%)	41.2%	41.2%		41.2%	41.2%		17.6%	58.8%		41.2%	41.2%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.8	3.8		3.8	3.8		2.3	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.8	6.8			6.8		5.6	5.8		5.8	5.8	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	
Act Effct Green (s)	15.8	15.8			15.8		56.8	56.6		42.9	42.9	
Actuated g/C Ratio	0.19	0.19			0.19		0.67	0.67		0.50	0.50	
v/c Ratio	0.55	0.70			0.56		0.37	0.19		0.22	0.49	
Control Delay	38.6	17.7			27.6		9.3	6.7		16.6	16.0	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay	38.6	17.7			27.6		9.3	6.7		16.6	16.0	
LOS	D	B			C		A	A		B	B	
Approach Delay		23.5			27.6			7.4			16.0	
Approach LOS		C			C			A			B	
Queue Length 50th (m)	19.2	14.5			10.9		7.2	10.5		8.1	37.6	
Queue Length 95th (m)	29.0	33.0			22.6		22.2	26.2		24.8	75.7	
Internal Link Dist (m)		257.2			427.6			400.4			212.7	
Turn Bay Length (m)	30.0						75.0			100.0		
Base Capacity (vph)	410	658			354		435	2196		445	1633	
Starvation Cap Reductn	0	0			0		0	0		0	0	
Spillback Cap Reductn	0	0			0		0	0		0	0	
Storage Cap Reductn	0	0			0		0	0		0	0	
Reduced v/c Ratio	0.30	0.50			0.35		0.35	0.19		0.22	0.49	

Intersection Summary
Cycle Length: 85
Actuated Cycle Length: 85
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 16.0	Intersection LOS: B
Intersection Capacity Utilization 71.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 6: Longfields & Marketplace/Clearbrook

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	71	255	17	52	54	154	401	15	100	625	176
Future Volume (vph)	125	71	255	17	52	54	154	401	15	100	625	176
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.8	6.8			6.8		5.6	5.8		5.8	5.8	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99			0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.99	1.00			1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.88			0.94		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1649	1525			1617		1657	3294		1647	3189	
Flt Permitted	0.71	1.00			0.59		0.26	1.00		0.51	1.00	
Satd. Flow (perm)	1238	1525			969		450	3294		882	3189	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	125	71	255	17	52	54	154	401	15	100	625	176
RTOR Reduction (vph)	0	186	0	0	41	0	0	2	0	0	23	0
Lane Group Flow (vph)	125	140	0	0	82	0	154	414	0	100	778	0
Confl. Peds. (#/hr)	7		1	1		7	2		5	5		2
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	15.8	15.8			15.8		56.6	56.6		42.9	42.9	
Effective Green, g (s)	15.8	15.8			15.8		56.6	56.6		42.9	42.9	
Actuated g/C Ratio	0.19	0.19			0.19		0.67	0.67		0.50	0.50	
Clearance Time (s)	6.8	6.8			6.8		5.6	5.8		5.8	5.8	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	230	283			180		414	2193		445	1609	
v/s Ratio Prot		0.09					c0.04	0.13			c0.24	
v/s Ratio Perm	c0.10				0.08		0.21			0.11		
v/c Ratio	0.54	0.50			0.46		0.37	0.19		0.22	0.48	
Uniform Delay, d1	31.3	31.0			30.8		6.5	5.4		11.8	13.8	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.6	1.4			1.8		0.6	0.2		1.2	1.0	
Delay (s)	33.9	32.4			32.6		7.1	5.6		12.9	14.8	
Level of Service	C	C			C		A	A		B	B	
Approach Delay (s)		32.8			32.6			6.0			14.6	
Approach LOS		C			C			A			B	

Intersection Summary				
HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.49			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	18.2	
Intersection Capacity Utilization	71.4%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

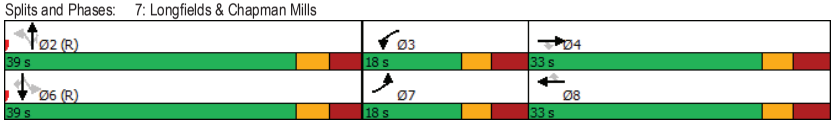
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	65	0	84	0	509	54	165	799	0
Future Volume (vph)	0	0	0	65	0	84	0	509	54	165	799	0
Satd. Flow (prot)	1745	1745	1745	1658	1745	1483	1745	3316	1483	1658	3316	1745
Flt Permitted				0.950						0.465		
Satd. Flow (perm)	1745	1745	1745	1644	1745	1458	1745	3316	1434	808	3316	1745
Satd. Flow (RTOR)						391						
Lane Group Flow (vph)	0	0	0	65	0	84	0	509	54	165	799	0
Turn Type	Prot		Perm	Prot		Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	2	2	2	6	6	6
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	10.0
Minimum Split (s)	12.3	32.5	32.5	12.3	32.5	32.5	38.3	38.3	38.3	38.3	38.3	38.3
Total Split (s)	18.0	33.0	33.0	18.0	33.0	33.0	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	20.0%	36.7%	36.7%	20.0%	36.7%	36.7%	43.3%	43.3%	43.3%	43.3%	43.3%	43.3%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	4.0	4.2	4.2	4.0	4.2	4.2	3.6	3.6	3.6	3.6	3.6	3.6
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)	7.3	7.5	7.5	7.3	7.5	7.5	7.3	7.3	7.3	7.3	7.3	7.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)				9.4		16.6		63.5	63.5	63.5	63.5	
Actuated g/C Ratio				0.10		0.18		0.71	0.71	0.71	0.71	
v/c Ratio				0.38		0.14		0.22	0.05	0.29	0.34	
Control Delay				43.5		0.5		10.8	13.7	13.0	10.0	
Queue Delay				0.0		0.0		0.0	0.0	0.0	0.0	
Total Delay				43.5		0.5		10.8	13.7	13.0	10.0	
LOS				D		A		B	B	B	B	
Approach Delay					19.3			11.1			10.5	
Approach LOS					B			B			B	
Queue Length 50th (m)				10.6		0.0		12.6	2.2	8.3	22.0	
Queue Length 95th (m)				22.6		0.0		45.5	14.8	44.1	80.5	
Internal Link Dist (m)		59.7			203.2			375.7			400.4	
Turn Bay Length (m)				40.0		40.0			65.0	65.0		
Base Capacity (vph)				197		734		2341	1012	570	2341	
Starvation Cap Reductn				0		0		0	0	0	0	
Spillback Cap Reductn				0		0		0	0	0	0	
Storage Cap Reductn				0		0		0	0	0	0	
Reduced v/c Ratio				0.33		0.11		0.22	0.05	0.29	0.34	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 33 (37%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.38

Intersection Signal Delay: 11.5	Intersection LOS: B
Intersection Capacity Utilization 66.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 7: Longfields & Chapman Mills



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	65	0	84	0	509	54	165	799	0
Future Volume (vph)	0	0	0	65	0	84	0	509	54	165	799	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)				7.3		7.5		7.3	7.3	7.3	7.3	
Lane Util. Factor				1.00		1.00		0.95	1.00	1.00	0.95	
Frpb, ped/bikes				1.00		0.98		1.00	0.97	1.00	1.00	
Flpb, ped/bikes				1.00		1.00		1.00	1.00	0.99	1.00	
Frt				1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected				0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)				1658		1458		3316	1436	1650	3316	
Flt Permitted				0.95		1.00		1.00	1.00	0.46	1.00	
Satd. Flow (perm)				1658		1458		3316	1436	807	3316	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	65	0	84	0	509	54	165	799	0
RTOR Reduction (vph)	0	0	0	0	0	65	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	65	0	19	0	509	54	165	799	0
Confl. Peds. (#/hr)	5		8	8		5	17		7	7		17
Confl. Bikes (#/hr)			1						3			10
Turn Type	Prot		Perm	Prot		Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2		2	6		6
Actuated Green, G (s)				8.3		20.6		54.6	54.6	54.6	54.6	
Effective Green, g (s)				8.3		20.6		54.6	54.6	54.6	54.6	
Actuated g/C Ratio				0.09		0.23		0.61	0.61	0.61	0.61	
Clearance Time (s)				7.3		7.5		7.3	7.3	7.3	7.3	
Vehicle Extension (s)				3.0		3.0		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)				152		333		2011	871	489	2011	
v/s Ratio Prot				c0.04				0.15			c0.24	
v/s Ratio Perm						c0.01			0.04	0.20		
v/c Ratio				0.43		0.06		0.25	0.06	0.34	0.40	
Uniform Delay, d1				38.6		27.1		8.2	7.2	8.8	9.2	
Progression Factor				1.00		1.00		1.21	1.30	1.00	1.00	
Incremental Delay, d2				1.9		0.1		0.3	0.1	1.9	0.6	
Delay (s)				40.5		27.2		10.2	9.6	10.6	9.8	
Level of Service				D		C		B	A	B	A	
Approach Delay (s)		0.0			33.0			10.2			9.9	
Approach LOS		A			C			B			A	

Intersection Summary				
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.38			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	22.1	
Intersection Capacity Utilization	66.0%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

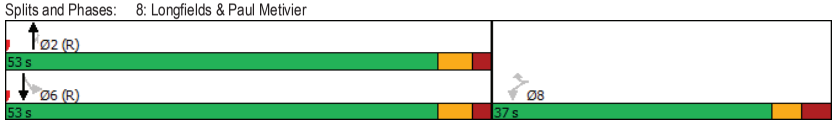
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	91	87	484	68	104	767
Future Volume (vph)	91	87	484	68	104	767
Satd. Flow (prot)	1658	1483	3316	1483	1658	3316
Flt Permitted	0.950				0.476	
Satd. Flow (perm)	1647	1463	3316	1434	825	3316
Satd. Flow (RTOR)		87		68		
Lane Group Flow (vph)	91	87	484	68	104	767
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)	36.6	36.6	36.0	36.0	24.0	24.0
Total Split (s)	37.0	37.0	53.0	53.0	53.0	53.0
Total Split (%)	41.1%	41.1%	58.9%	58.9%	58.9%	58.9%
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	3.3	3.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	14.5	14.5	67.4	67.4	67.4	67.4
Actuated g/C Ratio	0.16	0.16	0.75	0.75	0.75	0.75
v/c Ratio	0.34	0.28	0.19	0.06	0.17	0.31
Control Delay	34.9	8.4	5.8	2.5	3.7	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.9	8.4	5.8	2.5	3.7	3.0
LOS	C	A	A	A	A	A
Approach Delay	22.0		5.4			3.1
Approach LOS	C		A			A
Queue Length 50th (m)	15.0	0.0	10.6	0.0	2.8	10.8
Queue Length 95th (m)	21.8	9.5	32.4	5.8	5.6	14.8
Internal Link Dist (m)	403.8		379.4			375.7
Turn Bay Length (m)	45.0			50.0	70.0	
Base Capacity (vph)	556	551	2484	1091	618	2484
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	0.16	0.19	0.06	0.17	0.31

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 35 (39%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.34

Intersection Signal Delay: 6.0	Intersection LOS: A
Intersection Capacity Utilization 57.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Longfields & Paul Metivier



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	91	87	484	68	104	767
Future Volume (vph)	91	87	484	68	104	767
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.6	6.6	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	0.99	1.00	0.97	1.00	1.00
Flpb, ped/bikes	0.99	1.00	1.00	1.00	0.99	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1647	1462	3316	1434	1646	3316
Flt Permitted	0.95	1.00	1.00	1.00	0.48	1.00
Satd. Flow (perm)	1647	1462	3316	1434	825	3316
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	91	87	484	68	104	767
RTOR Reduction (vph)	0	75	0	19	0	0
Lane Group Flow (vph)	91	12	484	49	104	767
Confl. Peds. (#/hr)	7	1		9	9	
Confl. Bikes (#/hr)		1				
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Actuated Green, G (s)	12.5	12.5	64.9	64.9	64.9	64.9
Effective Green, g (s)	12.5	12.5	64.9	64.9	64.9	64.9
Actuated g/C Ratio	0.14	0.14	0.72	0.72	0.72	0.72
Clearance Time (s)	6.6	6.6	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	228	203	2391	1034	594	2391
v/s Ratio Prot			0.15			c0.23
v/s Ratio Perm	c0.06	0.01		0.03	0.13	
v/c Ratio	0.40	0.06	0.20	0.05	0.18	0.32
Uniform Delay, d1	35.3	33.6	4.1	3.6	4.0	4.6
Progression Factor	1.00	1.00	1.00	1.00	0.46	0.44
Incremental Delay, d2	1.1	0.1	0.2	0.1	0.6	0.3
Delay (s)	36.5	33.8	4.3	3.7	2.5	2.3
Level of Service	D	C	A	A	A	A
Approach Delay (s)	35.2		4.2			2.4
Approach LOS	D		A			A

Intersection Summary				
HCM 2000 Control Delay	6.6	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.33			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.6	
Intersection Capacity Utilization	57.7%	ICU Level of Service	B	
Analysis Period (min)	15			

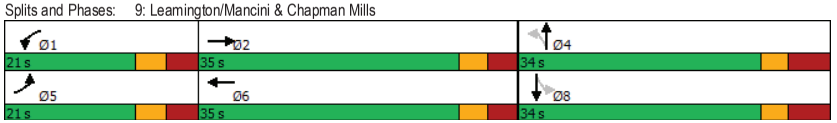
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	105	78	42	99	31	55	10	31	20	12	7
Future Volume (vph)	15	105	78	42	99	31	55	10	31	20	12	7
Satd. Flow (prot)	1658	1618	0	1658	1672	0	0	1622	0	0	1654	0
Flt Permitted	0.950			0.950				0.801			0.788	
Satd. Flow (perm)	1650	1618	0	1654	1672	0	0	1335	0	0	1337	0
Satd. Flow (RTOR)		43			18							
Lane Group Flow (vph)	15	183	0	42	130	0	0	96	0	0	39	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.8	22.6		11.8	22.6		33.7	33.7		33.7	33.7	
Total Split (s)	21.0	35.0		21.0	35.0		34.0	34.0		34.0	34.0	
Total Split (%)	23.3%	38.9%		23.3%	38.9%		37.8%	37.8%		37.8%	37.8%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	3.5	3.3		3.5	3.3		4.7	4.7		4.7	4.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	6.8	6.6		6.8	6.6			7.7			7.7	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	Max		None	Max		None	None		None	None	
Act Effct Green (s)	6.3	37.2		7.4	43.3			13.1			13.1	
Actuated g/C Ratio	0.09	0.56		0.11	0.65			0.20			0.20	
v/c Ratio	0.10	0.20		0.23	0.12			0.37			0.15	
Control Delay	33.8	12.4		33.9	9.7			28.9			24.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	33.8	12.4		33.9	9.7			28.9			24.8	
LOS	C	B		C	A			C			C	
Approach Delay		14.1			15.6			28.9			24.8	
Approach LOS		B			B			C			C	
Queue Length 50th (m)	1.8	10.4		4.9	4.6			11.1			4.3	
Queue Length 95th (m)	7.9	32.6		15.6	24.7			23.6			11.6	
Internal Link Dist (m)		203.2			520.9			265.7			233.3	
Turn Bay Length (m)	40.0			50.0								
Base Capacity (vph)	362	919		362	1087			540			541	
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	0.20		0.12	0.12			0.18			0.07	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 66.9
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.37

Intersection Signal Delay: 18.2 — Intersection LOS: B
Intersection Capacity Utilization 43.9% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 9: Leamington/Mancini & Chapman Mills



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	105	78	42	99	31	55	10	31	20	12	7
Future Volume (vph)	15	105	78	42	99	31	55	10	31	20	12	7
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.8	6.6		6.8	6.6			7.7			7.7	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99			1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.94		1.00	0.96			0.96			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.97	
Satd. Flow (prot)	1658	1618		1658	1673			1621			1653	
Flt Permitted	0.95	1.00		0.95	1.00			0.80			0.79	
Satd. Flow (perm)	1658	1618		1658	1673			1336			1337	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	15	105	78	42	99	31	55	10	31	20	12	7
RTOR Reduction (vph)	0	21	0	0	8	0	0	0	0	0	0	0
Lane Group Flow (vph)	15	162	0	42	122	0	0	96	0	0	39	0
Confl. Peds. (#/hr)	2		1	1		2	1					1
Confl. Bikes (#/hr)												1
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Actuated Green, G (s)	1.2	38.1		4.6	41.5			10.5			10.5	
Effective Green, g (s)	1.2	38.1		4.6	41.5			10.5			10.5	
Actuated g/C Ratio	0.02	0.51		0.06	0.56			0.14			0.14	
Clearance Time (s)	6.8	6.6		6.8	6.6			7.7			7.7	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	26	829		102	934			188			188	
v/s Ratio Prot	0.01	c0.10		c0.03	c0.07							
v/s Ratio Perm								c0.07			0.03	
v/c Ratio	0.58	0.20		0.41	0.13			0.51			0.21	
Uniform Delay, d1	36.3	9.8		33.5	7.8			29.5			28.2	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	27.4	0.5		2.7	0.3			2.3			0.6	
Delay (s)	63.7	10.3		36.2	8.1			31.9			28.8	
Level of Service	E	B		D	A			C			C	
Approach Delay (s)		14.4			15.0			31.9			28.8	
Approach LOS		B			B			C			C	

Intersection Summary				
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.28			
Actuated Cycle Length (s)	74.3	Sum of lost time (s)	21.1	
Intersection Capacity Utilization	43.9%	ICU Level of Service	A	
Analysis Period (min)	15			

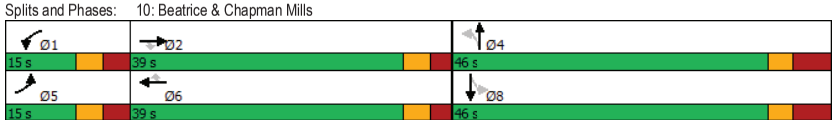
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	107	5	22	145	25	7	42	16	25	51	29
Future Volume (vph)	39	107	5	22	145	25	7	42	16	25	51	29
Satd. Flow (prot)	1658	1745	1483	1658	1745	1483	0	3158	0	0	3093	0
Flt Permitted	0.950			0.950				0.920			0.869	
Satd. Flow (perm)	1640	1745	1446	1639	1745	1446	0	2910	0	0	2718	0
Satd. Flow (RTOR)			122			122						
Lane Group Flow (vph)	39	107	5	22	145	25	0	65	0	0	105	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases			2			6	4			8		
Detector Phase	5	2	2	1	6	6	4	4		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	
Minimum Split (s)	11.5	25.9	25.9	11.5	25.9	25.9	45.7	45.7		45.7	45.7	
Total Split (s)	15.0	39.0	39.0	15.0	39.0	39.0	46.0	46.0		46.0	46.0	
Total Split (%)	15.0%	39.0%	39.0%	15.0%	39.0%	39.0%	46.0%	46.0%		46.0%	46.0%	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.0	3.0		3.0	3.0	
All-Red Time (s)	3.2	2.6	2.6	3.2	2.6	2.6	4.7	4.7		4.7	4.7	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)	6.5	5.9	5.9	6.5	5.9	5.9		7.7			7.7	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Max	Max	None	Max	Max	None	None		None	None	
Act Effct Green (s)	7.4	42.5	42.5	6.9	42.4	42.4		19.1			19.1	
Actuated g/C Ratio	0.10	0.57	0.57	0.09	0.57	0.57		0.26			0.26	
v/c Ratio	0.24	0.11	0.01	0.14	0.15	0.03		0.09			0.15	
Control Delay	41.5	17.9	0.0	41.0	17.8	0.1		20.2			20.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	
Total Delay	41.5	17.9	0.0	41.0	17.8	0.1		20.2			20.8	
LOS	D	B	A	D	B	A		C			C	
Approach Delay		23.4			18.2			20.2			20.8	
Approach LOS		C			B			C			C	
Queue Length 50th (m)	3.7	4.3	0.0	2.1	5.9	0.0		3.0			4.9	
Queue Length 95th (m)	17.3	27.0	0.0	11.4	35.3	0.0		8.5			12.3	
Internal Link Dist (m)		520.9			367.7			322.5			353.5	
Turn Bay Length (m)	40.0		40.0	45.0		60.0						
Base Capacity (vph)	204	1000	881	204	997	878		1621			1514	
Starvation Cap Reductn	0	0	0	0	0	0		0			0	
Spillback Cap Reductn	0	0	0	0	0	0		0			0	
Storage Cap Reductn	0	0	0	0	0	0		0			0	
Reduced v/c Ratio	0.19	0.11	0.01	0.11	0.15	0.03		0.04			0.07	

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 74.1
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.24

Intersection Signal Delay: 20.5 Intersection LOS: C
Intersection Capacity Utilization 60.1% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 10: Beatrice & Chapman Mills



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	107	5	22	145	25	7	42	16	25	51	29
Future Volume (vph)	39	107	5	22	145	25	7	42	16	25	51	29
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.5	5.9	5.9	6.5	5.9	5.9		7.7			7.7	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		0.95			0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98		0.99			0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.96			0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99			0.99	
Satd. Flow (prot)	1658	1745	1450	1658	1745	1450		3149			3096	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.92			0.87	
Satd. Flow (perm)	1658	1745	1450	1658	1745	1450		2912			2724	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	39	107	5	22	145	25	7	42	16	25	51	29
RTOR Reduction (vph)	0	0	2	0	0	12	0	0	0	0	0	0
Lane Group Flow (vph)	39	107	3	22	145	13	0	65	0	0	105	0
Confl. Peds. (#/hr)	9		9	9		9	28		3	3		28
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases			2			6	4			8		
Actuated Green, G (s)	2.5	40.9	40.9	2.4	40.8	40.8		16.4			16.4	
Effective Green, g (s)	2.5	40.9	40.9	2.4	40.8	40.8		16.4			16.4	
Actuated g/C Ratio	0.03	0.51	0.51	0.03	0.51	0.51		0.21			0.21	
Clearance Time (s)	6.5	5.9	5.9	6.5	5.9	5.9		7.7			7.7	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	51	894	743	49	892	741		598			559	
v/s Ratio Prot	c0.02	0.06		0.01	c0.08							
v/s Ratio Perm			0.00			0.01		0.02			c0.04	
v/c Ratio	0.76	0.12	0.00	0.45	0.16	0.02		0.11			0.19	
Uniform Delay, d1	38.4	10.1	9.5	38.0	10.4	9.6		25.8			26.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	48.9	0.3	0.0	6.4	0.4	0.0		0.1			0.2	
Delay (s)	87.3	10.4	9.5	44.5	10.8	9.7		25.8			26.4	
Level of Service	F	B	A	D	B	A		C			C	
Approach Delay (s)		30.2			14.5			25.8			26.4	
Approach LOS		C			B			C			C	

Intersection Summary					
HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C		
HCM 2000 Volume to Capacity ratio	0.19				
Actuated Cycle Length (s)	79.8	Sum of lost time (s)	20.1		
Intersection Capacity Utilization	60.1%	ICU Level of Service	B		
Analysis Period (min)	15				
c Critical Lane Group					

Appendix H

Synchro Intersection Worksheets – 2031 Future Background Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	168	768	141	75	796	361	195	798	78	179	279	83
Future Volume (vph)	168	768	141	75	796	361	195	798	78	179	279	83
Satd. Flow (prot)	1658	3316	1483	1658	3316	1483	3216	3267	0	3216	3316	1483
Flt Permitted	0.154			0.239			0.950			0.950		
Satd. Flow (perm)	269	3316	1452	416	3316	1460	3203	3267	0	3202	3316	1460
Satd. Flow (RTOR)			149			361		8				149
Lane Group Flow (vph)	168	768	141	75	796	361	195	876	0	179	279	83
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	11.6	33.5	33.5	11.6	33.5	33.5	11.3	35.5		11.3	35.5	35.5
Total Split (s)	19.0	41.0	41.0	19.0	41.0	41.0	24.0	36.0		24.0	36.0	36.0
Total Split (%)	15.8%	34.2%	34.2%	15.8%	34.2%	34.2%	20.0%	30.0%		20.0%	30.0%	30.0%
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
All-Red Time (s)	2.9	2.8	2.8	2.9	2.8	2.8	2.6	2.8		2.6	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.6	6.5	6.5	6.6	6.5	6.5	6.3	6.5		6.3	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	50.4	40.8	40.8	43.9	35.4	35.4	12.6	35.2		12.0	34.6	34.6
Actuated g/C Ratio	0.42	0.34	0.34	0.37	0.30	0.30	0.10	0.29		0.10	0.29	0.29
v/c Ratio	0.69	0.68	0.24	0.31	0.81	0.53	0.58	0.91		0.56	0.29	0.16
Control Delay	36.8	39.0	5.4	17.5	31.1	6.3	75.6	51.3		57.9	34.8	0.6
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	36.8	39.0	5.4	17.5	31.1	6.3	75.6	51.3		57.9	34.8	0.6
LOS	D	D	A	B	C	A	E	D		E	C	A
Approach Delay		34.3			23.0			55.7			37.2	
Approach LOS		C			C			E			D	
Queue Length 50th (m)	23.9	84.1	0.0	3.8	85.6	15.2	24.3	113.6		21.0	26.8	0.0
Queue Length 95th (m)	#44.3	110.3	12.9	m12.6	95.6	25.0	37.4	#147.2		31.6	40.2	0.0
Internal Link Dist (m)		384.5			263.2			179.3			219.3	
Turn Bay Length (m)	60.0		100.0	120.0			65.0			75.0		150.0
Base Capacity (vph)	256	1126	591	293	978	685	474	963		474	957	527
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	0.66	0.68	0.24	0.26	0.81	0.53	0.41	0.91		0.38	0.29	0.16

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 94 (78%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

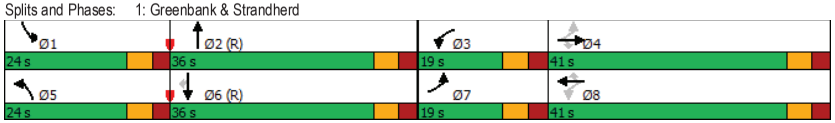
Maximum v/c Ratio: 0.91

Intersection Signal Delay: 37.0	Intersection LOS: D
Intersection Capacity Utilization 86.0%	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.

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

Splits and Phases: 1: Greenbank & Strandherd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	168	768	141	75	796	361	195	798	78	179	279	83
Future Volume (vph)	168	768	141	75	796	361	195	798	78	179	279	83
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.6	6.5	6.5	6.6	6.5	6.5	6.3	6.5		6.3	6.5	6.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95		0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1658	3316	1452	1657	3316	1460	3216	3265		3216	3316	1460
Flt Permitted	0.15	1.00	1.00	0.24	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	269	3316	1452	417	3316	1460	3216	3265		3216	3316	1460
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	168	768	141	75	796	361	195	798	78	179	279	83
RTOR Reduction (vph)	0	0	93	0	0	251	0	6	0	0	0	60
Lane Group Flow (vph)	168	768	48	75	796	110	195	870	0	179	279	23
Confl. Peds. (#/hr)	3		7	7		3	3		7	7		3
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						6
Actuated Green, G (s)	52.3	40.8	40.8	44.1	36.7	36.7	12.6	33.9		12.0	33.3	33.3
Effective Green, g (s)	52.3	40.8	40.8	44.1	36.7	36.7	12.6	33.9		12.0	33.3	33.3
Actuated g/C Ratio	0.44	0.34	0.34	0.37	0.31	0.31	0.10	0.28		0.10	0.28	0.28
Clearance Time (s)	6.6	6.5	6.5	6.6	6.5	6.5	6.3	6.5		6.3	6.5	6.5
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
Lane Grp Cap (vph)	250	1127	493	229	1014	446	337	922		321	920	405
v/s Ratio Prot	c0.06	c0.23		0.02	c0.24		c0.06	c0.27		0.06	0.08	
v/s Ratio Perm	0.23		0.03	0.10		0.08						0.02
v/c Ratio	0.67	0.68	0.10	0.33	0.79	0.25	0.58	0.94		0.56	0.30	0.06
Uniform Delay, d1	24.3	34.0	27.0	25.9	38.0	31.3	51.2	42.1		51.5	34.2	31.8
Progression Factor	1.00	1.00	1.00	0.73	0.61	1.09	1.37	0.94		1.00	1.00	1.00
Incremental Delay, d2	6.9	3.3	0.4	0.7	5.2	1.1	2.1	16.9		2.1	0.8	0.3
Delay (s)	31.2	37.4	27.4	19.6	28.6	35.3	72.0	56.5		53.6	35.0	32.1
Level of Service	C	D	C	B	C	D	E	E		D	D	C
Approach Delay (s)		35.1			30.0			59.3			40.7	
Approach LOS		D			C			E			D	

Intersection Summary				
HCM 2000 Control Delay	40.9	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.82			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.9	
Intersection Capacity Utilization	86.0%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	17	31	49	29	66	93	1023	81	40	366	19
Future Volume (vph)	13	17	31	49	29	66	93	1023	81	40	366	19
Satd. Flow (prot)	1658	1552	0	1658	1549	0	1658	3275	0	3216	3289	0
Flt Permitted	0.695			0.635			0.950			0.950		
Satd. Flow (perm)	1211	1552	0	1096	1549	0	1656	3275	0	3211	3289	0
Satd. Flow (RTOR)		31			66			9			5	
Lane Group Flow (vph)	13	48	0	49	95	0	93	1104	0	40	385	0
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8								
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	11.4	34.5		11.4	34.5		11.3	31.2		11.3	31.2	
Total Split (s)	12.0	35.0		12.0	35.0		15.0	58.0		15.0	58.0	
Total Split (%)	10.0%	29.2%		10.0%	29.2%		12.5%	48.3%		12.5%	48.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.1	3.2		3.1	3.2		2.6	2.5		2.6	2.5	
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	6.5		6.4	6.5		6.3	6.2		6.3	6.2	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	18.2	13.6		20.7	18.4		11.2	73.2		7.0	66.6	
Actuated g/C Ratio	0.15	0.11		0.17	0.15		0.09	0.61		0.06	0.56	
v/c Ratio	0.06	0.24		0.23	0.32		0.60	0.55		0.22	0.21	
Control Delay	34.6	24.4		38.6	19.5		61.6	21.9		63.1	10.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	34.6	24.4		38.6	19.5		61.6	21.9		63.1	10.3	
LOS	C	C		D	B		E	C		E	B	
Approach Delay		26.5			26.0			25.0			15.2	
Approach LOS		C			C			C			B	
Queue Length 50th (m)	2.6	3.8		9.8	5.7		22.0	83.6		4.9	13.4	
Queue Length 95th (m)	6.6	12.9		16.8	19.2		#48.6	116.3		11.0	23.6	
Internal Link Dist (m)		208.1			171.2			364.0			179.3	
Turn Bay Length (m)	25.0			55.0			55.0			50.0		
Base Capacity (vph)	204	392		215	418		156	2001		233	1826	
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	0.06	0.12		0.23	0.23		0.60	0.55		0.17	0.21	

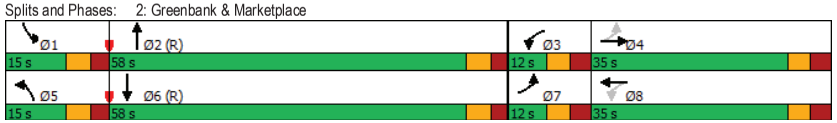
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 89 (74%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 22.9	Intersection LOS: C
Intersection Capacity Utilization 64.8%	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.

Splits and Phases: 2: Greenbank & Marketplace



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	17	31	49	29	66	93	1023	81	40	366	19
Future Volume (vph)	13	17	31	49	29	66	93	1023	81	40	366	19
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.4	6.5		6.4	6.5		6.3	6.2		6.3	6.2	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		0.97	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	0.90		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1657	1552		1647	1549		1658	3275		3216	3288	
Flt Permitted	0.70	1.00		0.64	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1213	1552		1101	1549		1658	3275		3216	3288	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	13	17	31	49	29	66	93	1023	81	40	366	19
RTOR Reduction (vph)	0	27	0	0	56	0	0	4	0	0	2	0
Lane Group Flow (vph)	13	21	0	49	39	0	93	1100	0	40	383	0
Confl. Peds. (#/hr)	1		9	9		1	1		3	3		1
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	18.3	16.1		22.9	18.4		11.2	68.1		5.9	62.8	
Effective Green, g (s)	18.3	16.1		22.9	18.4		11.2	68.1		5.9	62.8	
Actuated g/C Ratio	0.15	0.13		0.19	0.15		0.09	0.57		0.05	0.52	
Clearance Time (s)	6.4	6.5		6.4	6.5		6.3	6.2		6.3	6.2	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	193	208		230	237		154	1858		158	1720	
v/s Ratio Prot	0.00	0.01		c0.01	0.03		c0.06	c0.34		0.01	0.12	
v/s Ratio Perm	0.01			c0.03								
v/c Ratio	0.07	0.10		0.21	0.17		0.60	0.59		0.25	0.22	
Uniform Delay, d1	43.4	45.6		40.5	44.1		52.3	16.9		54.9	15.4	
Progression Factor	1.00	1.00		1.00	1.00		0.90	1.25		1.13	0.66	
Incremental Delay, d2	0.1	0.2		0.5	0.3		5.6	1.2		0.8	0.3	
Delay (s)	43.6	45.8		41.0	44.5		52.6	22.3		62.9	10.5	
Level of Service	D	D		D	D		D	C		E	B	
Approach Delay (s)		45.3			43.3			24.7			15.4	
Approach LOS		D			D			C			B	

Intersection Summary					
HCM 2000 Control Delay	24.7	HCM 2000 Level of Service		C	
HCM 2000 Volume to Capacity ratio	0.54				
Actuated Cycle Length (s)	120.0	Sum of lost time (s)		25.4	
Intersection Capacity Utilization	64.8%	ICU Level of Service		C	
Analysis Period (min)	15				
c Critical Lane Group					

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	75	267	943	106	65	366
Future Volume (vph)	75	267	943	106	65	366
Satd. Flow (prot)	1658	1483	3266	0	1658	3316
Flt Permitted	0.950				0.211	
Satd. Flow (perm)	1658	1483	3266	0	368	3316
Satd. Flow (RTOR)		98	15			
Lane Group Flow (vph)	75	267	1049	0	65	366
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0		10.0	10.0
Minimum Split (s)	50.8	50.8	42.9		42.9	42.9
Total Split (s)	50.8	50.8	69.2		69.2	69.2
Total Split (%)	42.3%	42.3%	57.7%		57.7%	57.7%
Yellow Time (s)	3.3	3.3	4.2		4.2	4.2
All-Red Time (s)	4.5	4.5	2.7		2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	7.8	7.8	6.9		6.9	6.9
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max		C-Max	C-Max
Act Effct Green (s)	36.4	36.4	68.9		68.9	68.9
Actuated g/C Ratio	0.30	0.30	0.57		0.57	0.57
v/c Ratio	0.15	0.52	0.56		0.31	0.19
Control Delay	27.8	23.1	19.2		12.5	6.9
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	27.8	23.1	19.2		12.5	6.9
LOS	C	C	B		B	A
Approach Delay	24.2		19.2			7.8
Approach LOS	C		B			A
Queue Length 50th (m)	11.8	29.4	87.4		5.0	8.1
Queue Length 95th (m)	22.6	53.4	108.5		5.6	11.2
Internal Link Dist (m)	240.6		448.3			364.0
Turn Bay Length (m)	38.0				38.0	
Base Capacity (vph)	594	594	1881		211	1903
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.13	0.45	0.56		0.31	0.19

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 17.5	Intersection LOS: B
Intersection Capacity Utilization 65.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Greenbank

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	75	267	943	106	65	366
Future Volume (vph)	75	267	943	106	65	366
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	7.8	7.8	6.9		6.9	6.9
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.98		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1658	1483	3265		1658	3316
Flt Permitted	0.95	1.00	1.00		0.21	1.00
Satd. Flow (perm)	1658	1483	3265		368	3316
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	75	267	943	106	65	366
RTOR Reduction (vph)	0	68	6	0	0	0
Lane Group Flow (vph)	75	199	1043	0	65	366
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Actuated Green, G (s)	36.4	36.4	68.9		68.9	68.9
Effective Green, g (s)	36.4	36.4	68.9		68.9	68.9
Actuated g/C Ratio	0.30	0.30	0.57		0.57	0.57
Clearance Time (s)	7.8	7.8	6.9		6.9	6.9
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	502	449	1874		211	1903
v/s Ratio Prot	0.05		c0.32			0.11
v/s Ratio Perm		c0.13			0.18	
v/c Ratio	0.15	0.44	0.56		0.31	0.19
Uniform Delay, d1	30.5	33.6	16.0		13.2	12.2
Progression Factor	1.00	1.00	1.00		0.49	0.47
Incremental Delay, d2	0.1	0.7	1.2		3.7	0.2
Delay (s)	30.6	34.3	17.2		10.1	6.0
Level of Service	C	C	B		B	A
Approach Delay (s)	33.5		17.2			6.6
Approach LOS	C		B			A

Intersection Summary				
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.52			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.7	
Intersection Capacity Utilization	65.7%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø4
Lane Configurations							
Traffic Volume (vph)	897	78	104	1341	51	57	
Future Volume (vph)	897	78	104	1341	51	57	
Satd. Flow (prot)	3316	1483	1658	3316	3216	1483	
Flt Permitted			0.241		0.950		
Satd. Flow (perm)	3316	1448	420	3316	3159	1483	
Satd. Flow (RTOR)		78				57	
Lane Group Flow (vph)	897	78	104	1341	51	57	
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm	
Protected Phases	2		1	6	3		4
Permitted Phases		2	6			3 4	
Detector Phase	2	2	1	6	3	3 4	
Switch Phase							
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0		5.0
Minimum Split (s)	36.3	36.3	11.0	36.3	16.8		35.8
Total Split (s)	48.0	48.0	18.0	66.0	17.0		37.0
Total Split (%)	40.0%	40.0%	15.0%	55.0%	14.2%		31%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3		3.3
All-Red Time (s)	2.6	2.6	2.3	2.6	3.5		3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.3	6.3	6.0	6.3	6.8		
Lead/Lag	Lag	Lag	Lead		Lead		Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes		Yes
Recall Mode	C-Max	C-Max	None	C-Max	None		None
Act Effct Green (s)	71.4	71.4	86.0	87.0	10.0	24.6	
Actuated g/C Ratio	0.60	0.60	0.72	0.72	0.08	0.20	
v/c Ratio	0.45	0.09	0.27	0.56	0.19	0.16	
Control Delay	12.5	3.8	2.6	4.4	53.2	8.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	12.5	3.8	2.6	4.4	53.2	8.5	
LOS	B	A	A	A	D	A	
Approach Delay	11.8			4.3	29.6		
Approach LOS	B			A	C		
Queue Length 50th (m)	31.6	0.1	0.9	6.6	5.8	0.0	
Queue Length 95th (m)	m52.6	m2.3	m4.6	184.4	12.1	8.4	
Internal Link Dist (m)	263.2			413.3	180.6		
Turn Bay Length (m)		80.0	150.0		40.0		
Base Capacity (vph)	1973	893	425	2403	273	513	
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	0.45	0.09	0.24	0.56	0.19	0.11	

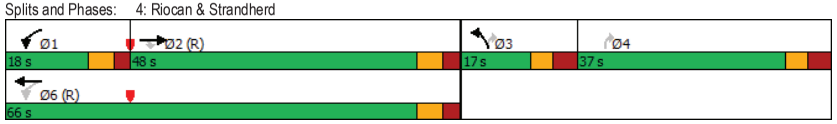
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 30 (25%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 8.3	Intersection LOS: A
Intersection Capacity Utilization 58.4%	ICU Level of Service B
Analysis Period (min) 15	

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

Splits and Phases: 4: Riocan & Strandherd



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	897	78	104	1341	51	57
Future Volume (vph)	897	78	104	1341	51	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.3	6.3	6.0	6.3	6.8	6.8
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3316	1448	1658	3316	3216	1483
Flt Permitted	1.00	1.00	0.24	1.00	0.95	1.00
Satd. Flow (perm)	3316	1448	421	3316	3216	1483
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	897	78	104	1341	51	57
RTOR Reduction (vph)	0	33	0	0	0	46
Lane Group Flow (vph)	897	45	104	1341	51	11
Confl. Peds. (#/hr)		2	2		5	
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	
Permitted Phases		2	6			3 4
Actuated Green, G (s)	68.7	68.7	83.0	83.0	8.0	23.9
Effective Green, g (s)	68.7	68.7	83.0	83.0	8.0	23.9
Actuated g/C Ratio	0.57	0.57	0.69	0.69	0.07	0.20
Clearance Time (s)	6.3	6.3	6.0	6.3	6.8	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1898	828	376	2293	214	295
v/s Ratio Prot	0.27		0.02	c0.40	c0.02	
v/s Ratio Perm		0.03	0.17			c0.01
v/c Ratio	0.47	0.05	0.28	0.58	0.24	0.04
Uniform Delay, d1	15.0	11.3	7.7	9.6	53.1	38.8
Progression Factor	0.67	0.76	0.17	0.32	1.00	1.00
Incremental Delay, d2	0.6	0.1	0.3	0.7	0.6	0.1
Delay (s)	10.7	8.7	1.6	3.8	53.7	38.8
Level of Service	B	A	A	A	D	D
Approach Delay (s)	10.5			3.6	45.8	
Approach LOS	B			A	D	

Intersection Summary				
HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.54			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.9	
Intersection Capacity Utilization	58.4%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	690	149	158	853	128	385	594	341	100	223	130
Future Volume (vph)	160	690	149	158	853	128	385	594	341	100	223	130
Satd. Flow (prot)	3216	3316	1483	3216	3316	1483	3216	1745	1483	1658	1745	1483
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3192	3316	1446	3188	3316	1444	3177	1745	1407	1629	1745	1451
Satd. Flow (RTOR)			155			155			293			152
Lane Group Flow (vph)	160	690	149	158	853	128	385	594	341	100	223	130
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)	11.6	36.6	36.6	11.6	35.4	35.4	11.7	35.7	35.7	11.7	35.7	35.7
Total Split (s)	22.0	37.0	37.0	22.0	37.0	37.0	25.0	36.0	36.0	25.0	36.0	36.0
Total Split (%)	18.3%	30.8%	30.8%	18.3%	30.8%	30.8%	20.8%	30.0%	30.0%	20.8%	30.0%	30.0%
Yellow Time (s)	4.2	4.2	4.2	4.2	4.2	4.2	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.4	2.2	2.2	2.4	2.2	2.2	3.4	3.4	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.4	6.4	6.6	6.4	6.4	6.7	6.7	6.7	6.7	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
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	11.3	34.8	34.8	11.2	34.7	34.7	17.5	35.1	35.1	12.5	30.1	30.1
Actuated g/C Ratio	0.09	0.29	0.29	0.09	0.29	0.29	0.15	0.29	0.29	0.10	0.25	0.25
v/c Ratio	0.53	0.72	0.28	0.53	0.89	0.24	0.82	1.17	0.55	0.58	0.51	0.27
Control Delay	32.4	46.8	16.4	57.9	53.7	4.1	64.9	133.3	10.6	63.8	43.8	5.2
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	32.4	46.8	16.4	57.9	53.7	4.1	64.9	133.3	10.6	63.8	43.8	5.2
LOS	C	D	B	E	D	A	E	F	B	E	D	A
Approach Delay		40.0			48.7			81.7			37.1	
Approach LOS		D			D			F			D	
Queue Length 50th (m)	14.8	90.7	14.6	18.6	101.2	0.0	45.5	~166.0	8.3	22.8	45.7	0.0
Queue Length 95th (m)	23.3	110.7	41.1	28.6	#146.6	9.4	#65.8	#251.9	37.4	38.8	70.7	10.8
Internal Link Dist (m)		413.3			403.0			212.7			202.0	
Turn Bay Length (m)	90.0		55.0	80.0		195.0	50.0		90.0	50.0		50.0
Base Capacity (vph)	412	961	529	412	959	527	490	509	618	252	438	478
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	0.39	0.72	0.28	0.38	0.89	0.24	0.79	1.17	0.55	0.40	0.51	0.27

Intersection Summary

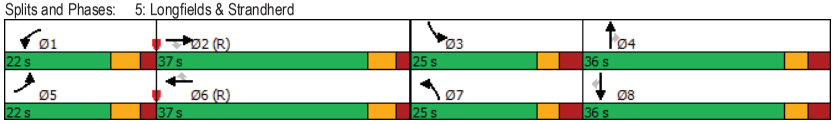
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.17
Intersection Signal Delay: 56.3 — Intersection LOS: E
Intersection Capacity Utilization 90.6% — 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: Longfields & Strandherd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	690	149	158	853	128	385	594	341	100	223	130
Future Volume (vph)	160	690	149	158	853	128	385	594	341	100	223	130
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.6	6.4	6.4	6.6	6.4	6.4	6.7	6.7	6.7	6.7	6.7	6.7
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.95	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3216	3316	1446	3216	3316	1444	3216	1745	1407	1658	1745	1451
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3216	3316	1446	3216	3316	1444	3216	1745	1407	1658	1745	1451
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	160	690	149	158	853	128	385	594	341	100	223	130
RTOR Reduction (vph)	0	0	106	0	0	91	0	0	207	0	0	97
Lane Group Flow (vph)	160	690	43	158	853	37	385	594	134	100	223	33
Confl. Peds. (#/hr)	12		11	11		12	8		32	32		8
Confl. Bikes (#/hr)									1			
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
Actuated Green, G (s)	11.3	34.8	34.8	11.2	34.7	34.7	17.5	35.1	35.1	12.5	30.1	30.1
Effective Green, g (s)	11.3	34.8	34.8	11.2	34.7	34.7	17.5	35.1	35.1	12.5	30.1	30.1
Actuated g/C Ratio	0.09	0.29	0.29	0.09	0.29	0.29	0.15	0.29	0.29	0.10	0.25	0.25
Clearance Time (s)	6.6	6.4	6.4	6.6	6.4	6.4	6.7	6.7	6.7	6.7	6.7	6.7
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
Lane Grp Cap (vph)	302	961	419	300	958	417	469	510	411	172	437	363
v/s Ratio Prot	c0.05	0.21		0.05	c0.26		c0.12	c0.34		0.06	0.13	
v/s Ratio Perm			0.03			0.03			0.10			0.02
v/c Ratio	0.53	0.72	0.10	0.53	0.89	0.09	0.82	1.16	0.33	0.58	0.51	0.09
Uniform Delay, d1	51.8	38.2	31.2	51.9	40.8	31.1	49.7	42.5	33.2	51.3	38.6	34.5
Progression Factor	0.51	1.09	3.06	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.6	4.3	0.5	1.7	12.2	0.4	11.0	93.8	0.5	4.9	1.0	0.1
Delay (s)	28.1	45.9	95.8	53.5	53.1	31.5	60.7	136.3	33.7	56.2	39.6	34.6
Level of Service	C	D	F	D	D	C	E	F	C	E	D	C
Approach Delay (s)		50.5			50.7			87.7			41.8	
Approach LOS		D			D			F			D	

Intersection Summary				
HCM 2000 Control Delay	62.1	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	0.98			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	26.4	
Intersection Capacity Utilization	90.6%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	25	63	21	39	136	100	1162	19	31	329	38
Future Volume (vph)	53	25	63	21	39	136	100	1162	19	31	329	38
Satd. Flow (prot)	1658	1541	0	0	1543	0	1658	3305	0	1658	3255	0
Flt Permitted	0.564				0.959		0.471			0.239		
Satd. Flow (perm)	973	1541	0	0	1487	0	821	3305	0	413	3255	0
Satd. Flow (RTOR)		63			49			3			16	
Lane Group Flow (vph)	53	88	0	0	196	0	100	1181	0	31	367	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	34.8	34.8		34.8	34.8		10.6	24.8		24.8	24.8	
Total Split (s)	35.0	35.0		35.0	35.0		15.0	50.0		35.0	35.0	
Total Split (%)	41.2%	41.2%		41.2%	41.2%		17.6%	58.8%		41.2%	41.2%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.8	3.8		3.8	3.8		2.3	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.8	6.8			6.8		5.6	5.8		5.8	5.8	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	
Act Effct Green (s)	18.2	18.2			18.2		54.4	54.2		43.3	43.3	
Actuated g/C Ratio	0.21	0.21			0.21		0.64	0.64		0.51	0.51	
v/c Ratio	0.25	0.23			0.55		0.17	0.56		0.15	0.22	
Control Delay	27.4	10.5			26.1		8.8	11.7		20.0	14.6	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay	27.4	10.5			26.1		8.8	11.7		20.0	14.6	
LOS	C	B			C		A	B		B	B	
Approach Delay		16.9			26.1			11.5			15.0	
Approach LOS		B			C			B			B	
Queue Length 50th (m)	7.7	3.5			22.5		4.6	41.9		2.4	14.5	
Queue Length 95th (m)	14.5	12.3			34.9		15.2	92.4		10.8	32.6	
Internal Link Dist (m)		257.2			427.6			400.4			212.7	
Turn Bay Length (m)	30.0						75.0			100.0		
Base Capacity (vph)	322	553			526		618	2107		210	1665	
Starvation Cap Reductn	0	0			0		0	0		0	0	
Spillback Cap Reductn	0	0			0		0	0		0	0	
Storage Cap Reductn	0	0			0		0	0		0	0	
Reduced v/c Ratio	0.16	0.16			0.37		0.16	0.56		0.15	0.22	

Intersection Summary
Cycle Length: 85
Actuated Cycle Length: 85
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 14.0	Intersection LOS: B
Intersection Capacity Utilization 79.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 6: Longfields & Marketplace/Clearbrook

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	25	63	21	39	136	100	1162	19	31	329	38
Future Volume (vph)	53	25	63	21	39	136	100	1162	19	31	329	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.8	6.8			6.8		5.6	5.8		5.8	5.8	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99			0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00			1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.89			0.91		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1640	1540			1543		1657	3304		1642	3257	
Flt Permitted	0.56	1.00			0.96		0.47	1.00		0.24	1.00	
Satd. Flow (perm)	973	1540			1487		821	3304		413	3257	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	53	25	63	21	39	136	100	1162	19	31	329	38
RTOR Reduction (vph)	0	50	0	0	39	0	0	1	0	0	8	0
Lane Group Flow (vph)	53	38	0	0	157	0	100	1180	0	31	359	0
Confl. Peds. (#/hr)	17		3	3		17	1		22	22		1
Confl. Bikes (#/hr)			1									
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	18.2	18.2			18.2		54.2	54.2		42.2	42.2	
Effective Green, g (s)	18.2	18.2			18.2		54.2	54.2		42.2	42.2	
Actuated g/C Ratio	0.21	0.21			0.21		0.64	0.64		0.50	0.50	
Clearance Time (s)	6.8	6.8			6.8		5.6	5.8		5.8	5.8	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	208	329			318		586	2106		205	1617	
v/s Ratio Prot		0.02					0.01	c0.36			0.11	
v/s Ratio Perm	0.05				c0.11		0.10			0.07		
v/c Ratio	0.25	0.12			0.50		0.17	0.56		0.15	0.22	
Uniform Delay, d1	27.8	26.9			29.4		6.1	8.7		11.7	12.1	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.2			1.2		0.1	1.1		1.6	0.3	
Delay (s)	28.4	27.1			30.6		6.3	9.8		13.2	12.4	
Level of Service	C	C			C		A	A		B	B	
Approach Delay (s)		27.6			30.6			9.5			12.5	
Approach LOS		C			C			A			B	

Intersection Summary					
HCM 2000 Control Delay	13.4	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.59				
Actuated Cycle Length (s)	85.0	Sum of lost time (s)		18.2	
Intersection Capacity Utilization	79.7%	ICU Level of Service		D	
Analysis Period (min)	15				

c Critical Lane Group

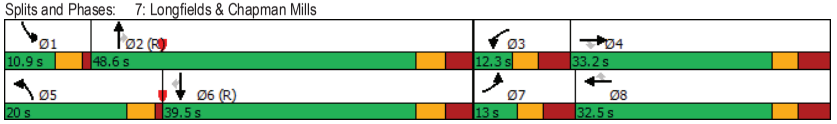
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	7	74	34	3	149	327	1087	54	85	309	26
Future Volume (vph)	99	7	74	34	3	149	327	1087	54	85	309	26
Satd. Flow (prot)	1658	1745	1483	1658	1745	1483	1658	3316	1483	1658	3316	1483
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1652	1745	1483	1658	1745	1460	1649	3316	1391	1648	3316	1441
Satd. Flow (RTOR)			214			214						216
Lane Group Flow (vph)	99	7	74	34	3	149	327	1087	54	85	309	26
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.3	32.5	32.5	12.3	32.5	32.5	9.5	38.3	38.3	9.5	38.3	38.3
Total Split (s)	13.0	33.2	33.2	12.3	32.5	32.5	20.0	48.6	48.6	10.9	39.5	39.5
Total Split (%)	12.4%	31.6%	31.6%	11.7%	31.0%	31.0%	19.0%	46.3%	46.3%	10.4%	37.6%	37.6%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.5	3.7	3.7	3.5	3.7	3.7
All-Red Time (s)	4.0	4.2	4.2	4.0	4.2	4.2	1.0	3.6	3.6	1.0	3.6	3.6
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)	7.3	7.5	7.5	7.3	7.5	7.5	4.5	7.3	7.3	4.5	7.3	7.3
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
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	5.7	18.6	18.6	5.0	13.0	13.0	27.5	49.7	49.7	10.0	32.2	32.2
Actuated g/C Ratio	0.05	0.18	0.18	0.05	0.12	0.12	0.26	0.47	0.47	0.10	0.31	0.31
v/c Ratio	1.10	0.02	0.17	0.44	0.01	0.40	0.75	0.69	0.08	0.54	0.30	0.04
Control Delay	172.0	36.0	0.8	66.0	36.0	4.4	49.6	25.6	17.6	59.5	28.9	0.2
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	172.0	36.0	0.8	66.0	36.0	4.4	49.6	25.6	17.6	59.5	28.9	0.2
LOS	F	D	A	E	D	A	D	C	B	E	C	A
Approach Delay		96.3			16.2			30.6			33.3	
Approach LOS		F			B			C			C	
Queue Length 50th (m)	~23.1	1.3	0.0	6.9	0.6	0.0	58.9	86.7	5.7	16.5	25.3	0.0
Queue Length 95th (m)	#55.9	4.6	0.0	#17.7	2.9	4.2	#140.2	131.0	15.0	#45.4	36.6	0.0
Internal Link Dist (m)		138.8			203.2			375.7			400.4	
Turn Bay Length (m)	38.0		38.0	40.0		40.0	90.0		65.0	65.0		75.0
Base Capacity (vph)	90	427	524	78	415	510	434	1569	658	158	1016	591
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.10	0.02	0.14	0.44	0.01	0.29	0.75	0.69	0.08	0.54	0.30	0.04

Intersection Summary

Cycle Length: 105
Actuated Cycle Length: 105
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10
Intersection Signal Delay: 35.2 — Intersection LOS: D
Intersection Capacity Utilization 73.5% — ICU Level of Service D
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Longfields & Chapman Mills



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	7	74	34	3	149	327	1087	54	85	309	26
Future Volume (vph)	99	7	74	34	3	149	327	1087	54	85	309	26
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	7.3	7.5	7.5	7.3	7.5	7.5	4.5	7.3	7.3	4.5	7.3	7.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.94	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1658	1745	1483	1658	1745	1460	1658	3316	1394	1658	3316	1441
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1658	1745	1483	1658	1745	1460	1658	3316	1394	1658	3316	1441
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	99	7	74	34	3	149	327	1087	54	85	309	26
RTOR Reduction (vph)	0	0	61	0	0	126	0	0	0	0	0	19
Lane Group Flow (vph)	99	7	13	34	3	23	327	1087	54	85	309	7
Confl. Peds. (#/hr)	3					3	5		16	16		5
Confl. Bikes (#/hr)									17			
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	5.7	18.6	18.6	3.0	15.9	15.9	27.5	46.8	46.8	10.0	29.3	29.3
Effective Green, g (s)	5.7	18.6	18.6	3.0	15.9	15.9	27.5	46.8	46.8	10.0	29.3	29.3
Actuated g/C Ratio	0.05	0.18	0.18	0.03	0.15	0.15	0.26	0.45	0.45	0.10	0.28	0.28
Clearance Time (s)	7.3	7.5	7.5	7.3	7.5	7.5	4.5	7.3	7.3	4.5	7.3	7.3
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
Lane Grp Cap (vph)	90	309	262	47	264	221	434	1477	621	157	925	402
v/s Ratio Prot	c0.06	0.00		0.02	0.00		c0.20	c0.33		0.05	0.09	
v/s Ratio Perm			c0.01			c0.02			0.04			0.01
v/c Ratio	1.10	0.02	0.05	0.72	0.01	0.10	0.75	0.74	0.09	0.54	0.33	0.02
Uniform Delay, d1	49.6	35.7	35.9	50.6	37.9	38.4	35.6	24.0	16.8	45.3	30.1	27.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	124.5	0.0	0.1	42.4	0.0	0.2	7.3	3.3	0.3	3.8	1.0	0.1
Delay (s)	174.2	35.7	35.9	93.0	37.9	38.6	42.9	27.3	17.1	49.1	31.1	27.5
Level of Service	F	D	D	F	D	D	D	C	B	D	C	C
Approach Delay (s)		112.0			48.5			30.4			34.5	
Approach LOS		F			D			C			C	

Intersection Summary				
HCM 2000 Control Delay	39.2	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.66			
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	26.6	
Intersection Capacity Utilization	73.5%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

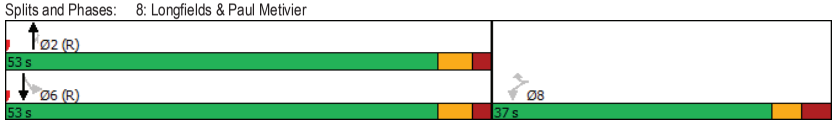
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	69	105	1021	100	37	339
Future Volume (vph)	69	105	1021	100	37	339
Satd. Flow (prot)	1658	1483	3316	1483	1658	3316
Flt Permitted	0.950				0.261	
Satd. Flow (perm)	1653	1464	3316	1437	455	3316
Satd. Flow (RTOR)		78		100		
Lane Group Flow (vph)	69	105	1021	100	37	339
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)	36.6	36.6	36.0	36.0	24.0	24.0
Total Split (s)	37.0	37.0	53.0	53.0	53.0	53.0
Total Split (%)	41.1%	41.1%	58.9%	58.9%	58.9%	58.9%
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	3.3	3.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	14.1	14.1	67.8	67.8	67.8	67.8
Actuated g/C Ratio	0.16	0.16	0.75	0.75	0.75	0.75
v/c Ratio	0.27	0.36	0.41	0.09	0.11	0.14
Control Delay	33.5	14.0	7.1	2.1	7.9	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.5	14.0	7.1	2.1	7.9	5.5
LOS	C	B	A	A	A	A
Approach Delay	21.7		6.7			5.7
Approach LOS	C		A			A
Queue Length 50th (m)	11.2	4.3	27.3	0.0	1.4	6.9
Queue Length 95th (m)	17.5	14.0	78.4	6.9	8.7	22.6
Internal Link Dist (m)	403.8		379.4			375.7
Turn Bay Length (m)	45.0			50.0	70.0	
Base Capacity (vph)	558	546	2498	1107	342	2498
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.19	0.41	0.09	0.11	0.14

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 35 (39%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.41

Intersection Signal Delay: 8.0	Intersection LOS: A
Intersection Capacity Utilization 51.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 8: Longfields & Paul Metivier



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	69	105	1021	100	37	339
Future Volume (vph)	69	105	1021	100	37	339
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.6	6.6	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	0.98	1.00	0.97	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1653	1461	3316	1438	1655	3316
Flt Permitted	0.95	1.00	1.00	1.00	0.26	1.00
Satd. Flow (perm)	1653	1461	3316	1438	455	3316
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	69	105	1021	100	37	339
RTOR Reduction (vph)	0	68	0	27	0	0
Lane Group Flow (vph)	69	37	1021	73	37	339
Confl. Peds. (#/hr)	3			6	6	
Confl. Bikes (#/hr)		2		3		
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Actuated Green, G (s)	12.1	12.1	65.3	65.3	65.3	65.3
Effective Green, g (s)	12.1	12.1	65.3	65.3	65.3	65.3
Actuated g/C Ratio	0.13	0.13	0.73	0.73	0.73	0.73
Clearance Time (s)	6.6	6.6	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	222	196	2405	1043	330	2405
v/s Ratio Prot			c0.31			0.10
v/s Ratio Perm	c0.04	0.03		0.05	0.08	
v/c Ratio	0.31	0.19	0.42	0.07	0.11	0.14
Uniform Delay, d1	35.2	34.6	4.9	3.6	3.7	3.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.5	0.6	0.1	0.7	0.1
Delay (s)	36.0	35.1	5.4	3.7	4.4	3.9
Level of Service	D	D	A	A	A	A
Approach Delay (s)	35.4		5.3			3.9
Approach LOS	D		A			A

Intersection Summary				
HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.41			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.6	
Intersection Capacity Utilization	51.3%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	67	42	69	67	33	93	26	77	38	24	33
Future Volume (vph)	33	67	42	69	67	33	93	26	77	38	24	33
Satd. Flow (prot)	1658	1552	0	1658	1639	0	0	1600	0	0	1614	0
Flt Permitted	0.950			0.950				0.802			0.805	
Satd. Flow (perm)	1635	1552	0	1475	1639	0	0	1310	0	0	1326	0
Satd. Flow (RTOR)		32			25							
Lane Group Flow (vph)	33	109	0	69	100	0	0	196	0	0	95	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.8	22.6		11.8	22.6		41.7	41.7		41.7	41.7	
Total Split (s)	22.0	35.0		22.0	35.0		43.0	43.0		43.0	43.0	
Total Split (%)	22.0%	35.0%		22.0%	35.0%		43.0%	43.0%		43.0%	43.0%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	3.5	3.3		3.5	3.3		4.7	4.7		4.7	4.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	6.8	6.6		6.8	6.6			7.7			7.7	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	Max		None	Max		None	None		None	None	
Act Effct Green (s)	7.2	30.8		8.7	37.9			17.8			17.8	
Actuated g/C Ratio	0.09	0.41		0.11	0.50			0.23			0.23	
v/c Ratio	0.21	0.17		0.37	0.12			0.64			0.31	
Control Delay	39.0	15.7		39.6	13.2			36.1			26.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	39.0	15.7		39.6	13.2			36.1			26.5	
LOS	D	B		D	B			D			C	
Approach Delay		21.1			24.0			36.1			26.5	
Approach LOS		C			C			D			C	
Queue Length 50th (m)	4.4	6.8		9.1	4.1			25.3			11.2	
Queue Length 95th (m)	14.7	23.7		24.5	21.3			47.1			23.9	
Internal Link Dist (m)		203.2			520.9			265.7			233.3	
Turn Bay Length (m)	40.0			50.0								
Base Capacity (vph)	341	650		341	831			625			633	
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	0.17		0.20	0.12			0.31			0.15	

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 75.8
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.64

Intersection Signal Delay: 27.6 — Intersection LOS: C
Intersection Capacity Utilization 42.1% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 9: Leamington & Chapman Mills

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	67	42	69	67	33	93	26	77	38	24	33
Future Volume (vph)	33	67	42	69	67	33	93	26	77	38	24	33
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.8	6.6		6.8	6.6			7.7			7.7	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.95		1.00	0.99			0.99			0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.94		1.00	0.95			0.95			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.98	
Satd. Flow (prot)	1658	1568		1658	1641			1596			1616	
Flt Permitted	0.95	1.00		0.95	1.00			0.80			0.81	
Satd. Flow (perm)	1658	1568		1658	1641			1310			1327	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	33	67	42	69	67	33	93	26	77	38	24	33
RTOR Reduction (vph)	0	18	0	0	13	0	0	0	0	0	0	0
Lane Group Flow (vph)	33	91	0	69	87	0	0	196	0	0	95	0
Confl. Peds. (#/hr)	5		41	41		5	5		1	1		5
Confl. Bikes (#/hr)									1			
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Actuated Green, G (s)	3.0	33.7		7.2	37.9			17.8			17.8	
Effective Green, g (s)	3.0	33.7		7.2	37.9			17.8			17.8	
Actuated g/C Ratio	0.04	0.42		0.09	0.47			0.22			0.22	
Clearance Time (s)	6.8	6.6		6.8	6.6			7.7			7.7	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	62	662		149	779			292			295	
v/s Ratio Prot	0.02	c0.06		c0.04	c0.05							
v/s Ratio Perm								c0.15			0.07	
v/c Ratio	0.53	0.14		0.46	0.11			0.67			0.32	
Uniform Delay, d1	37.7	14.1		34.5	11.6			28.3			25.9	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	8.5	0.4		2.3	0.3			6.0			0.6	
Delay (s)	46.2	14.6		36.7	11.9			34.3			26.6	
Level of Service	D	B		D	B			C			C	
Approach Delay (s)		21.9			22.0			34.3			26.6	
Approach LOS		C			C			C			C	

Intersection Summary				
HCM 2000 Control Delay	26.7	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.34			
Actuated Cycle Length (s)	79.8	Sum of lost time (s)	21.1	
Intersection Capacity Utilization	42.1%	ICU Level of Service	A	
Analysis Period (min)	15			

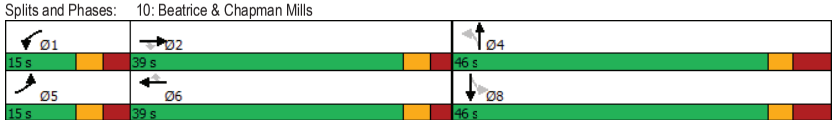
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	159	27	14	56	18	7	53	51	58	38	13
Future Volume (vph)	65	159	27	14	56	18	7	53	51	58	38	13
Satd. Flow (prot)	1658	1745	1483	1658	1745	1483	0	2949	0	0	3157	0
Flt Permitted	0.950			0.950				0.938			0.758	
Satd. Flow (perm)	1603	1745	1387	1586	1745	1413	0	2772	0	0	2376	0
Satd. Flow (RTOR)			122			122						
Lane Group Flow (vph)	65	159	27	14	56	18	0	111	0	0	109	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases			2			6	4			8		
Detector Phase	5	2	2	1	6	6	4	4		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	
Minimum Split (s)	11.5	25.9	25.9	11.5	25.9	25.9	45.7	45.7		45.7	45.7	
Total Split (s)	15.0	39.0	39.0	15.0	39.0	39.0	46.0	46.0		46.0	46.0	
Total Split (%)	15.0%	39.0%	39.0%	15.0%	39.0%	39.0%	46.0%	46.0%		46.0%	46.0%	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.0	3.0		3.0	3.0	
All-Red Time (s)	3.2	2.6	2.6	3.2	2.6	2.6	4.7	4.7		4.7	4.7	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)	6.5	5.9	5.9	6.5	5.9	5.9		7.7			7.7	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Max	Max	None	Max	Max	None	None		None	None	
Act Effct Green (s)	7.9	50.3	50.3	6.7	42.1	42.1		31.0			31.0	
Actuated g/C Ratio	0.09	0.56	0.56	0.07	0.47	0.47		0.34			0.34	
v/c Ratio	0.45	0.16	0.03	0.11	0.07	0.02		0.12			0.13	
Control Delay	54.1	18.3	0.1	45.4	23.5	0.1		20.3			20.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	
Total Delay	54.1	18.3	0.1	45.4	23.5	0.1		20.3			20.6	
LOS	D	B	A	D	C	A		C			C	
Approach Delay		25.6			22.2			20.3			20.6	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	12.2	16.8	0.0	2.6	7.4	0.0		7.1			7.0	
Queue Length 95th (m)	25.6	38.1	0.0	8.6	16.0	0.0		12.9			12.8	
Internal Link Dist (m)		520.9			367.7			322.5			353.5	
Turn Bay Length (m)	40.0		40.0	45.0		60.0						
Base Capacity (vph)	165	970	825	165	813	723		1246			1068	
Starvation Cap Reductn	0	0	0	0	0	0		0			0	
Spillback Cap Reductn	0	0	0	0	0	0		0			0	
Storage Cap Reductn	0	0	0	0	0	0		0			0	
Reduced v/c Ratio	0.39	0.16	0.03	0.08	0.07	0.02		0.09			0.10	

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 90.4
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.45

Intersection Signal Delay: 23.0 Intersection LOS: C
Intersection Capacity Utilization 65.5% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 10: Beatrice & Chapman Mills



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	159	27	14	56	18	7	53	51	58	38	13
Future Volume (vph)	65	159	27	14	56	18	7	53	51	58	38	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.5	5.9	5.9	6.5	5.9	5.9		7.7			7.7	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		0.95			0.95	
Frpb, ped/bikes	1.00	1.00	0.94	1.00	1.00	0.95		0.96			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00			0.97	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.93			0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00			0.97	
Satd. Flow (prot)	1658	1745	1389	1658	1745	1415		2949			3056	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.94			0.76	
Satd. Flow (perm)	1658	1745	1389	1658	1745	1415		2774			2379	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	65	159	27	14	56	18	7	53	51	58	38	13
RTOR Reduction (vph)	0	0	14	0	0	10	0	0	0	0	0	0
Lane Group Flow (vph)	65	159	13	14	56	8	0	111	0	0	109	0
Confl. Peds. (#/hr)	24		36	36		24	14		55	55		14
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases			2			6	4			8		
Actuated Green, G (s)	6.1	48.3	48.3	1.5	43.7	43.7		27.6			27.6	
Effective Green, g (s)	6.1	48.3	48.3	1.5	43.7	43.7		27.6			27.6	
Actuated g/C Ratio	0.06	0.50	0.50	0.02	0.45	0.45		0.28			0.28	
Clearance Time (s)	6.5	5.9	5.9	6.5	5.9	5.9		7.7			7.7	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	103	864	688	25	782	634		785			673	
v/s Ratio Prot	c0.04	c0.09		0.01	0.03							
v/s Ratio Perm			0.01			0.01		0.04			c0.05	
v/c Ratio	0.63	0.18	0.02	0.56	0.07	0.01		0.14			0.16	
Uniform Delay, d1	44.6	13.7	12.5	47.7	15.3	14.9		26.1			26.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	11.9	0.5	0.1	25.6	0.2	0.0		0.1			0.1	
Delay (s)	56.5	14.1	12.6	73.3	15.5	15.0		26.2			26.4	
Level of Service	E	B	B	E	B	B		C			C	
Approach Delay (s)		24.9			24.6			26.2			26.4	
Approach LOS		C			C			C			C	

Intersection Summary				
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.22			
Actuated Cycle Length (s)	97.5	Sum of lost time (s)	20.1	
Intersection Capacity Utilization	65.5%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	221	903	193	223	1058	271	246	621	122	436	910	211
Future Volume (vph)	221	903	193	223	1058	271	246	621	122	436	910	211
Satd. Flow (prot)	1658	3316	1483	1658	3316	1483	3216	3223	0	3216	3316	1483
Flt Permitted	0.116			0.116			0.950			0.950		
Satd. Flow (perm)	202	3316	1459	202	3316	1457	3205	3223	0	3202	3316	1453
Satd. Flow (RTOR)			193			225		18				211
Lane Group Flow (vph)	221	903	193	223	1058	271	246	743	0	436	910	211
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	11.6	33.5	33.5	11.6	33.5	33.5	11.3	35.5		11.3	35.5	35.5
Total Split (s)	18.0	41.0	41.0	18.0	41.0	41.0	24.0	37.0		24.0	37.0	37.0
Total Split (%)	15.0%	34.2%	34.2%	15.0%	34.2%	34.2%	20.0%	30.8%		20.0%	30.8%	30.8%
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
All-Red Time (s)	2.9	2.8	2.8	2.9	2.8	2.8	2.6	2.8		2.6	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.6	6.5	6.5	6.6	6.5	6.5	6.3	6.5		6.3	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	45.8	34.5	34.5	45.8	34.5	34.5	14.3	30.5		17.7	33.9	33.9
Actuated g/C Ratio	0.38	0.29	0.29	0.38	0.29	0.29	0.12	0.25		0.15	0.28	0.28
v/c Ratio	1.03	0.95	0.35	1.04	1.11	0.47	0.64	0.89		0.92	0.97	0.38
Control Delay	100.4	61.2	6.4	106.9	93.6	9.9	70.5	59.6		76.3	66.4	6.8
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	100.4	61.2	6.4	106.9	93.6	9.9	70.5	59.6		76.3	66.4	6.8
LOS	F	E	A	F	F	A	E	E		E	E	A
Approach Delay		59.7			80.9			62.3			61.1	
Approach LOS		E			F			E			E	
Queue Length 50th (m)	~40.9	109.6	0.0	~36.4	~154.5	11.4	31.9	91.4		52.8	111.8	0.0
Queue Length 95th (m)	#90.2	#149.6	16.7	#94.5	#187.8	30.9	45.3	#120.2		#82.0	#165.7	18.3
Internal Link Dist (m)		384.5			263.2			179.3			219.3	
Turn Bay Length (m)	60.0		100.0	120.0			65.0			75.0		150.0
Base Capacity (vph)	215	953	556	215	953	579	474	832		474	937	562
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	1.03	0.95	0.35	1.04	1.11	0.47	0.52	0.89		0.92	0.97	0.38

Intersection Summary

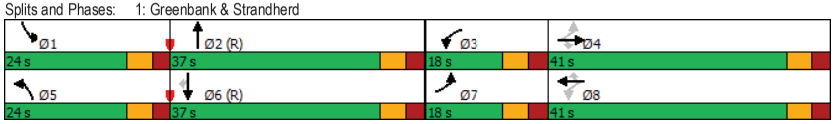
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 7 (6%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.11
Intersection Signal Delay: 66.7 — Intersection LOS: E
Intersection Capacity Utilization 102.7% — ICU Level of Service G
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Splits and Phases: 1: Greenbank & Strandherd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	221	903	193	223	1058	271	246	621	122	436	910	211
Future Volume (vph)	221	903	193	223	1058	271	246	621	122	436	910	211
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.6	6.5	6.5	6.6	6.5	6.5	6.3	6.5		6.3	6.5	6.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95		0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1658	3316	1459	1658	3316	1457	3216	3224		3216	3316	1454
Flt Permitted	0.12	1.00	1.00	0.12	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	202	3316	1459	202	3316	1457	3216	3224		3216	3316	1454
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	221	903	193	223	1058	271	246	621	122	436	910	211
RTOR Reduction (vph)	0	0	138	0	0	160	0	13	0	0	0	151
Lane Group Flow (vph)	221	903	55	223	1058	111	246	730	0	436	910	60
Confl. Peds. (#/hr)	4		3	3		4	6		6	6		6
Confl. Bikes (#/hr)			1			1						1
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						6
Actuated Green, G (s)	45.9	34.5	34.5	45.9	34.5	34.5	14.3	30.5		17.7	33.9	33.9
Effective Green, g (s)	45.9	34.5	34.5	45.9	34.5	34.5	14.3	30.5		17.7	33.9	33.9
Actuated g/C Ratio	0.38	0.29	0.29	0.38	0.29	0.29	0.12	0.25		0.15	0.28	0.28
Clearance Time (s)	6.6	6.5	6.5	6.6	6.5	6.5	6.3	6.5		6.3	6.5	6.5
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
Lane Grp Cap (vph)	215	953	419	215	953	418	383	819		474	936	410
v/s Ratio Prot	0.10	0.27		c0.10	c0.32		0.08	0.23		c0.14	c0.27	
v/s Ratio Perm	0.29		0.04	0.30		0.08						0.04
v/c Ratio	1.03	0.95	0.13	1.04	1.11	0.26	0.64	0.89		0.92	0.97	0.15
Uniform Delay, d1	32.2	41.9	31.7	31.3	42.8	33.0	50.4	43.1		50.5	42.6	32.2
Progression Factor	1.00	1.00	1.00	1.42	0.74	1.02	1.27	1.12		1.00	1.00	1.00
Incremental Delay, d2	68.8	18.9	0.7	65.8	62.1	1.3	3.2	12.3		22.8	23.4	0.7
Delay (s)	101.0	60.8	32.3	110.4	93.8	34.9	67.1	60.5		73.3	66.0	33.0
Level of Service	F	E	C	F	F	C	E	E		E	E	C
Approach Delay (s)		63.4			85.9			62.1			63.6	
Approach LOS		E			F			E			E	

Intersection Summary				
HCM 2000 Control Delay	69.7	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	1.06			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.9	
Intersection Capacity Utilization	102.7%	ICU Level of Service	G	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	80	117	162	71	169	161	747	71	176	1031	46
Future Volume (vph)	74	80	117	162	71	169	161	747	71	176	1031	46
Satd. Flow (prot)	1658	1538	0	1658	1533	0	1658	3268	0	3216	3296	0
Flt Permitted	0.425			0.458			0.950			0.950		
Satd. Flow (perm)	736	1538	0	775	1533	0	1658	3268	0	3209	3296	0
Satd. Flow (RTOR)		58			94			10			4	
Lane Group Flow (vph)	74	197	0	162	240	0	161	818	0	176	1077	0
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8								
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	11.4	34.5		11.4	34.5		11.3	31.2		11.3	31.2	
Total Split (s)	13.0	35.0		13.0	35.0		20.0	52.0		20.0	52.0	
Total Split (%)	10.8%	29.2%		10.8%	29.2%		16.7%	43.3%		16.7%	43.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.1	3.2		3.1	3.2		2.6	2.5		2.6	2.5	
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	6.5		6.4	6.5		6.3	6.2		6.3	6.2	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	28.2	21.6		29.5	24.2		14.1	54.8		11.7	52.3	
Actuated g/C Ratio	0.24	0.18		0.25	0.20		0.12	0.46		0.10	0.44	
v/c Ratio	0.33	0.61		0.68	0.63		0.83	0.55		0.56	0.75	
Control Delay	33.7	38.4		49.7	33.4		86.2	21.8		59.5	23.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	33.7	38.4		49.7	33.4		86.2	21.8		59.5	23.1	
LOS	C	D		D	C		F	C		E	C	
Approach Delay		37.1			40.0			32.3			28.2	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	11.9	28.1		27.6	30.0		39.8	40.8		22.4	56.5	
Queue Length 95th (m)	23.0	51.3		45.1	56.4		#75.0	67.3		m24.3	m65.4	
Internal Link Dist (m)		208.1			171.2			364.0			179.3	
Turn Bay Length (m)	25.0			55.0			55.0			50.0		
Base Capacity (vph)	224	409		239	435		199	1497		370	1438	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.33	0.48		0.68	0.55		0.81	0.55		0.48	0.75	

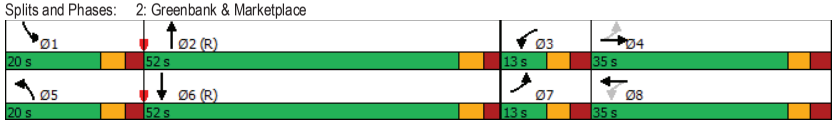
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 117 (98%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 32.0	Intersection LOS: C
Intersection Capacity Utilization 91.9%	ICU Level of Service F
Analysis Period (min) 15	

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

Splits and Phases: 2: Greenbank & Marketplace



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	80	117	162	71	169	161	747	71	176	1031	46
Future Volume (vph)	74	80	117	162	71	169	161	747	71	176	1031	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.4	6.5		6.4	6.5		6.3	6.2		6.3	6.2	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		0.97	0.95	
Frpb, ped/bikes	1.00	0.97		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.91		1.00	0.89		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1653	1538		1637	1534		1658	3268		3216	3294	
Flt Permitted	0.42	1.00		0.46	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	739	1538		788	1534		1658	3268		3216	3294	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	74	80	117	162	71	169	161	747	71	176	1031	46
RTOR Reduction (vph)	0	47	0	0	75	0	0	6	0	0	2	0
Lane Group Flow (vph)	74	150	0	162	165	0	161	812	0	176	1075	0
Confl. Peds. (#/hr)	10		34	34		10			3	3		
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	28.2	22.9		30.8	24.2		14.1	53.4		11.7	51.0	
Effective Green, g (s)	28.2	22.9		30.8	24.2		14.1	53.4		11.7	51.0	
Actuated g/C Ratio	0.23	0.19		0.26	0.20		0.12	0.44		0.10	0.42	
Clearance Time (s)	6.4	6.5		6.4	6.5		6.3	6.2		6.3	6.2	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	214	293		248	309		194	1454		313	1399	
v/s Ratio Prot	0.02	0.10		c0.04	0.11		c0.10	0.25		0.05	c0.33	
v/s Ratio Perm	0.07			c0.13								
v/c Ratio	0.35	0.51		0.65	0.53		0.83	0.56		0.56	0.77	
Uniform Delay, d1	37.0	43.5		39.2	42.9		51.8	24.6		51.7	29.5	
Progression Factor	1.00	1.00		1.00	1.00		1.09	0.80		1.09	0.70	
Incremental Delay, d2	1.0	1.5		6.1	1.8		23.1	1.5		1.0	1.8	
Delay (s)	38.0	45.1		45.2	44.6		79.5	21.2		57.6	22.5	
Level of Service	D	D		D	D		E	C		E	C	
Approach Delay (s)		43.1			44.9			30.7			27.4	
Approach LOS		D			D			C			C	

Intersection Summary					
HCM 2000 Control Delay	32.4	HCM 2000 Level of Service	C		
HCM 2000 Volume to Capacity ratio	0.75				
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.4		
Intersection Capacity Utilization	91.9%	ICU Level of Service	F		
Analysis Period (min)	15				
c Critical Lane Group					

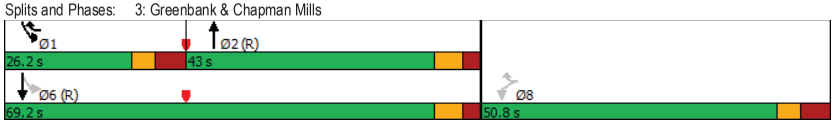
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	66	214	651	18	335	891
Future Volume (vph)	66	214	651	18	335	891
Satd. Flow (prot)	1658	1483	3302	0	1658	3316
Flt Permitted	0.950				0.260	
Satd. Flow (perm)	1658	1483	3302	0	454	3316
Satd. Flow (RTOR)		60	2			
Lane Group Flow (vph)	66	214	669	0	335	891
Turn Type	Perm	pm+ov	NA		pm+pt	NA
Protected Phases		1	2		1	6
Permitted Phases	8	8			6	
Detector Phase	8	1	2		1	6
Switch Phase						
Minimum Initial (s)	10.0	5.0	10.0		5.0	10.0
Minimum Split (s)	50.8	12.8	42.9		12.8	42.9
Total Split (s)	50.8	26.2	43.0		26.2	69.2
Total Split (%)	42.3%	21.8%	35.8%		21.8%	57.7%
Yellow Time (s)	3.3	3.3	4.2		3.3	4.2
All-Red Time (s)	4.5	4.5	2.7		4.5	2.7
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	7.8	7.8	6.9		7.8	6.9
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Recall Mode	None	None	C-Max		None	C-Max
Act Effct Green (s)	36.4	57.3	48.0		71.6	73.8
Actuated g/C Ratio	0.30	0.48	0.40		0.60	0.62
v/c Ratio	0.13	0.29	0.51		0.77	0.44
Control Delay	27.3	11.9	33.9		44.7	29.0
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	27.3	11.9	33.9		44.7	29.0
LOS	C	B	C		D	C
Approach Delay	15.5		33.9			33.3
Approach LOS	B		C			C
Queue Length 50th (m)	10.3	16.3	72.4		73.1	90.0
Queue Length 95th (m)	20.3	29.1	92.9		m#111.3	111.6
Internal Link Dist (m)	240.6		431.5			364.0
Turn Bay Length (m)	38.0				38.0	
Base Capacity (vph)	594	760	1321		455	2040
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	0.11	0.28	0.51		0.74	0.44

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77
Intersection Signal Delay: 31.2 Intersection LOS: C
Intersection Capacity Utilization 66.3% 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: 3: Greenbank & Chapman Mills



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	66	214	651	18	335	891
Future Volume (vph)	66	214	651	18	335	891
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	7.8	7.8	6.9		7.8	6.9
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1658	1483	3302		1658	3316
Flt Permitted	0.95	1.00	1.00		0.26	1.00
Satd. Flow (perm)	1658	1483	3302		453	3316
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	66	214	651	18	335	891
RTOR Reduction (vph)	0	34	1	0	0	0
Lane Group Flow (vph)	66	180	668	0	335	891
Turn Type	Perm	pm+ov	NA		pm+pt	NA
Protected Phases		1	2		1	6
Permitted Phases	8	8			6	
Actuated Green, G (s)	34.4	51.1	46.4		70.9	70.9
Effective Green, g (s)	34.4	51.1	46.4		70.9	70.9
Actuated g/C Ratio	0.29	0.43	0.39		0.59	0.59
Clearance Time (s)	7.8	7.8	6.9		7.8	6.9
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	475	727	1276		435	1959
v/s Ratio Prot		c0.03	0.20		c0.11	0.27
v/s Ratio Perm	0.04	0.09			c0.35	
v/c Ratio	0.14	0.25	0.52		0.77	0.45
Uniform Delay, d1	31.8	22.1	28.3		15.4	13.7
Progression Factor	1.00	1.00	1.00		2.19	1.72
Incremental Delay, d2	0.1	0.2	1.5		5.7	0.5
Delay (s)	31.9	22.3	29.8		39.5	24.2
Level of Service	C	C	C		D	C
Approach Delay (s)	24.6		29.8			28.4
Approach LOS	C		C			C

Intersection Summary				
HCM 2000 Control Delay	28.3	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.63			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5	
Intersection Capacity Utilization	66.3%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø4
Lane Configurations							
Traffic Volume (vph)	1146	180	272	1300	186	134	
Future Volume (vph)	1146	180	272	1300	186	134	
Satd. Flow (prot)	3316	1483	1658	3316	3216	1483	
Flt Permitted			0.077		0.950		
Satd. Flow (perm)	3316	1448	134	3316	3140	1456	
Satd. Flow (RTOR)		160				134	
Lane Group Flow (vph)	1146	180	272	1300	186	134	
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm	
Protected Phases	2		1	6	3		4
Permitted Phases		2	6			3 4	
Detector Phase	2	2	1	6	3	3 4	
Switch Phase							
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0		5.0
Minimum Split (s)	36.3	36.3	11.0	36.3	16.8		35.8
Total Split (s)	49.0	49.0	15.0	64.0	19.0		37.0
Total Split (%)	40.8%	40.8%	12.5%	53.3%	15.8%		31%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3		3.3
All-Red Time (s)	2.6	2.6	2.3	2.6	3.5		3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.3	6.3	6.0	6.3	6.8		
Lead/Lag	Lag	Lag	Lead		Lead		Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes		Yes
Recall Mode	C-Max	C-Max	None	C-Max	None		None
Act Effct Green (s)	46.0	46.0	78.7	78.4	11.5	28.5	
Actuated g/C Ratio	0.38	0.38	0.66	0.65	0.10	0.24	
v/c Ratio	0.90	0.28	0.64	0.60	0.61	0.30	
Control Delay	30.6	6.0	27.2	7.8	60.8	6.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	30.6	6.0	27.2	7.8	60.8	6.4	
LOS	C	A	C	A	E	A	
Approach Delay	27.3			11.2	38.0		
Approach LOS	C			B	D		
Queue Length 50th (m)	58.3	6.0	16.5	6.5	21.8	0.0	
Queue Length 95th (m)	m#162.6	m6.7	m#85.0	m176.8	33.7	11.8	
Internal Link Dist (m)	263.2			413.3	180.6		
Turn Bay Length (m)		80.0	150.0		40.0		
Base Capacity (vph)	1270	653	423	2166	326	646	
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	0.90	0.28	0.64	0.60	0.57	0.21	

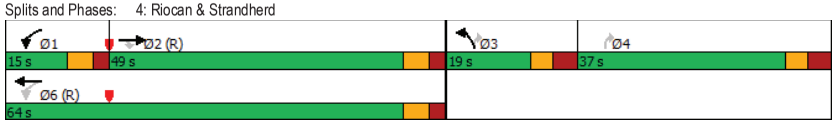
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 70 (58%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 20.5	Intersection LOS: C
Intersection Capacity Utilization 73.6%	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: 4: Riocan & Strandherd



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1146	180	272	1300	186	134
Future Volume (vph)	1146	180	272	1300	186	134
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.3	6.3	6.0	6.3	6.8	6.8
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3316	1448	1658	3316	3216	1449
Flt Permitted	1.00	1.00	0.08	1.00	0.95	1.00
Satd. Flow (perm)	3316	1448	134	3316	3216	1449
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1146	180	272	1300	186	134
RTOR Reduction (vph)	0	99	0	0	0	102
Lane Group Flow (vph)	1146	81	272	1300	186	32
Confl. Peds. (#/hr)		2	2		8	9
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	
Permitted Phases		2	6			3 4
Actuated Green, G (s)	46.0	46.0	78.4	78.4	11.5	28.5
Effective Green, g (s)	46.0	46.0	78.4	78.4	11.5	28.5
Actuated g/C Ratio	0.38	0.38	0.65	0.65	0.10	0.24
Clearance Time (s)	6.3	6.3	6.0	6.3	6.8	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1271	555	422	2166	308	344
v/s Ratio Prot	c0.35		0.14	c0.39	c0.06	
v/s Ratio Perm		0.06	0.28			c0.02
v/c Ratio	0.90	0.15	0.64	0.60	0.60	0.09
Uniform Delay, d1	34.9	24.2	29.8	11.9	52.1	35.7
Progression Factor	0.73	1.06	0.74	0.51	1.00	1.00
Incremental Delay, d2	4.2	0.2	1.8	0.7	3.3	0.1
Delay (s)	29.8	25.7	23.8	6.8	55.4	35.8
Level of Service	C	C	C	A	E	D
Approach Delay (s)	29.2			9.7	47.2	
Approach LOS	C			A	D	

Intersection Summary				
HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.9
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	214	939	194	328	1241	127	119	255	194	116	422	173
Future Volume (vph)	214	939	194	328	1241	127	119	255	194	116	422	173
Satd. Flow (prot)	3216	3316	1483	3216	3316	1483	3216	1745	1483	1658	1745	1483
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3211	3316	1457	3207	3316	1458	3179	1745	1444	1641	1745	1447
Satd. Flow (RTOR)			215			155			212			212
Lane Group Flow (vph)	214	939	194	328	1241	127	119	255	194	116	422	173
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)	11.6	36.6	36.6	11.6	35.4	35.4	11.7	35.7	35.7	11.7	35.7	35.7
Total Split (s)	13.0	42.0	42.0	24.0	53.0	53.0	18.0	36.0	36.0	18.0	36.0	36.0
Total Split (%)	10.8%	35.0%	35.0%	20.0%	44.2%	44.2%	15.0%	30.0%	30.0%	15.0%	30.0%	30.0%
Yellow Time (s)	4.2	4.2	4.2	4.2	4.2	4.2	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.4	2.2	2.2	2.4	2.2	2.2	3.4	3.4	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.4	6.4	6.6	6.4	6.4	6.7	6.7	6.7	6.7	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
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	6.6	37.1	37.1	16.1	46.6	46.6	9.5	29.6	29.6	10.8	30.9	30.9
Actuated g/C Ratio	0.06	0.31	0.31	0.13	0.39	0.39	0.08	0.25	0.25	0.09	0.26	0.26
v/c Ratio	1.22	0.92	0.32	0.76	0.96	0.19	0.47	0.59	0.38	0.78	0.94	0.33
Control Delay	162.6	52.7	17.4	62.0	54.1	2.7	58.5	46.6	5.9	85.8	74.5	3.8
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	162.6	52.7	17.4	62.0	54.1	2.7	58.5	46.6	5.9	85.8	74.5	3.8
LOS	F	D	B	E	D	A	E	D	A	F	E	A
Approach Delay		65.1			51.8			35.2			59.1	
Approach LOS		E			D			D			E	
Queue Length 50th (m)	~31.6	124.0	24.3	38.4	148.4	0.0	14.0	53.4	0.0	27.1	97.8	0.0
Queue Length 95th (m)	m#39.7	m#148.1	m31.9	53.9	#195.5	7.5	23.1	80.8	14.2	#55.8	#163.1	9.5
Internal Link Dist (m)		413.3			403.0			212.7			202.0	
Turn Bay Length (m)	90.0		55.0	80.0		195.0	50.0		90.0	50.0		50.0
Base Capacity (vph)	175	1023	598	466	1287	660	302	431	515	156	449	529
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	1.22	0.92	0.32	0.70	0.96	0.19	0.39	0.59	0.38	0.74	0.94	0.33

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 18 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.22
Intersection Signal Delay: 55.0 — Intersection LOS: D
Intersection Capacity Utilization 92.5% — ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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

Splits and Phases: 5: Longfields & Strandherd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	214	939	194	328	1241	127	119	255	194	116	422	173
Future Volume (vph)	214	939	194	328	1241	127	119	255	194	116	422	173
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.6	6.4	6.4	6.6	6.4	6.4	6.7	6.7	6.7	6.7	6.7	6.7
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3216	3316	1457	3216	3316	1458	3216	1745	1444	1658	1745	1447
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3216	3316	1457	3216	3316	1458	3216	1745	1444	1658	1745	1447
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	214	939	194	328	1241	127	119	255	194	116	422	173
RTOR Reduction (vph)	0	0	134	0	0	78	0	0	146	0	0	128
Lane Group Flow (vph)	214	939	60	328	1241	49	119	255	48	116	422	45
Confl. Peds. (#/hr)	4		5	5		4	10		12	12		10
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
Actuated Green, G (s)	6.6	37.1	37.1	16.1	46.6	46.6	9.5	29.6	29.6	10.8	30.9	30.9
Effective Green, g (s)	6.6	37.1	37.1	16.1	46.6	46.6	9.5	29.6	29.6	10.8	30.9	30.9
Actuated g/C Ratio	0.05	0.31	0.31	0.13	0.39	0.39	0.08	0.25	0.25	0.09	0.26	0.26
Clearance Time (s)	6.6	6.4	6.4	6.6	6.4	6.4	6.7	6.7	6.7	6.7	6.7	6.7
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
Lane Grp Cap (vph)	176	1025	450	431	1287	566	254	430	356	149	449	372
v/s Ratio Prot	0.07	0.28		c0.10	c0.37		0.04	0.15		c0.07	c0.24	
v/s Ratio Perm			0.04			0.03			0.03			0.03
v/c Ratio	1.22	0.92	0.13	0.76	0.96	0.09	0.47	0.59	0.13	0.78	0.94	0.12
Uniform Delay, d1	56.7	39.9	29.9	50.1	35.9	23.2	52.8	39.9	35.2	53.4	43.6	34.1
Progression Factor	0.69	1.07	5.34	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	123.8	9.1	0.4	7.7	17.9	0.3	1.4	2.2	0.2	22.2	27.6	0.1
Delay (s)	163.2	51.9	159.8	57.8	53.8	23.5	54.2	42.1	35.4	75.6	71.2	34.3
Level of Service	F	D	F	E	D	C	D	D	D	E	E	C
Approach Delay (s)		85.2			52.3			42.3			62.9	
Approach LOS		F			D			D			E	

Intersection Summary				
HCM 2000 Control Delay	63.0	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	0.97			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	26.4	
Intersection Capacity Utilization	92.5%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	71	217	17	52	54	139	466	15	100	742	176
Future Volume (vph)	125	71	217	17	52	54	139	466	15	100	742	176
Satd. Flow (prot)	1658	1533	0	0	1618	0	1658	3296	0	1658	3204	0
Flt Permitted	0.713				0.719		0.214			0.477		
Satd. Flow (perm)	1238	1533	0	0	1171	0	373	3296	0	828	3204	0
Satd. Flow (RTOR)		194			50			6			37	
Lane Group Flow (vph)	125	288	0	0	123	0	139	481	0	100	918	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	34.8	34.8		34.8	34.8		10.6	24.8		24.8	24.8	
Total Split (s)	35.0	35.0		35.0	35.0		15.0	50.0		35.0	35.0	
Total Split (%)	41.2%	41.2%		41.2%	41.2%		17.6%	58.8%		41.2%	41.2%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.8	3.8		3.8	3.8		2.3	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.8	6.8			6.8		5.6	5.8		5.8	5.8	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	
Act Effct Green (s)	15.8	15.8			15.8		56.8	56.6		43.2	43.2	
Actuated g/C Ratio	0.19	0.19			0.19		0.67	0.67		0.51	0.51	
v/c Ratio	0.55	0.65			0.48		0.38	0.22		0.24	0.56	
Control Delay	38.6	17.3			23.5		9.7	6.8		16.9	17.4	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay	38.6	17.3			23.5		9.7	6.8		16.9	17.4	
LOS	D	B			C		A	A		B	B	
Approach Delay		23.7			23.5			7.5			17.3	
Approach LOS		C			C			A			B	
Queue Length 50th (m)	19.2	13.8			10.7		6.5	12.5		8.1	45.8	
Queue Length 95th (m)	29.0	30.7			21.4		20.3	30.4		25.2	91.5	
Internal Link Dist (m)		257.2			427.6			400.4			212.7	
Turn Bay Length (m)	30.0						75.0			100.0		
Base Capacity (vph)	410	638			421		391	2196		420	1644	
Starvation Cap Reductn	0	0			0		0	0		0	0	
Spillback Cap Reductn	0	0			0		0	0		0	0	
Storage Cap Reductn	0	0			0		0	0		0	0	
Reduced v/c Ratio	0.30	0.45			0.29		0.36	0.22		0.24	0.56	

Intersection Summary
Cycle Length: 85
Actuated Cycle Length: 85
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 16.1	Intersection LOS: B
Intersection Capacity Utilization 73.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 6: Longfields & Marketplace/Clearbrook

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	71	217	17	52	54	139	466	15	100	742	176
Future Volume (vph)	125	71	217	17	52	54	139	466	15	100	742	176
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.8	6.8			6.8		5.6	5.8		5.8	5.8	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00			1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.89			0.94		1.00	1.00		1.00	0.97	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1649	1533			1617		1658	3297		1648	3205	
Flt Permitted	0.71	1.00			0.72		0.21	1.00		0.48	1.00	
Satd. Flow (perm)	1238	1533			1170		374	3297		828	3205	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	125	71	217	17	52	54	139	466	15	100	742	176
RTOR Reduction (vph)	0	158	0	0	41	0	0	2	0	0	18	0
Lane Group Flow (vph)	125	130	0	0	82	0	139	479	0	100	900	0
Confl. Peds. (#/hr)	7		1	1		7	2		5	5		2
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	15.8	15.8			15.8		56.6	56.6		43.2	43.2	
Effective Green, g (s)	15.8	15.8			15.8		56.6	56.6		43.2	43.2	
Actuated g/C Ratio	0.19	0.19			0.19		0.67	0.67		0.51	0.51	
Clearance Time (s)	6.8	6.8			6.8		5.6	5.8		5.8	5.8	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	230	284			217		366	2195		420	1628	
v/s Ratio Prot		0.08					c0.03	0.15			c0.28	
v/s Ratio Perm	c0.10				0.07		0.22			0.12		
v/c Ratio	0.54	0.46			0.38		0.38	0.22		0.24	0.55	
Uniform Delay, d1	31.3	30.8			30.3		7.0	5.6		11.7	14.3	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.6	1.2			1.1		0.7	0.2		1.3	1.4	
Delay (s)	33.9	32.0			31.4		7.7	5.8		13.0	15.6	
Level of Service	C	C			C		A	A		B	B	
Approach Delay (s)		32.6			31.4			6.2			15.4	
Approach LOS		C			C			A			B	

Intersection Summary					
HCM 2000 Control Delay	16.9	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.53				
Actuated Cycle Length (s)	85.0	Sum of lost time (s)		18.2	
Intersection Capacity Utilization	73.9%	ICU Level of Service		D	
Analysis Period (min)	15				
c Critical Lane Group					

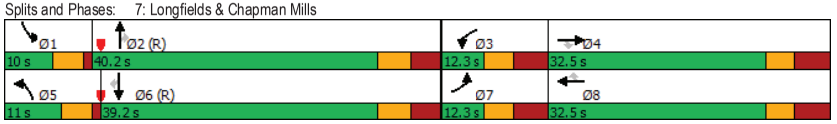
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	6	367	65	2	82	228	562	54	159	872	36
Future Volume (vph)	12	6	367	65	2	82	228	562	54	159	872	36
Satd. Flow (prot)	1658	1745	1483	1658	1745	1483	1658	3316	1483	1658	3316	1483
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1648	1745	1451	1643	1745	1457	1645	3316	1433	1650	3316	1400
Satd. Flow (RTOR)			188			185						187
Lane Group Flow (vph)	12	6	367	65	2	82	228	562	54	159	872	36
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.3	32.5	32.5	12.3	32.5	32.5	9.5	38.3	38.3	9.5	38.3	38.3
Total Split (s)	12.3	32.5	32.5	12.3	32.5	32.5	11.0	40.2	40.2	10.0	39.2	39.2
Total Split (%)	12.9%	34.2%	34.2%	12.9%	34.2%	34.2%	11.6%	42.3%	42.3%	10.5%	41.3%	41.3%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.5	3.7	3.7	3.5	3.7	3.7
All-Red Time (s)	4.0	4.2	4.2	4.0	4.2	4.2	1.0	3.6	3.6	1.0	3.6	3.6
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)	7.3	7.5	7.5	7.3	7.5	7.5	4.5	7.3	7.3	4.5	7.3	7.3
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
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	5.0	18.2	18.2	5.0	25.6	25.6	15.8	33.6	33.6	14.0	31.9	31.9
Actuated g/C Ratio	0.05	0.19	0.19	0.05	0.27	0.27	0.17	0.35	0.35	0.15	0.34	0.34
v/c Ratio	0.14	0.02	0.86	0.75	0.00	0.16	0.83	0.48	0.11	0.65	0.78	0.06
Control Delay	46.7	27.3	36.3	90.9	23.5	0.6	69.3	25.8	21.9	57.9	34.4	0.2
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	46.7	27.3	36.3	90.9	23.5	0.6	69.3	25.8	21.9	57.9	34.4	0.2
LOS	D	C	D	F	C	A	E	C	C	E	C	A
Approach Delay		36.5			40.3			37.3			36.8	
Approach LOS		D			D			D			D	
Queue Length 50th (m)	2.1	0.9	32.4	12.0	0.3	0.0	~43.5	42.2	6.7	28.7	75.1	0.0
Queue Length 95th (m)	7.7	3.9	62.0	#34.0	1.9	0.0	#110.1	57.4	14.8	#80.8	98.1	0.0
Internal Link Dist (m)		138.8			203.2			375.7			400.4	
Turn Bay Length (m)	38.0		38.0	40.0		40.0	90.0		65.0	65.0		75.0
Base Capacity (vph)	87	459	520	87	524	567	275	1174	507	244	1113	594
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	0.14	0.01	0.71	0.75	0.00	0.14	0.83	0.48	0.11	0.65	0.78	0.06

Intersection Summary

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

Maximum v/c Ratio: 0.86
Intersection Signal Delay: 37.1 — Intersection LOS: D
Intersection Capacity Utilization 73.2% — 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: Longfields & Chapman Mills



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	6	367	65	2	82	228	562	54	159	872	36
Future Volume (vph)	12	6	367	65	2	82	228	562	54	159	872	36
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	7.3	7.5	7.5	7.3	7.5	7.5	4.5	7.3	7.3	4.5	7.3	7.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1658	1745	1451	1658	1745	1457	1658	3316	1433	1658	3316	1396
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1658	1745	1451	1658	1745	1457	1658	3316	1433	1658	3316	1396
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	12	6	367	65	2	82	228	562	54	159	872	36
RTOR Reduction (vph)	0	0	143	0	0	60	0	0	0	0	0	26
Lane Group Flow (vph)	12	6	224	65	2	22	228	562	54	159	872	10
Confl. Peds. (#/hr)	5		8	8		5	17		7	7		17
Confl. Bikes (#/hr)			1						3			10
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	1.0	22.6	22.6	4.0	25.6	25.6	15.8	27.8	27.8	14.0	26.0	26.0
Effective Green, g (s)	1.0	22.6	22.6	4.0	25.6	25.6	15.8	27.8	27.8	14.0	26.0	26.0
Actuated g/C Ratio	0.01	0.24	0.24	0.04	0.27	0.27	0.17	0.29	0.29	0.15	0.27	0.27
Clearance Time (s)	7.3	7.5	7.5	7.3	7.5	7.5	4.5	7.3	7.3	4.5	7.3	7.3
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
Lane Grp Cap (vph)	17	415	345	69	470	392	275	970	419	244	907	382
v/s Ratio Prot	0.01	0.00		c0.04	0.00		c0.14	0.17		0.10	c0.26	
v/s Ratio Perm			c0.15			c0.02			0.04			0.01
v/c Ratio	0.71	0.01	0.65	0.94	0.00	0.06	0.83	0.58	0.13	0.65	0.96	0.03
Uniform Delay, d1	46.9	27.7	32.6	45.4	25.4	25.7	38.3	28.6	24.7	38.2	34.0	25.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	84.0	0.0	4.2	87.8	0.0	0.1	18.3	2.5	0.6	6.1	21.9	0.1
Delay (s)	130.8	27.7	36.8	133.2	25.4	25.8	56.6	31.1	25.3	44.3	55.9	25.4
Level of Service	F	C	D	F	C	C	E	C	C	D	E	C
Approach Delay (s)		39.6			72.6			37.6			53.1	
Approach LOS		D			E			D			D	

Intersection Summary				
HCM 2000 Control Delay	46.8	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.83			
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	26.6	
Intersection Capacity Utilization	73.2%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

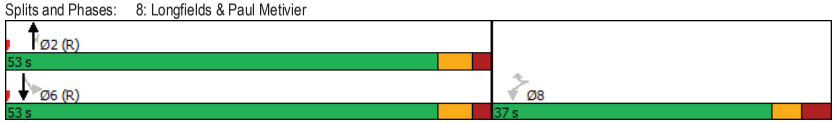
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	91	87	547	68	104	867
Future Volume (vph)	91	87	547	68	104	867
Satd. Flow (prot)	1658	1483	3316	1483	1658	3316
Flt Permitted	0.950				0.448	
Satd. Flow (perm)	1647	1463	3316	1434	777	3316
Satd. Flow (RTOR)		87		68		
Lane Group Flow (vph)	91	87	547	68	104	867
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)	36.6	36.6	36.0	36.0	24.0	24.0
Total Split (s)	37.0	37.0	53.0	53.0	53.0	53.0
Total Split (%)	41.1%	41.1%	58.9%	58.9%	58.9%	58.9%
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	3.3	3.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	14.5	14.5	67.4	67.4	67.4	67.4
Actuated g/C Ratio	0.16	0.16	0.75	0.75	0.75	0.75
v/c Ratio	0.34	0.28	0.22	0.06	0.18	0.35
Control Delay	34.9	8.4	5.9	2.5	7.6	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.9	8.4	5.9	2.5	7.6	6.8
LOS	C	A	A	A	A	A
Approach Delay	22.0		5.5			6.8
Approach LOS	C		A			A
Queue Length 50th (m)	15.0	0.0	12.3	0.0	4.3	22.1
Queue Length 95th (m)	21.8	9.5	36.8	5.8	19.3	63.0
Internal Link Dist (m)	403.8		379.4			375.7
Turn Bay Length (m)	45.0			50.0	70.0	
Base Capacity (vph)	556	551	2484	1091	582	2484
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	0.16	0.22	0.06	0.18	0.35

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 35 (39%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.35

Intersection Signal Delay: 7.9	Intersection LOS: A
Intersection Capacity Utilization 57.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Longfields & Paul Metivier



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	91	87	547	68	104	867
Future Volume (vph)	91	87	547	68	104	867
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.6	6.6	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	0.99	1.00	0.97	1.00	1.00
Flpb, ped/bikes	0.99	1.00	1.00	1.00	0.99	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1647	1462	3316	1434	1647	3316
Flt Permitted	0.95	1.00	1.00	1.00	0.45	1.00
Satd. Flow (perm)	1647	1462	3316	1434	776	3316
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	91	87	547	68	104	867
RTOR Reduction (vph)	0	75	0	19	0	0
Lane Group Flow (vph)	91	12	547	49	104	867
Confl. Peds. (#/hr)	7	1		9	9	
Confl. Bikes (#/hr)		1				
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Actuated Green, G (s)	12.5	12.5	64.9	64.9	64.9	64.9
Effective Green, g (s)	12.5	12.5	64.9	64.9	64.9	64.9
Actuated g/C Ratio	0.14	0.14	0.72	0.72	0.72	0.72
Clearance Time (s)	6.6	6.6	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	228	203	2391	1034	559	2391
v/s Ratio Prot			0.16			c0.26
v/s Ratio Perm	c0.06	0.01		0.03	0.13	
v/c Ratio	0.40	0.06	0.23	0.05	0.19	0.36
Uniform Delay, d1	35.3	33.6	4.2	3.6	4.0	4.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	0.1	0.2	0.1	0.7	0.4
Delay (s)	36.5	33.8	4.4	3.7	4.8	5.2
Level of Service	D	C	A	A	A	A
Approach Delay (s)	35.2		4.3			5.1
Approach LOS	D		A			A

Intersection Summary				
HCM 2000 Control Delay	7.9	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.37			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.6	
Intersection Capacity Utilization	57.7%	ICU Level of Service	B	
Analysis Period (min)	15			

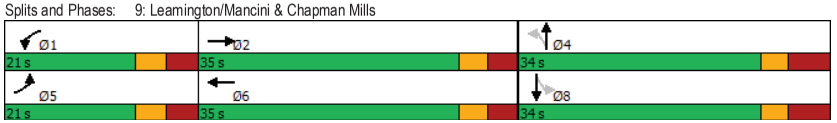
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	105	78	42	99	31	55	10	31	20	12	7
Future Volume (vph)	15	105	78	42	99	31	55	10	31	20	12	7
Satd. Flow (prot)	1658	1618	0	1658	1672	0	0	1622	0	0	1657	0
Flt Permitted	0.950			0.950				0.801			0.788	
Satd. Flow (perm)	1650	1618	0	1654	1672	0	0	1336	0	0	1339	0
Satd. Flow (RTOR)		43			18							
Lane Group Flow (vph)	15	183	0	42	130	0	0	96	0	0	39	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.8	22.6		11.8	22.6		33.7	33.7		33.7	33.7	
Total Split (s)	21.0	35.0		21.0	35.0		34.0	34.0		34.0	34.0	
Total Split (%)	23.3%	38.9%		23.3%	38.9%		37.8%	37.8%		37.8%	37.8%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	3.5	3.3		3.5	3.3		4.7	4.7		4.7	4.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	6.8	6.6		6.8	6.6			7.7			7.7	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	Max		None	Max		None	None		None	None	
Act Effct Green (s)	6.3	37.2		7.4	43.3			13.1			13.1	
Actuated g/C Ratio	0.09	0.56		0.11	0.65			0.20			0.20	
v/c Ratio	0.10	0.20		0.23	0.12			0.37			0.15	
Control Delay	33.8	12.4		33.9	9.7			28.9			24.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	33.8	12.4		33.9	9.7			28.9			24.8	
LOS	C	B		C	A			C			C	
Approach Delay		14.1			15.6			28.9			24.8	
Approach LOS		B			B			C			C	
Queue Length 50th (m)	1.8	10.4		4.9	4.6			11.1			4.3	
Queue Length 95th (m)	7.9	32.6		15.6	24.7			23.6			11.6	
Internal Link Dist (m)		203.2			520.9			265.7			233.3	
Turn Bay Length (m)	40.0			50.0								
Base Capacity (vph)	362	919		362	1087			540			542	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.04	0.20		0.12	0.12			0.18			0.07	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 66.9
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.37

Intersection Signal Delay: 18.2 — Intersection LOS: B
Intersection Capacity Utilization 43.9% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 9: Leamington/Mancini & Chapman Mills



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	105	78	42	99	31	55	10	31	20	12	7
Future Volume (vph)	15	105	78	42	99	31	55	10	31	20	12	7
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.8	6.6		6.8	6.6			7.7			7.7	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99			1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.94		1.00	0.96			0.96			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.97	
Satd. Flow (prot)	1658	1618		1658	1673			1622			1656	
Flt Permitted	0.95	1.00		0.95	1.00			0.80			0.79	
Satd. Flow (perm)	1658	1618		1658	1673			1336			1339	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	15	105	78	42	99	31	55	10	31	20	12	7
RTOR Reduction (vph)	0	21	0	0	8	0	0	0	0	0	0	0
Lane Group Flow (vph)	15	162	0	42	122	0	0	96	0	0	39	0
Confl. Peds. (#/hr)	2		1	1		2	1					1
Confl. Bikes (#/hr)												1
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Actuated Green, G (s)	1.2	38.1		4.6	41.5			10.5			10.5	
Effective Green, g (s)	1.2	38.1		4.6	41.5			10.5			10.5	
Actuated g/C Ratio	0.02	0.51		0.06	0.56			0.14			0.14	
Clearance Time (s)	6.8	6.6		6.8	6.6			7.7			7.7	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	26	829		102	934			188			189	
v/s Ratio Prot	0.01	c0.10		c0.03	c0.07							
v/s Ratio Perm								c0.07			0.03	
v/c Ratio	0.58	0.20		0.41	0.13			0.51			0.21	
Uniform Delay, d1	36.3	9.8		33.5	7.8			29.5			28.2	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	27.4	0.5		2.7	0.3			2.3			0.5	
Delay (s)	63.7	10.3		36.2	8.1			31.9			28.8	
Level of Service	E	B		D	A			C			C	
Approach Delay (s)		14.4			15.0			31.9			28.8	
Approach LOS		B			B			C			C	

Intersection Summary				
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.28			
Actuated Cycle Length (s)	74.3	Sum of lost time (s)	21.1	
Intersection Capacity Utilization	43.9%	ICU Level of Service	A	
Analysis Period (min)	15			

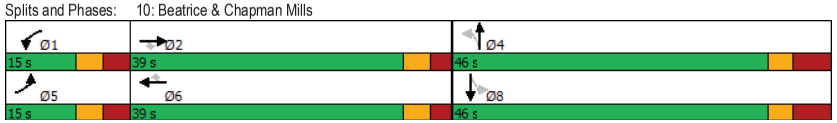
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	107	5	22	145	25	7	42	16	25	51	29
Future Volume (vph)	39	107	5	22	145	25	7	42	16	25	51	29
Satd. Flow (prot)	1658	1745	1483	1658	1745	1483	0	3158	0	0	3093	0
Flt Permitted	0.950			0.950				0.920			0.869	
Satd. Flow (perm)	1640	1745	1446	1639	1745	1446	0	2910	0	0	2718	0
Satd. Flow (RTOR)			122			122						
Lane Group Flow (vph)	39	107	5	22	145	25	0	65	0	0	105	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases			2			6	4			8		
Detector Phase	5	2	2	1	6	6	4	4		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	
Minimum Split (s)	11.5	25.9	25.9	11.5	25.9	25.9	45.7	45.7		45.7	45.7	
Total Split (s)	15.0	39.0	39.0	15.0	39.0	39.0	46.0	46.0		46.0	46.0	
Total Split (%)	15.0%	39.0%	39.0%	15.0%	39.0%	39.0%	46.0%	46.0%		46.0%	46.0%	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.0	3.0		3.0	3.0	
All-Red Time (s)	3.2	2.6	2.6	3.2	2.6	2.6	4.7	4.7		4.7	4.7	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)	6.5	5.9	5.9	6.5	5.9	5.9		7.7			7.7	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Max	Max	None	Max	Max	None	None		None	None	
Act Effct Green (s)	7.4	42.5	42.5	6.9	42.4	42.4		19.1			19.1	
Actuated g/C Ratio	0.10	0.57	0.57	0.09	0.57	0.57		0.26			0.26	
v/c Ratio	0.24	0.11	0.01	0.14	0.15	0.03		0.09			0.15	
Control Delay	41.5	17.9	0.0	41.0	17.8	0.1		20.2			20.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	
Total Delay	41.5	17.9	0.0	41.0	17.8	0.1		20.2			20.8	
LOS	D	B	A	D	B	A		C			C	
Approach Delay		23.4			18.2			20.2			20.8	
Approach LOS		C			B			C			C	
Queue Length 50th (m)	3.7	4.3	0.0	2.1	5.9	0.0		3.0			4.9	
Queue Length 95th (m)	17.3	27.0	0.0	11.4	35.3	0.0		8.5			12.3	
Internal Link Dist (m)		520.9			367.7			322.5			353.5	
Turn Bay Length (m)	40.0		40.0	45.0		60.0						
Base Capacity (vph)	204	1000	881	204	997	878		1621			1514	
Starvation Cap Reductn	0	0	0	0	0	0		0			0	
Spillback Cap Reductn	0	0	0	0	0	0		0			0	
Storage Cap Reductn	0	0	0	0	0	0		0			0	
Reduced v/c Ratio	0.19	0.11	0.01	0.11	0.15	0.03		0.04			0.07	

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 74.1
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.24

Intersection Signal Delay: 20.5 Intersection LOS: C
Intersection Capacity Utilization 60.1% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 10: Beatrice & Chapman Mills



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	107	5	22	145	25	7	42	16	25	51	29
Future Volume (vph)	39	107	5	22	145	25	7	42	16	25	51	29
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.5	5.9	5.9	6.5	5.9	5.9		7.7			7.7	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		0.95			0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98		0.99			0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.96			0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99			0.99	
Satd. Flow (prot)	1658	1745	1450	1658	1745	1450		3149			3096	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.92			0.87	
Satd. Flow (perm)	1658	1745	1450	1658	1745	1450		2912			2724	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	39	107	5	22	145	25	7	42	16	25	51	29
RTOR Reduction (vph)	0	0	2	0	0	12	0	0	0	0	0	0
Lane Group Flow (vph)	39	107	3	22	145	13	0	65	0	0	105	0
Confl. Peds. (#/hr)	9		9	9		9	28		3	3		28
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases			2			6	4			8		
Actuated Green, G (s)	2.5	40.9	40.9	2.4	40.8	40.8		16.4			16.4	
Effective Green, g (s)	2.5	40.9	40.9	2.4	40.8	40.8		16.4			16.4	
Actuated g/C Ratio	0.03	0.51	0.51	0.03	0.51	0.51		0.21			0.21	
Clearance Time (s)	6.5	5.9	5.9	6.5	5.9	5.9		7.7			7.7	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	51	894	743	49	892	741		598			559	
v/s Ratio Prot	c0.02	0.06		0.01	c0.08							
v/s Ratio Perm			0.00			0.01		0.02			c0.04	
v/c Ratio	0.76	0.12	0.00	0.45	0.16	0.02		0.11			0.19	
Uniform Delay, d1	38.4	10.1	9.5	38.0	10.4	9.6		25.8			26.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	48.9	0.3	0.0	6.4	0.4	0.0		0.1			0.2	
Delay (s)	87.3	10.4	9.5	44.5	10.8	9.7		25.8			26.4	
Level of Service	F	B	A	D	B	A		C			C	
Approach Delay (s)		30.2			14.5			25.8			26.4	
Approach LOS		C			B			C			C	

Intersection Summary				
HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.19			
Actuated Cycle Length (s)	79.8	Sum of lost time (s)	20.1	
Intersection Capacity Utilization	60.1%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

Appendix I

MMLOS Analysis

Multi-Modal Level of Service - Segments Form

Consultant	**CGH Transportation**	**Project**	**2020-85**
Scenario	**Existing/Future**	**Date**	**2022-05-20**
Comments			

SEGMENTS		**Street A**	Riocan Avenue	Longfields Drive	Glenroy Gilbert Drive	Chapman Mills Drive
Pedestrian	Sidewalk Width Boulevard Width	-	≥ 2 m > 2 m	≥ 2 m < 0.5	≥ 2 m < 0.5	≥ 2 m > 2 m
	Avg Daily Curb Lane Traffic Volume		≤ 3000	> 3000	≤ 3000	≤ 3000
	Operating Speed On-Street Parking		> 50 to 60 km/h no	> 60 km/h no	> 30 to 50 km/h yes	> 50 to 60 km/h yes
	Exposure to Traffic PLoS		**A**	**F**	**B**	**A**
	Effective Sidewalk Width					
	Pedestrian Volume					
	Crowding PLoS		-	-	-	-
	Level of Service		**-**	**-**	**-**	**-**
Bicycle	Type of Cycling Facility	**D**	Physically Separated	Curbside Bike Lane	Mixed Traffic	Physically Separated
	Number of Travel Lanes			2 ea. dir. (w median)	≤ 2 (no centreline)	
	Operating Speed			>50 to 70 km/h	≥ 50 to 60 km/h	
	# of Lanes & Operating Speed LoS		-	**C**	**D**	-
	Bike Lane (+ Parking Lane) Width			≥ 1.8 m		
	Bike Lane Width LoS		-	**A**	-	-
	Bike Lane Blockages			Rare		
	Blockage LoS		-	**A**	-	-
	Median Refuge Width (no median = < 1.8 m)			< 1.8 m refuge	< 1.8 m refuge	
	No. of Lanes at Unsignalized Crossing			≤ 3 lanes	≤ 3 lanes	
	Sidestreet Operating Speed			>40 to 50 km/h	>40 to 50 km/h	
	Unsignalized Crossing - Lowest LoS		~~A~~	**A**	**A**	~~A~~
	Level of Service		**A**	**C**	**D**	**A**
Transit	Facility Type	**A**				Segregated ROW
	Friction or Ratio Transit:Posted Speed					
	Level of Service		**-**	**-**	**-**	**A**
Truck	Truck Lane Width	**C**		≤ 3.3 m		
	Travel Lanes per Direction			> 1		
	Level of Service		**-**	**C**	**-**	**-**

Multi-Modal Level of Service - Intersections Form

Consultant	**CGH Transportation**	**Project**	**2020-85**
Scenario	**Existing/Future**	**Date**	**2021-10-06**
Comments			

Unlocked Rows for Replicating

INTERSECTIONS		Greenbank Rd at Strandherd Dr				Greenbank Rd at Marketplace Ave				Greenbank Rd at Jockvale Rd			
Crossing Side		NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	7	7	8	7	8	7	6	6	6	6	8	6
	Median	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m
	Conflicting Left Turns	Protected/ Permissive	Protected/ Permissive	Protected	Protected	Protected/ Permissive	Protected/ Permissive	Protected	Protected	Permissive	Permissive	Protected/ 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	Permissive or yield control	Permissive or yield control	Permissive or yield control	Protected/ Permissive	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	RTOR allowed
	Ped Signal Leading Interval?	No	No	No	No	No	No	No	No	No	No	No	No
	Right Turn Channel	Conv'tl without Receiving Lane	Conv'tl without Receiving Lane	No Channel	Smart Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel
	Corner Radius	15-25m	15-25m	10-15m	15-25m	5-10m	5-10m	5-10m	5-10m	10-15m	15-25m	5-10m	3-5m
	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	Textured/coloured pavement
	PETSI Score	**6**	**6**	**-4**	**16**	**-11**	**5**	**29**	**29**	**20**	**18**	**-11**	**25**
	Ped. Exposure to Traffic LoS	**F**	**F**	**F**	**F**	**F**	**F**	**F**	**F**	**F**	**F**	**F**	**F**
	Cycle Length												
	Effective Walk Time												
	Average Pedestrian Delay												
	Pedestrian Delay LoS	-	-	-	-	-	-	-	-	-	-	-	-
	Level of Service	**F**	**F**	**F**	**F**	**F**	**F**	**F**	**F**	**F**	**F**	**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	Pocket Bike Lane	Pocket Bike Lane	Pocket Bike Lane	Pocket Bike Lane	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic
	Right Turn Lane Configuration	> 50 m Introduced right turn lane		Bike lane shifts to the left of right turn	> 50 m Introduced right turn lane								
	Right Turning Speed	>25 to 30 km/h		≤ 25 km/h	>25 to 30 km/h								
	Cyclist relative to RT motorists	**D**	**-**	**D**	**D**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Separated or Mixed Traffic	**Separated**	**Separated**	**Separated**	**Separated**	**Separated**	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**
	Left Turn Approach	≥ 2 lanes crossed	≥ 2 lanes crossed	≥ 2 lanes crossed	≥ 2 lanes crossed	≥ 2 lanes crossed	No lane crossed	No lane crossed	No lane crossed	No lane crossed	No lane crossed	No lane crossed	No lane crossed
	Operating Speed	≥ 60 km/h	≥ 60 km/h	≥ 60 km/h	≥ 60 km/h	≥ 60 km/h	≥ 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	≥ 60 km/h	≥ 60 km/h	≥ 60 km/h	≥ 60 km/h
	Left Turning Cyclist	**F**	**F**	**F**	**F**	**F**	**C**	**C**	**C**	**C**	**C**	**C**	**C**
	Level of Service	**F**	**-**	**F**	**F**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		-				**-**				**-**			
Transit	Average Signal Delay		> 40 sec	> 40 sec	> 40 sec	> 40 sec	≤ 30 sec	≤ 40 sec		≤ 10 sec		> 40 sec	
	Level of Service	**-**	**F**	**F**	**F**	**F**	**D**	**E**	**-**	**B**	**-**	**F**	**-**
		F				**F**				**F**			
Truck	Effective Corner Radius	> 15 m	10 - 15 m	> 15 m	> 15 m	< 10 m	< 10 m					10 - 15 m	
	Number of Receiving Lanes on Departure from Intersection	≥ 2	≥ 2	≥ 2	≥ 2	1	1					1	
	Level of Service	**A**	**B**	**A**	**A**	**F**	**F**	**-**	**-**	**-**	**-**	**E**	**-**
		B				**F**				**E**			
Auto	Volume to Capacity Ratio	> 1.00				0.71 - 0.80				0.71 - 0.80			
	Level of Service	**F**				**C**				**C**			

Strandherd Dr at Riocan Ave				Strandherd Dr at Longfields Dr				Longfields Dr at Marketplace Ave / Clearbook Dr				Longfields Dr at Chapman Mills Dr			
NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
0 - 2	8	7	8	8	7	8	8	8	8	5	4	7	7	9	9
Median > 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	Median > 2.4 m	Median > 2.4 m
No left turn / Prohib.	Protected/ Permissive	No left turn / Prohib.	Protected	Protected	Protected	Protected	Protected	Permissive	Permissive	Permissive	Protected/ Permissive	Protected	Protected	Permissive	Permissive
No right turn	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	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 allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed
No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
No Right Turn	No Channel	No Channel	No Right Turn	Smart Channel	Smart Channel	Smart Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel
No Right Turn	5-10m	5-10m	No Right Turn	10-15m	10-15m	15-25m	10-15m	5-10m	5-10m	5-10m	5-10m	10-15m	5-10m	10-15m	5-10m
Raised crosswalk	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	Textured/coloured pavement	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings
115	**-11**	**13**	**11**	**2**	**18**	**0**	**-4**	**-11**	**-11**	**38**	**57**	**15**	**16**	**-17**	**-16**
A	**F**	**F**	**F**	**F**	**F**	**F**	**F**	**F**	**F**	**E**	**D**	**F**	**F**	**#N/A**	**#N/A**
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A	**F**	**F**	**F**	**F**	**F**	**F**	**F**	**F**	**F**	**E**	**D**	**F**	**F**	**#N/A**	**#N/A**
F				**F**				**F**				**F**			
NORTH	**SOUTH**	**EAST**	**WEST**	**NORTH**	**SOUTH**	**EAST**	**WEST**	**NORTH**	**SOUTH**	**EAST**	**WEST**	**NORTH**	**SOUTH**	**EAST**	**WEST**
	Mixed Traffic	Pocket Bike Lane	Pocket Bike Lane	Mixed Traffic	Pocket Bike Lane	Pocket Bike Lane	Pocket Bike Lane	Pocket Bike Lane	Pocket Bike Lane	Mixed Traffic	Mixed Traffic	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP
			> 50 m Introduced right turn lane	≤ 50 m	> 50 m Introduced right turn lane	> 50 m Introduced right turn lane	> 50 m Introduced right turn lane					Not Applicable	Not Applicable	Not Applicable	Not Applicable
			≤ 25 km/h	≤ 25 km/h	≤ 25 km/h	>25 to 30 km/h	≤ 25 km/h					Not Applicable	Not Applicable	Not Applicable	Not Applicable
-	-	-	**D**	**D**	**D**	**D**	**D**	-	-	-	-	**Not Applicable**	**Not Applicable**	**Not Applicable**	**Not Applicable**
-	-	-	**D**	**D**	**D**	**D**	**D**	-	-	-	-	**Not Applicable**	**Not Applicable**	**Not Applicable**	**Not Applicable**
-	**Mixed Traffic**	**Separated**	**Separated**	**Mixed Traffic**	**Separated**	**Separated**	**Separated**	**Separated**	**Separated**	**Mixed Traffic**	**Mixed Traffic**	**Separated**	**Separated**	**Separated**	**Separated**
	No lane crossed	≥ 2 lanes crossed		One lane crossed	1 lane crossed	≥ 2 lanes crossed	≥ 2 lanes crossed	≥ 2 lanes crossed	≥ 2 lanes crossed	No lane crossed	No lane crossed	2-stage, LT box	2-stage, LT box	2-stage, LT box	2-stage, LT box
	> 50 to < 60 km/h	≥ 60 km/h		> 50 to < 60 km/h	> 50 to < 60 km/h	≥ 60 km/h	≥ 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	≥ 60 km/h	≥ 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h
-	**C**	**F**	-	**E**	**D**	**F**	**F**	**F**	**F**	**C**	**C**	**A**	**A**	**A**	**A**
-	-	-	-	**E**	**D**	**F**	**F**	-	-	-	-	**A**	**A**	**A**	**A**
-				**-**				**-**				**-**			
					≤ 20 sec	> 40 sec		≤ 20 sec	≤ 10 sec		≤ 40 sec	> 40 sec	≤ 30 sec	≤ 10 sec	
-	-	-	-	-	**C**	**F**	-	**C**	**B**	-	**E**	**F**	**D**	**B**	-
-				**F**				**E**				**F**			
			< 10 m		> 15 m		10 - 15 m		< 10 m						
			≥ 2		≥ 2		≥ 2		1						
-	-	-	**D**	-	**A**	-	**B**	-	**F**	-	-	-	-	-	-
D				**B**				**F**				**-**			
0.71 - 0.80				0.91 - 1.00				0.0 - 0.60				0.81 - 0.90			
C				**E**				**A**				**D**			

Longfields Dr at Paul Metivier Dr				Chapman Mills Dr at Mancini Way / Leamington Way				Chapman Mills Dr at Beatrice Dr				Chapman Mills Dr at Greenbank Rd (Future)				Chapman Mills Dr at Riocan Ave (Future)			
NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
8	8	6	6	3	4	8	8	5	5	10+	10+	10+	10+	8	9	3	3	7	7
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	Median > 2.4 m	Median > 2.4 m	No Median - 2.4 m	No Median - 2.4 m	Median > 2.4 m	Median > 2.4 m	Median > 2.4 m	Median > 2.4 m	Median > 2.4 m	Median > 2.4 m	No Median - 2.4 m	No Median - 2.4 m	Median > 2.4 m	Median > 2.4 m
No left turn / Prohib.	Permissive	Permissive	No left turn / Prohib.	Protected	Protected	Permissive	Permissive	Protected	Protected	Permissive	Permissive	No left turn / Prohib.	Permissive	Permissive	No left turn / Prohib.	Permissive	Permissive	Permissive	Permissive
Permissive or yield control	No right turn	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	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	No right turn	Permissive or yield control	No right turn	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control
RTOR allowed	RTOR prohibited	RTOR allowed	RTOR prohibited	RTOR allowed	RTOR allowed	RTOR prohibited	RTOR allowed	RTOR allowed	RTOR allowed	RTOR prohibited	RTOR prohibited	RTOR allowed	RTOR allowed	RTOR prohibited	RTOR prohibited	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed
No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
No Channel	No Right Turn	No Channel	No Right Turn	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Right Turn	No Channel	No Right Turn	No Channel	No Channel	No Channel	No Channel
10-15m	No Right Turn	10-15m	No Right Turn	5-10m	5-10m	5-10m	5-10m	5-10m	5-10m	5-10m	5-10m	5-10m	No Right Turn	5-10m	No Right Turn	5-10m	5-10m	5-10m	5-10m
Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings
-4	**6**	**20**	**46**	**82**	**65**	**2**	**-1**	**46**	**46**	**-31**	**-31**	**-23**	**-17**	**2**	**9**	**74**	**74**	**14**	**14**
F	**F**	**F**	**D**	**B**	**C**	**F**	**F**	**D**	**D**	**#N/A**	**#N/A**	**#N/A**	**#N/A**	**F**	**F**	**C**	**C**	**F**	**F**
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F	**F**	**F**	**D**	**B**	**C**	**F**	**F**	**D**	**D**	**#N/A**	**#N/A**	**#N/A**	**#N/A**	**F**	**F**	**C**	**C**	**F**	**F**
F				**F**				**F**				**F**				**F**			
NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
	Pocket Bike Lane	Mixed Traffic		Mixed Traffic	Mixed Traffic	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Mixed Traffic	Mixed Traffic	Pocket Bike Lane	Mixed Traffic	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP
	≤ 50 m Introduced right turn lane					Not Applicable	Not Applicable			> 50 m Introduced right turn lane	≤ 50 m	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
	≤ 25 km/h					Not Applicable	Not Applicable			≤ 25 km/h	≤ 25 km/h	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
-	**B**	-	-	-	-	**Not Applicable**	**Not Applicable**	-	-	**D**	**D**	**Not Applicable**	**Not Applicable**	**Not Applicable**	**Not Applicable**	**Not Applicable**	**Not Applicable**	**Not Applicable**	**Not Applicable**
-	**Separated**	**Mixed Traffic**	-	**Mixed Traffic**	**Mixed Traffic**	**Separated**	**Separated**	**Mixed Traffic**	**Mixed Traffic**	**Separated**	**Mixed Traffic**	**Separated**	**Separated**	**Separated**	**Separated**	**Separated**	**Separated**	**Separated**	**Separated**
≥ 2 lanes crossed		No lane crossed		No lane crossed	No lane crossed	2-stage, LT box	2-stage, LT box	No lane crossed	No lane crossed	No lane crossed	One lane crossed	2-stage, LT box	2-stage, LT box	2-stage, LT box	2-stage, LT box	2-stage, LT box	2-stage, LT box	2-stage, LT box	2-stage, LT box
≥ 60 km/h		> 50 to < 60 km/h		> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	≥ 60 km/h	≥ 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h
F	-	**C**	-	**B**	**B**	**A**	**A**	**B**	**B**	**C**	**E**	**A**	**A**	**A**	**A**	**A**	**A**	**A**	**A**
-	-	-	-	-	-	**A**	**A**	-	-	**D**	**E**	**A**	**A**	**A**	**A**	**A**	**A**	**A**	**A**
-				**-**				**-**				**A**				**A**			
≤ 10 sec	≤ 10 sec					≤ 20 sec	≤ 20 sec			≤ 30 sec	≤ 20 sec	> 40 sec		≤ 30 sec				≤ 10 sec	≤ 10 sec
B	**B**	-	-	-	-	**C**	**C**	-	-	**D**	**C**	**F**	-	**D**	-	-	-	**B**	**B**
B				**C**				**D**				**F**				**B**			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-				**-**				**-**				**-**				**-**			
0.0 - 0.60				0.0 - 0.60				0.0 - 0.60				0.61 - 0.70				0.0 - 0.60			
A				**A**				**A**				**B**				**A**			

Appendix J

Synchro Intersection Worksheets – 2026 Future Total Conditions

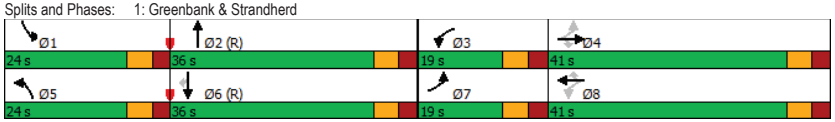
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	168	726	137	88	810	369	187	725	95	183	257	83
Future Volume (vph)	168	726	137	88	810	369	187	725	95	183	257	83
Satd. Flow (prot)	1658	3316	1483	1658	3316	1483	3216	3252	0	3216	3316	1483
Flt Permitted	0.144			0.234			0.950			0.950		
Satd. Flow (perm)	251	3316	1452	407	3316	1460	3202	3252	0	3201	3316	1460
Satd. Flow (RTOR)			149			369		11				149
Lane Group Flow (vph)	168	726	137	88	810	369	187	820	0	183	257	83
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	11.6	33.5	33.5	11.6	33.5	33.5	11.3	35.5		11.3	35.5	35.5
Total Split (s)	19.0	41.0	41.0	19.0	41.0	41.0	24.0	36.0		24.0	36.0	36.0
Total Split (%)	15.8%	34.2%	34.2%	15.8%	34.2%	34.2%	20.0%	30.0%		20.0%	30.0%	30.0%
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
All-Red Time (s)	2.9	2.8	2.8	2.9	2.8	2.8	2.6	2.8		2.6	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.6	6.5	6.5	6.6	6.5	6.5	6.3	6.5		6.3	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	49.1	37.7	37.7	44.5	35.4	35.4	12.3	35.1		12.1	34.9	34.9
Actuated g/C Ratio	0.41	0.31	0.31	0.37	0.30	0.30	0.10	0.29		0.10	0.29	0.29
v/c Ratio	0.71	0.70	0.25	0.36	0.83	0.53	0.57	0.86		0.56	0.27	0.16
Control Delay	39.6	40.9	5.3	18.4	32.8	6.3	77.0	46.4		57.9	34.3	0.6
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	39.6	40.9	5.3	18.4	32.8	6.3	77.0	46.4		57.9	34.3	0.6
LOS	D	D	A	B	C	A	E	D		E	C	A
Approach Delay		35.9			24.1			52.1			37.2	
Approach LOS		D			C			D			D	
Queue Length 50th (m)	23.9	78.7	0.0	4.9	88.2	14.9	23.4	97.6		21.4	24.4	0.0
Queue Length 95th (m)	#48.1	104.4	12.2	m14.6	#102.1	24.7	36.3	#131.8		32.1	37.2	0.0
Internal Link Dist (m)		384.5			263.2			179.3			219.3	
Turn Bay Length (m)	60.0		100.0	120.0			65.0			75.0		150.0
Base Capacity (vph)	249	1040	557	291	977	690	474	957		474	964	530
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	0.67	0.70	0.25	0.30	0.83	0.53	0.39	0.86		0.39	0.27	0.16

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 94 (78%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86
Intersection Signal Delay: 36.4 — Intersection LOS: D
Intersection Capacity Utilization 85.0% — 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Greenbank & Strandherd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	17	30	57	29	66	89	948	79	40	350	19
Future Volume (vph)	13	17	30	57	29	66	89	948	79	40	350	19
Satd. Flow (prot)	1658	1554	0	1658	1549	0	1658	3272	0	3216	3285	0
Flt Permitted	0.695			0.636			0.950			0.950		
Satd. Flow (perm)	1211	1554	0	1098	1549	0	1655	3272	0	3211	3285	0
Satd. Flow (RTOR)		30			66			9			6	
Lane Group Flow (vph)	13	47	0	57	95	0	89	1027	0	40	369	0
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8								
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	11.4	34.5		11.4	34.5		11.3	31.2		11.3	31.2	
Total Split (s)	12.0	35.0		12.0	35.0		15.0	58.0		15.0	58.0	
Total Split (%)	10.0%	29.2%		10.0%	29.2%		12.5%	48.3%		12.5%	48.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.1	3.2		3.1	3.2		2.6	2.5		2.6	2.5	
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	6.5		6.4	6.5		6.3	6.2		6.3	6.2	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	18.2	13.6		20.7	18.4		10.9	73.2		7.0	66.9	
Actuated g/C Ratio	0.15	0.11		0.17	0.15		0.09	0.61		0.06	0.56	
v/c Ratio	0.06	0.23		0.27	0.32		0.59	0.51		0.22	0.20	
Control Delay	34.6	24.6		39.7	19.5		59.7	18.2		62.5	11.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	34.6	24.6		39.7	19.5		59.7	18.2		62.5	11.2	
LOS	C	C		D	B		E	B		E	B	
Approach Delay		26.8			27.1			21.5			16.2	
Approach LOS		C			C			C			B	
Queue Length 50th (m)	2.6	3.8		11.4	5.7		21.1	65.5		4.9	14.1	
Queue Length 95th (m)	6.6	12.9		18.9	19.2		m26.9	107.8		10.9	24.6	
Internal Link Dist (m)		208.1			171.2			275.5			179.3	
Turn Bay Length (m)	25.0			55.0			55.0			50.0		
Base Capacity (vph)	204	391		215	418		152	1999		233	1835	
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	0.06	0.12		0.27	0.23		0.59	0.51		0.17	0.20	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 89 (74%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.59
Intersection Signal Delay: 21.0 — Intersection LOS: C
Intersection Capacity Utilization 62.6% — ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Greenbank & Marketplace

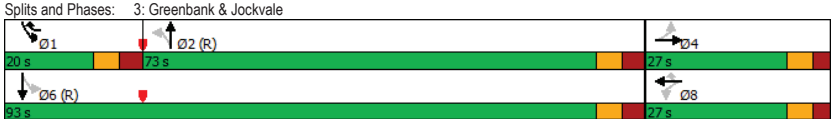
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	0	50	0	268	1	873	79	65	354	2
Future Volume (vph)	4	0	0	50	0	268	1	873	79	65	354	2
Satd. Flow (prot)	0	1658	0	0	1658	1483	0	1717	0	1658	1743	0
Flt Permitted		0.724			0.755					0.261		
Satd. Flow (perm)	0	1261	0	0	1310	1463	0	1717	0	455	1743	0
Satd. Flow (RTOR)						122		6			1	
Lane Group Flow (vph)	0	4	0	0	50	268	0	953	0	65	356	0
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		pm+pt	NA	
Protected Phases		4			8	1		2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	1	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	5.0	10.0	10.0		5.0	10.0	
Minimum Split (s)	26.4	26.4		26.4	26.4	12.1	34.1	34.1		12.1	34.1	
Total Split (s)	27.0	27.0		27.0	27.0	20.0	73.0	73.0		20.0	93.0	
Total Split (%)	22.5%	22.5%		22.5%	22.5%	16.7%	60.8%	60.8%		16.7%	77.5%	
Yellow Time (s)	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	3.4	3.4	3.4		3.4	3.4	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)		6.4			6.4	7.1		7.1		7.1	7.1	
Lead/Lag						Lead	Lag	Lag		Lead		
Lead-Lag Optimize?						Yes	Yes	Yes		Yes		
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Act Effct Green (s)		12.3			12.3	18.6		81.5		97.4	98.9	
Actuated g/C Ratio		0.10			0.10	0.16		0.68		0.81	0.82	
v/c Ratio		0.03			0.37	0.81		0.82		0.14	0.25	
Control Delay		46.0			56.9	41.3		23.6		4.0	3.8	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		46.0			56.9	41.3		23.6		4.0	3.8	
LOS		D			E	D		C		A	A	
Approach Delay		46.0			43.7			23.6			3.8	
Approach LOS		D			D			C			A	
Queue Length 50th (m)		0.9			11.4	31.4		151.3		2.2	12.3	
Queue Length 95th (m)		4.0			22.2	53.8		#296.1		4.9	19.4	
Internal Link Dist (m)		290.6			555.5			536.8			275.5	
Turn Bay Length (m)												
Base Capacity (vph)		216			224	377		1167		498	1436	
Starvation Cap Reductn		0			0	0		0		0	0	
Spillback Cap Reductn		0			0	0		0		0	0	
Storage Cap Reductn		0			0	0		0		0	0	
Reduced v/c Ratio		0.02			0.22	0.71		0.82		0.13	0.25	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82
Intersection Signal Delay: 22.5 — Intersection LOS: C
Intersection Capacity Utilization 97.4% — ICU Level of Service F
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Greenbank & Jockvale



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø4
Lane Configurations							
Traffic Volume (vph)	854	92	104	1338	83	60	
Future Volume (vph)	854	92	104	1338	83	60	
Satd. Flow (prot)	3316	1483	1658	3316	3216	1483	
Flt Permitted			0.252		0.950		
Satd. Flow (perm)	3316	1448	439	3316	3159	1483	
Satd. Flow (RTOR)		92				60	
Lane Group Flow (vph)	854	92	104	1338	83	60	
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm	
Protected Phases	2		1	6	3		4
Permitted Phases		2	6			3 4	
Detector Phase	2	2	1	6	3	3 4	
Switch Phase							
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0		5.0
Minimum Split (s)	36.3	36.3	11.0	36.3	16.8		35.8
Total Split (s)	48.0	48.0	18.0	66.0	17.0		37.0
Total Split (%)	40.0%	40.0%	15.0%	55.0%	14.2%		31%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3		3.3
All-Red Time (s)	2.6	2.6	2.3	2.6	3.5		3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.3	6.3	6.0	6.3	6.8		
Lead/Lag	Lag	Lag	Lead		Lead		Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes		Yes
Recall Mode	C-Max	C-Max	None	C-Max	None		None
Act Effct Green (s)	68.0	68.0	82.6	82.3	10.0	27.1	
Actuated g/C Ratio	0.57	0.57	0.69	0.69	0.08	0.23	
v/c Ratio	0.45	0.11	0.27	0.59	0.31	0.16	
Control Delay	13.3	3.6	2.6	4.6	55.0	8.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	13.3	3.6	2.6	4.6	55.0	8.1	
LOS	B	A	A	A	E	A	
Approach Delay	12.4			4.5	35.3		
Approach LOS	B			A	D		
Queue Length 50th (m)	32.7	0.3	0.9	6.4	9.6	0.0	
Queue Length 95th (m)	m51.8	m2.5	m4.5	m184.0	17.6	8.5	
Internal Link Dist (m)	263.2			413.3	180.6		
Turn Bay Length (m)		80.0	150.0		40.0		
Base Capacity (vph)	1877	860	424	2274	273	555	
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	0.45	0.11	0.25	0.59	0.30	0.11	

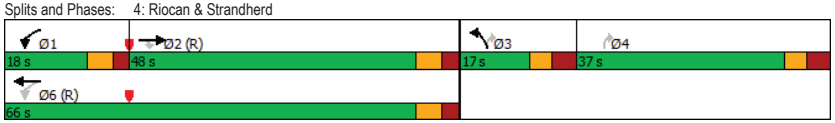
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 30 (25%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 9.2	Intersection LOS: A
Intersection Capacity Utilization 58.3%	ICU Level of Service B
Analysis Period (min) 15	

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

Splits and Phases: 4: Riocan & Strandherd



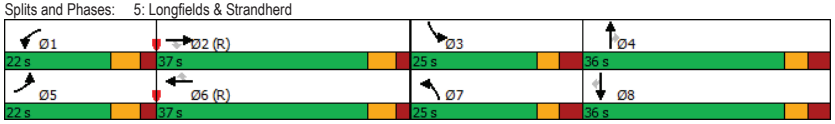
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	161	665	149	149	856	128	385	528	332	100	199	130
Future Volume (vph)	161	665	149	149	856	128	385	528	332	100	199	130
Satd. Flow (prot)	3216	3316	1483	3216	3316	1483	3216	1745	1483	1658	1745	1483
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3192	3316	1446	3187	3316	1444	3176	1745	1407	1626	1745	1451
Satd. Flow (RTOR)			155			155			321			152
Lane Group Flow (vph)	161	665	149	149	856	128	385	528	332	100	199	130
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)	11.6	36.6	36.6	11.6	35.4	35.4	11.7	35.7	35.7	11.7	35.7	35.7
Total Split (s)	22.0	37.0	37.0	22.0	37.0	37.0	25.0	36.0	36.0	25.0	36.0	36.0
Total Split (%)	18.3%	30.8%	30.8%	18.3%	30.8%	30.8%	20.8%	30.0%	30.0%	20.8%	30.0%	30.0%
Yellow Time (s)	4.2	4.2	4.2	4.2	4.2	4.2	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.4	2.2	2.2	2.4	2.2	2.2	3.4	3.4	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.4	6.4	6.6	6.4	6.4	6.7	6.7	6.7	6.7	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
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	11.3	35.1	35.1	10.9	34.7	34.7	17.5	35.1	35.1	12.5	30.1	30.1
Actuated g/C Ratio	0.09	0.29	0.29	0.09	0.29	0.29	0.15	0.29	0.29	0.10	0.25	0.25
v/c Ratio	0.53	0.69	0.28	0.51	0.89	0.24	0.82	1.04	0.52	0.58	0.45	0.27
Control Delay	32.4	47.5	16.4	57.9	54.2	4.2	64.9	92.0	7.7	63.8	42.3	5.2
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	32.4	47.5	16.4	57.9	54.2	4.2	64.9	92.0	7.7	63.8	42.3	5.2
LOS	C	D	B	E	D	A	E	F	A	E	D	A
Approach Delay		40.2			49.0			61.1			36.1	
Approach LOS		D			D			E			D	
Queue Length 50th (m)	15.4	87.1	13.3	17.5	101.6	0.0	45.5	~133.7	1.9	22.8	40.1	0.0
Queue Length 95th (m)	23.5	106.8	40.6	27.3	#148.0	9.4	#65.8	#217.1	26.4	38.8	63.0	10.8
Internal Link Dist (m)		413.3			403.0			212.7			202.0	
Turn Bay Length (m)	90.0		55.0	80.0		195.0	50.0		90.0	50.0		50.0
Base Capacity (vph)	412	970	532	412	958	527	490	509	638	252	438	478
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	0.39	0.69	0.28	0.36	0.89	0.24	0.79	1.04	0.52	0.40	0.45	0.27

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: 100
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.04
Intersection Signal Delay: 49.3 Intersection LOS: D
Intersection Capacity Utilization 87.0% 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: Longfields & Strandherd

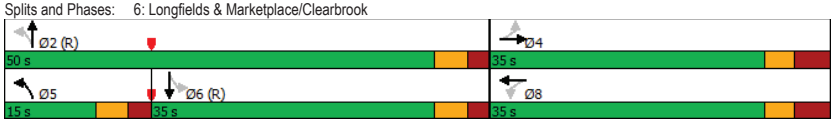


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	25	63	21	39	136	112	1009	19	31	285	38
Future Volume (vph)	66	25	63	21	39	136	112	1009	19	31	285	38
Satd. Flow (prot)	1658	1541	0	0	1543	0	1658	3302	0	1658	3248	0
Flt Permitted	0.558				0.958		0.492			0.279		
Satd. Flow (perm)	963	1541	0	0	1486	0	858	3302	0	481	3248	0
Satd. Flow (RTOR)		63			73			3			19	
Lane Group Flow (vph)	66	88	0	0	196	0	112	1028	0	31	323	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	34.8	34.8		34.8	34.8		10.6	24.8		24.8	24.8	
Total Split (s)	35.0	35.0		35.0	35.0		15.0	50.0		35.0	35.0	
Total Split (%)	41.2%	41.2%		41.2%	41.2%		17.6%	58.8%		41.2%	41.2%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.8	3.8		3.8	3.8		2.3	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.8	6.8			6.8		5.6	5.8		5.8	5.8	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	
Act Effct Green (s)	17.7	17.7			17.7		54.9	54.7		43.6	43.6	
Actuated g/C Ratio	0.21	0.21			0.21		0.65	0.64		0.51	0.51	
v/c Ratio	0.33	0.24			0.53		0.18	0.48		0.13	0.19	
Control Delay	29.8	10.7			22.0		8.6	10.5		19.1	14.1	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay	29.8	10.7			22.0		8.6	10.5		19.1	14.1	
LOS	C	B			C		A	B		B	B	
Approach Delay		18.9			22.0			10.3			14.5	
Approach LOS		B			C			B			B	
Queue Length 50th (m)	9.9	3.6			18.8		4.9	31.9		2.3	12.0	
Queue Length 95th (m)	17.4	12.3			31.2		16.8	75.6		10.4	28.5	
Internal Link Dist (m)		257.2			427.6			228.1			212.7	
Turn Bay Length (m)	30.0						75.0			100.0		
Base Capacity (vph)	319	553			541		642	2124		246	1675	
Starvation Cap Reductn	0	0			0		0	0		0	0	
Spillback Cap Reductn	0	0			0		0	0		0	0	
Storage Cap Reductn	0	0			0		0	0		0	0	
Reduced v/c Ratio	0.21	0.16			0.36		0.17	0.48		0.13	0.19	

Intersection Summary
Cycle Length: 85
Actuated Cycle Length: 85
Offset: 0 (0%), 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: 13.1 — Intersection LOS: B
Intersection Capacity Utilization 76.1% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 6: Longfields & Marketplace/Clearbrook

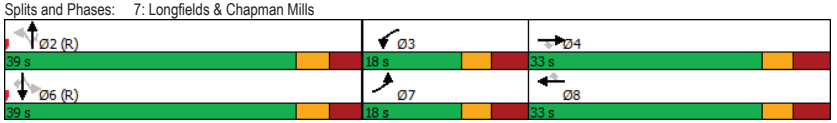


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	5	8	34	2	151	3	970	54	90	285	11
Future Volume (vph)	5	5	8	34	2	151	3	970	54	90	285	11
Satd. Flow (prot)	1658	1745	1483	1658	1745	1483	1658	3316	1483	1658	3316	1483
Flt Permitted	0.950			0.950			0.577			0.256		
Satd. Flow (perm)	1652	1745	1483	1658	1745	1461	1002	3316	1394	445	3316	1443
Satd. Flow (RTOR)			141			151						143
Lane Group Flow (vph)	5	5	8	34	2	151	3	970	54	90	285	11
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	2	2	2	6	6	6
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	10.0
Minimum Split (s)	12.3	32.5	32.5	12.3	32.5	32.5	38.3	38.3	38.3	38.3	38.3	38.3
Total Split (s)	18.0	33.0	33.0	18.0	33.0	33.0	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	20.0%	36.7%	36.7%	20.0%	36.7%	36.7%	43.3%	43.3%	43.3%	43.3%	43.3%	43.3%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	4.0	4.2	4.2	4.0	4.2	4.2	3.6	3.6	3.6	3.6	3.6	3.6
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)	7.3	7.5	7.5	7.3	7.5	7.5	7.3	7.3	7.3	7.3	7.3	7.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	5.9	12.4	12.4	8.4	13.0	13.0	59.4	59.4	59.4	59.4	59.4	59.4
Actuated g/C Ratio	0.07	0.14	0.14	0.09	0.14	0.14	0.66	0.66	0.66	0.66	0.66	0.66
v/c Ratio	0.05	0.02	0.02	0.22	0.01	0.44	0.00	0.44	0.06	0.31	0.13	0.01
Control Delay	40.0	30.4	0.1	40.5	28.5	9.5	12.3	9.3	9.7	15.0	8.2	0.0
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	40.0	30.4	0.1	40.5	28.5	9.5	12.3	9.3	9.7	15.0	8.2	0.0
LOS	D	C	A	D	C	A	B	A	A	B	A	A
Approach Delay		19.6			15.4			9.3			9.5	
Approach LOS		B			B			A			A	
Queue Length 50th (m)	0.8	0.8	0.0	5.4	0.3	0.0	0.2	28.7	2.3	4.5	6.5	0.0
Queue Length 95th (m)	4.1	3.3	0.0	14.2	1.9	13.4	m0.8	54.1	10.0	27.8	25.2	0.0
Internal Link Dist (m)		59.7			203.2			375.7			148.4	
Turn Bay Length (m)	50.0		50.0	40.0		40.0	90.0		65.0	65.0		75.0
Base Capacity (vph)	197	494	521	197	494	522	661	2188	919	293	2188	1000
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	0.03	0.01	0.02	0.17	0.00	0.29	0.00	0.44	0.06	0.31	0.13	0.01

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 45 (50%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.44
Intersection Signal Delay: 10.2 — Intersection LOS: B
Intersection Capacity Utilization 64.9% — ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Longfields & Chapman Mills

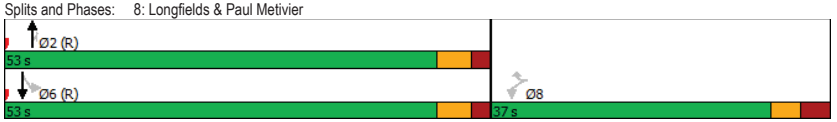


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	69	105	903	100	37	303
Future Volume (vph)	69	105	903	100	37	303
Satd. Flow (prot)	1658	1483	3316	1483	1658	3316
Flt Permitted	0.950				0.302	
Satd. Flow (perm)	1653	1464	3316	1437	526	3316
Satd. Flow (RTOR)		105		100		
Lane Group Flow (vph)	69	105	903	100	37	303
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)	36.6	36.6	36.0	36.0	24.0	24.0
Total Split (s)	37.0	37.0	53.0	53.0	53.0	53.0
Total Split (%)	41.1%	41.1%	58.9%	58.9%	58.9%	58.9%
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	3.3	3.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	14.1	14.1	67.8	67.8	67.8	67.8
Actuated g/C Ratio	0.16	0.16	0.75	0.75	0.75	0.75
v/c Ratio	0.27	0.33	0.36	0.09	0.09	0.12
Control Delay	33.5	8.5	6.7	2.1	5.9	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.5	8.5	6.7	2.1	5.9	4.2
LOS	C	A	A	A	A	A
Approach Delay	18.4		6.3			4.4
Approach LOS	B		A			A
Queue Length 50th (m)	11.2	0.0	22.9	0.0	1.2	5.5
Queue Length 95th (m)	17.5	10.4	66.4	6.9	5.1	13.2
Internal Link Dist (m)	403.8		379.4			375.7
Turn Bay Length (m)	45.0			50.0	70.0	
Base Capacity (vph)	558	564	2498	1107	396	2498
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.19	0.36	0.09	0.09	0.12

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 35 (39%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.36
Intersection Signal Delay: 7.2 — Intersection LOS: A
Intersection Capacity Utilization 51.3% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 8: Longfields & Paul Metivier

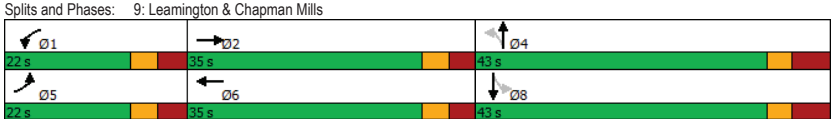


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	70	42	69	68	33	93	26	77	38	24	33
Future Volume (vph)	33	70	42	69	68	33	93	26	77	38	24	33
Satd. Flow (prot)	1658	1557	0	1658	1640	0	0	1600	0	0	1614	0
Flt Permitted	0.950			0.950				0.802			0.805	
Satd. Flow (perm)	1635	1557	0	1476	1640	0	0	1310	0	0	1326	0
Satd. Flow (RTOR)		30			24							
Lane Group Flow (vph)	33	112	0	69	101	0	0	196	0	0	95	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.8	22.6		11.8	22.6		41.7	41.7		41.7	41.7	
Total Split (s)	22.0	35.0		22.0	35.0		43.0	43.0		43.0	43.0	
Total Split (%)	22.0%	35.0%		22.0%	35.0%		43.0%	43.0%		43.0%	43.0%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	3.5	3.3		3.5	3.3		4.7	4.7		4.7	4.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	6.8	6.6		6.8	6.6			7.7			7.7	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	Max		None	Max		None	None		None	None	
Act Effct Green (s)	7.2	30.8		8.7	37.9			17.8			17.8	
Actuated g/C Ratio	0.09	0.41		0.11	0.50			0.23			0.23	
v/c Ratio	0.21	0.17		0.37	0.12			0.64			0.31	
Control Delay	39.0	16.1		39.6	13.3			36.1			26.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	39.0	16.1		39.6	13.3			36.1			26.5	
LOS	D	B		D	B			D			C	
Approach Delay		21.3			24.0			36.1			26.5	
Approach LOS		C			C			D			C	
Queue Length 50th (m)	4.4	7.3		9.1	4.2			25.3			11.2	
Queue Length 95th (m)	14.7	24.5		24.5	21.8			47.1			23.9	
Internal Link Dist (m)		203.2			520.9			265.7			233.3	
Turn Bay Length (m)	40.0			50.0								
Base Capacity (vph)	341	651		341	831			625			633	
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	0.17		0.20	0.12			0.31			0.15	

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 75.8
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.64

Intersection Signal Delay: 27.6 — Intersection LOS: C
Intersection Capacity Utilization 42.1% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 9: Leamington & Chapman Mills

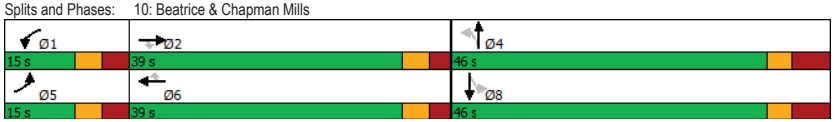


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	162	27	14	57	18	7	53	51	58	38	13
Future Volume (vph)	65	162	27	14	57	18	7	53	51	58	38	13
Satd. Flow (prot)	1658	1745	1483	1658	1745	1483	0	2949	0	0	3157	0
Flt Permitted	0.950			0.950				0.938			0.758	
Satd. Flow (perm)	1603	1745	1387	1586	1745	1413	0	2772	0	0	2376	0
Satd. Flow (RTOR)			122			122						
Lane Group Flow (vph)	65	162	27	14	57	18	0	111	0	0	109	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases			2			6	4			8		
Detector Phase	5	2	2	1	6	6	4	4		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	
Minimum Split (s)	11.5	25.9	25.9	11.5	25.9	25.9	45.7	45.7		45.7	45.7	
Total Split (s)	15.0	39.0	39.0	15.0	39.0	39.0	46.0	46.0		46.0	46.0	
Total Split (%)	15.0%	39.0%	39.0%	15.0%	39.0%	39.0%	46.0%	46.0%		46.0%	46.0%	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.0	3.0		3.0	3.0	
All-Red Time (s)	3.2	2.6	2.6	3.2	2.6	2.6	4.7	4.7		4.7	4.7	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)	6.5	5.9	5.9	6.5	5.9	5.9		7.7			7.7	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Max	Max	None	Max	Max	None	None		None	None	
Act Effct Green (s)	7.9	50.3	50.3	6.7	42.1	42.1		31.0			31.0	
Actuated g/C Ratio	0.09	0.56	0.56	0.07	0.47	0.47		0.34			0.34	
v/c Ratio	0.45	0.17	0.03	0.11	0.07	0.02		0.12			0.13	
Control Delay	54.1	18.3	0.1	45.4	23.5	0.1		20.3			20.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	
Total Delay	54.1	18.3	0.1	45.4	23.5	0.1		20.3			20.6	
LOS	D	B	A	D	C	A		C			C	
Approach Delay		25.5			22.2			20.3			20.6	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	12.2	17.2	0.0	2.6	7.5	0.0		7.1			7.0	
Queue Length 95th (m)	25.6	38.6	0.0	8.6	16.4	0.0		12.9			12.8	
Internal Link Dist (m)		520.9			367.7			322.5			353.5	
Turn Bay Length (m)	40.0		40.0	45.0		60.0						
Base Capacity (vph)	165	970	825	165	813	723		1246			1068	
Starvation Cap Reductn	0	0	0	0	0	0		0			0	
Spillback Cap Reductn	0	0	0	0	0	0		0			0	
Storage Cap Reductn	0	0	0	0	0	0		0			0	
Reduced v/c Ratio	0.39	0.17	0.03	0.08	0.07	0.02		0.09			0.10	

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 90.4
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.45

Intersection Signal Delay: 23.0 — Intersection LOS: C
Intersection Capacity Utilization 65.5% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 10: Beatrice & Chapman Mills



Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	66	0	1009	369	57
Future Vol, veh/h	0	66	0	1009	369	57
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	66	0	1009	369	57

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	213	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	792	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %					-	-
Mov Cap-1 Maneuver	-	792	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	792	-	-
HCM Lane V/C Ratio	-	0.083	-	-
HCM Control Delay (s)	-	10	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.3	-	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	21	19	58	50	1
Future Vol, veh/h	5	21	19	58	50	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	21	19	58	50	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	77	0	-	0	79	48
Stage 1	-	-	-	-	48	-
Stage 2	-	-	-	-	31	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1522	-	-	-	924	1021
Stage 1	-	-	-	-	974	-
Stage 2	-	-	-	-	992	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1522	-	-	-	921	1021
Mov Cap-2 Maneuver	-	-	-	-	921	-
Stage 1	-	-	-	-	971	-
Stage 2	-	-	-	-	992	-

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1522	-	-	-	923
HCM Lane V/C Ratio	0.003	-	-	-	0.055
HCM Control Delay (s)	7.4	0	-	-	9.1
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	36	0	0	27	0
Future Vol, veh/h	0	36	0	0	27	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	36	0	0	27	0

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	54	0	0	0	0	0
Stage 1	0	-	-	-	-	-
Stage 2	54	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	954	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	969	-	-	-	-	-
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	954	-	-	-	-	-
Mov Cap-2 Maneuver	954	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	969	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		0	
HCM LOS	-		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	-	-
HCM Lane LOS	-	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	221	913	188	255	1004	277	240	588	131	443	838	211
Future Volume (vph)	221	913	188	255	1004	277	240	588	131	443	838	211
Satd. Flow (prot)	1658	3316	1483	1658	3316	1483	3216	3215	0	3216	3316	1483
Flt Permitted	0.116			0.116			0.950			0.950		
Satd. Flow (perm)	202	3316	1459	202	3316	1457	3204	3215	0	3202	3316	1453
Satd. Flow (RTOR)			188			243		21				211
Lane Group Flow (vph)	221	913	188	255	1004	277	240	719	0	443	838	211
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	11.6	33.5	33.5	11.6	33.5	33.5	11.3	35.5		11.3	35.5	35.5
Total Split (s)	18.0	41.0	41.0	18.0	41.0	41.0	24.0	37.0		24.0	37.0	37.0
Total Split (%)	15.0%	34.2%	34.2%	15.0%	34.2%	34.2%	20.0%	30.8%		20.0%	30.8%	30.8%
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
All-Red Time (s)	2.9	2.8	2.8	2.9	2.8	2.8	2.6	2.8		2.6	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.6	6.5	6.5	6.6	6.5	6.5	6.3	6.5		6.3	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	45.8	34.5	34.5	45.8	34.5	34.5	14.1	30.5		17.7	34.1	34.1
Actuated g/C Ratio	0.38	0.29	0.29	0.38	0.29	0.29	0.12	0.25		0.15	0.28	0.28
v/c Ratio	1.03	0.96	0.34	1.19	1.05	0.47	0.64	0.86		0.93	0.89	0.37
Control Delay	100.4	63.0	6.3	153.4	74.9	9.4	74.2	40.1		78.8	54.3	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	100.4	63.0	6.3	153.4	74.9	9.4	74.2	40.1		78.8	54.3	6.7
LOS	F	E	A	F	E	A	E	D		E	D	A
Approach Delay		61.2			76.1			48.6			54.8	
Approach LOS		E			E			D			D	
Queue Length 50th (m)	~40.9	111.3	0.0	~55.2	~139.9	11.4	31.1	60.3		53.8	99.6	0.0
Queue Length 95th (m)	#90.2	#152.2	16.7	#113.3	#172.8	28.7	44.2	#112.4		#84.0	#146.3	18.3
Internal Link Dist (m)		384.5			263.2			179.3			219.3	
Turn Bay Length (m)	60.0		100.0	120.0			65.0			75.0		150.0
Base Capacity (vph)	215	953	553	215	953	592	474	832		474	942	563
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	1.03	0.96	0.34	1.19	1.05	0.47	0.51	0.86		0.93	0.89	0.37

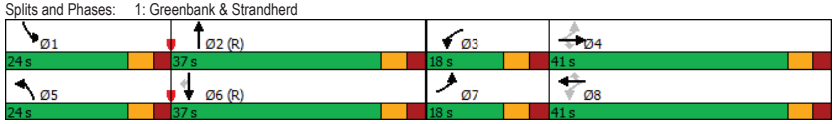
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 7 (6%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.19

Intersection Signal Delay: 61.4	Intersection LOS: E
Intersection Capacity Utilization 101.3%	ICU Level of Service G
Analysis Period (min) 15	

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

Splits and Phases: 1: Greenbank & Strandherd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	80	107	176	71	169	155	701	70	176	983	46
Future Volume (vph)	74	80	107	176	71	169	155	701	70	176	983	46
Satd. Flow (prot)	1658	1545	0	1658	1533	0	1658	3264	0	3216	3292	0
Flt Permitted	0.425			0.480			0.950			0.950		
Satd. Flow (perm)	736	1545	0	811	1533	0	1658	3264	0	3208	3292	0
Satd. Flow (RTOR)		53			94			10			4	
Lane Group Flow (vph)	74	187	0	176	240	0	155	771	0	176	1029	0
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8								
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	11.4	34.5		11.4	34.5		11.3	31.2		11.3	31.2	
Total Split (s)	13.0	35.0		13.0	35.0		20.0	52.0		20.0	52.0	
Total Split (%)	10.8%	29.2%		10.8%	29.2%		16.7%	43.3%		16.7%	43.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.1	3.2		3.1	3.2		2.6	2.5		2.6	2.5	
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	6.5		6.4	6.5		6.3	6.2		6.3	6.2	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	28.2	21.6		29.5	24.2		13.9	54.8		11.7	52.6	
Actuated g/C Ratio	0.24	0.18		0.25	0.20		0.12	0.46		0.10	0.44	
v/c Ratio	0.33	0.58		0.72	0.63		0.81	0.52		0.56	0.71	
Control Delay	33.7	37.9		52.4	33.4		87.1	24.5		59.0	22.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	33.7	37.9		52.4	33.4		87.1	24.5		59.0	22.4	
LOS	C	D		D	C		F	C		E	C	
Approach Delay		36.7			41.5			34.9			27.8	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	11.9	26.9		30.3	30.0		37.3	73.8		22.2	50.1	
Queue Length 95th (m)	23.0	49.3		48.8	56.4		#71.2	72.4		m25.0	m68.5	
Internal Link Dist (m)		208.1			171.2			275.5			179.3	
Turn Bay Length (m)	25.0			55.0			55.0			50.0		
Base Capacity (vph)	224	407		246	435		197	1495		370	1443	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.33	0.46		0.72	0.55		0.79	0.52		0.48	0.71	

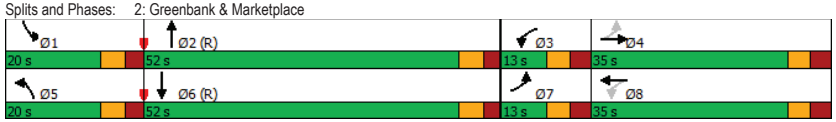
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 117 (98%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 33.0	Intersection LOS: C
Intersection Capacity Utilization 90.8%	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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Greenbank & Marketplace



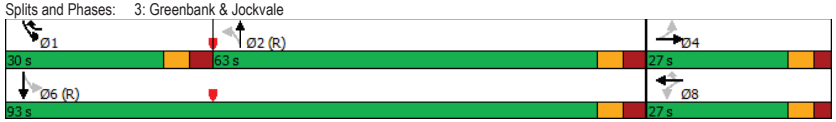
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1	0	1	0	216	0	606	0	335	855	0
Future Volume (vph)	0	1	0	1	0	216	0	606	0	335	855	0
Satd. Flow (prot)	0	1745	0	0	1658	1483	0	1745	0	1658	1745	0
Flt Permitted										0.353		
Satd. Flow (perm)	0	1745	0	0	1745	1483	0	1745	0	616	1745	0
Satd. Flow (RTOR)						195						
Lane Group Flow (vph)	0	1	0	0	1	216	0	606	0	335	855	0
Turn Type		NA		Perm	NA	pm+ov		NA		pm+pt	NA	
Protected Phases		4			8	1		2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	1	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	5.0	10.0	10.0		5.0	10.0	
Minimum Split (s)	26.4	26.4		26.4	26.4	12.1	34.1	34.1		12.1	34.1	
Total Split (s)	27.0	27.0		27.0	27.0	30.0	63.0	63.0		30.0	93.0	
Total Split (%)	22.5%	22.5%		22.5%	22.5%	25.0%	52.5%	52.5%		25.0%	77.5%	
Yellow Time (s)	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	3.4	3.4	3.4		3.4	3.4	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)		6.4			6.4	7.1		7.1		7.1	7.1	
Lead/Lag						Lead	Lag	Lag		Lead		
Lead-Lag Optimize?						Yes	Yes	Yes		Yes		
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	
Act Effct Green (s)		10.0			10.0	15.2		90.6		109.6	115.3	
Actuated g/C Ratio		0.08			0.08	0.13		0.76		0.91	0.96	
v/c Ratio		0.01			0.01	0.60		0.46		0.50	0.51	
Control Delay		51.0			51.0	14.8		9.2		8.8	4.1	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		51.0			51.0	14.8		9.2		8.8	4.1	
LOS		D			D	B		A		A	A	
Approach Delay		51.0			15.0			9.2			5.5	
Approach LOS		D			B			A			A	
Queue Length 50th (m)		0.2			0.2	4.6		37.3		5.9	8.9	
Queue Length 95th (m)		2.0			2.0	21.1		125.0		41.4	118.2	
Internal Link Dist (m)		290.6			555.5			536.8			275.5	
Turn Bay Length (m)												
Base Capacity (vph)		299			299	475		1317		761	1677	
Starvation Cap Reductn		0			0	0		0		0	24	
Spillback Cap Reductn		0			0	0		0		0	0	
Storage Cap Reductn		0			0	0		0		0	0	
Reduced v/c Ratio		0.00			0.00	0.45		0.46		0.44	0.52	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 10 (8%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 7.6	Intersection LOS: A
Intersection Capacity Utilization 106.7%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 3: Greenbank & Jockvale



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø4
Lane Configurations							
Traffic Volume (vph)	1142	208	272	1248	208	136	
Future Volume (vph)	1142	208	272	1248	208	136	
Satd. Flow (prot)	3316	1483	1658	3316	3216	1483	
Flt Permitted			0.077		0.950		
Satd. Flow (perm)	3316	1448	134	3316	3140	1456	
Satd. Flow (RTOR)		186				136	
Lane Group Flow (vph)	1142	208	272	1248	208	136	
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm	
Protected Phases	2		1	6	3		4
Permitted Phases		2	6			3 4	
Detector Phase	2	2	1	6	3	3 4	
Switch Phase							
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0		5.0
Minimum Split (s)	36.3	36.3	11.0	36.3	16.8		35.8
Total Split (s)	49.0	49.0	15.0	64.0	19.0		37.0
Total Split (%)	40.8%	40.8%	12.5%	53.3%	15.8%		31%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3		3.3
All-Red Time (s)	2.6	2.6	2.3	2.6	3.5		3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.3	6.3	6.0	6.3	6.8		
Lead/Lag	Lag	Lag	Lead		Lead		Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes		Yes
Recall Mode	C-Max	C-Max	None	C-Max	None		None
Act Effct Green (s)	45.8	45.8	78.6	78.3	11.6	28.6	
Actuated g/C Ratio	0.38	0.38	0.66	0.65	0.10	0.24	
v/c Ratio	0.90	0.31	0.64	0.58	0.67	0.30	
Control Delay	30.7	5.9	26.8	7.5	63.4	6.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	30.7	5.9	26.8	7.5	63.4	6.4	
LOS	C	A	C	A	E	A	
Approach Delay	26.9			11.0	40.9		
Approach LOS	C			B	D		
Queue Length 50th (m)	58.6	7.1	15.0	6.3	24.6	0.0	
Queue Length 95th (m)	m#158.6	m7.8	m#89.8	m174.7	37.2	12.0	
Internal Link Dist (m)	263.2			413.3	180.6		
Turn Bay Length (m)		80.0	150.0		40.0		
Base Capacity (vph)	1265	668	423	2162	326	647	
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	0.90	0.31	0.64	0.58	0.64	0.21	

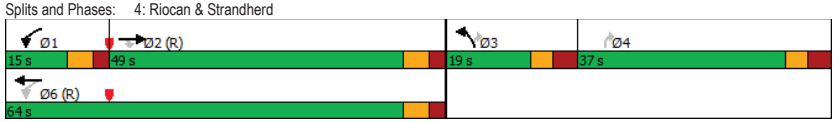
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 70 (58%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 20.9	Intersection LOS: C
Intersection Capacity Utilization 73.5%	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: 4: Riocan & Strandherd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	214	939	194	304	1193	127	119	227	189	116	375	173
Future Volume (vph)	214	939	194	304	1193	127	119	227	189	116	375	173
Satd. Flow (prot)	3216	3316	1483	3216	3316	1483	3216	1745	1483	1658	1745	1483
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3211	3316	1457	3207	3316	1458	3177	1745	1444	1640	1745	1447
Satd. Flow (RTOR)			215			155			212			212
Lane Group Flow (vph)	214	939	194	304	1193	127	119	227	189	116	375	173
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)	11.6	36.6	36.6	11.6	35.4	35.4	11.7	35.7	35.7	11.7	35.7	35.7
Total Split (s)	13.0	42.0	42.0	24.0	53.0	53.0	18.0	36.0	36.0	18.0	36.0	36.0
Total Split (%)	10.8%	35.0%	35.0%	20.0%	44.2%	44.2%	15.0%	30.0%	30.0%	15.0%	30.0%	30.0%
Yellow Time (s)	4.2	4.2	4.2	4.2	4.2	4.2	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.4	2.2	2.2	2.4	2.2	2.2	3.4	3.4	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.4	6.4	6.6	6.4	6.4	6.7	6.7	6.7	6.7	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
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	9.0	40.0	40.0	15.6	46.6	46.6	9.5	27.2	27.2	10.8	28.5	28.5
Actuated g/C Ratio	0.08	0.33	0.33	0.13	0.39	0.39	0.08	0.23	0.23	0.09	0.24	0.24
v/c Ratio	0.89	0.85	0.31	0.73	0.93	0.19	0.47	0.57	0.38	0.78	0.91	0.34
Control Delay	67.9	46.1	16.7	60.6	48.3	2.7	58.5	47.1	5.8	85.8	70.8	4.0
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	67.9	46.1	16.7	60.6	48.3	2.7	58.5	47.1	5.8	85.8	70.8	4.0
LOS	E	D	B	E	D	A	E	D	A	F	E	A
Approach Delay		45.4			47.0			35.0			56.0	
Approach LOS		D			D			D			E	
Queue Length 50th (m)	~31.7	123.8	24.1	35.6	139.6	0.0	14.0	46.7	0.0	27.1	84.0	0.0
Queue Length 95th (m)	m#39.8	m#147.8	m31.8	50.1	#183.1	7.5	23.1	72.0	13.2	#55.8	#137.7	9.5
Internal Link Dist (m)		413.3			403.0			212.7			202.0	
Turn Bay Length (m)	90.0		55.0	80.0		195.0	50.0		90.0	50.0		50.0
Base Capacity (vph)	240	1104	628	466	1287	660	302	426	512	156	431	517
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	0.89	0.85	0.31	0.65	0.93	0.19	0.39	0.53	0.37	0.74	0.87	0.33

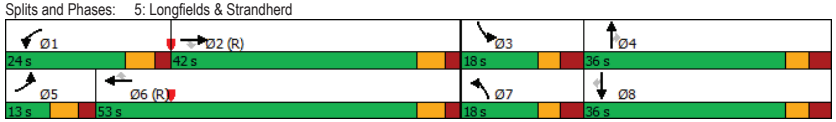
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 18 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 46.4	Intersection LOS: D
Intersection Capacity Utilization 89.2%	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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Longfields & Strandherd



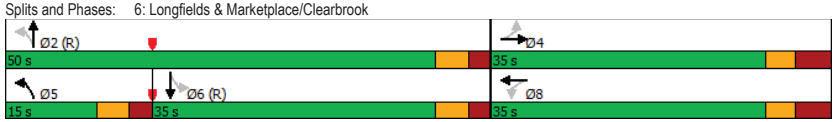
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	134	71	217	17	52	54	156	401	15	100	639	176
Future Volume (vph)	134	71	217	17	52	54	156	401	15	100	639	176
Satd. Flow (prot)	1658	1533	0	0	1618	0	1658	3295	0	1658	3193	0
Flt Permitted	0.714				0.742		0.251			0.508		
Satd. Flow (perm)	1239	1533	0	0	1209	0	438	3295	0	881	3193	0
Satd. Flow (RTOR)		194			50			6			45	
Lane Group Flow (vph)	134	288	0	0	123	0	156	416	0	100	815	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	34.8	34.8		34.8	34.8		10.6	24.8		24.8	24.8	
Total Split (s)	35.0	35.0		35.0	35.0		15.0	50.0		35.0	35.0	
Total Split (%)	41.2%	41.2%		41.2%	41.2%		17.6%	58.8%		41.2%	41.2%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.8	3.8		3.8	3.8		2.3	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.8	6.8			6.8		5.6	5.8		5.8	5.8	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	
Act Effct Green (s)	16.2	16.2			16.2		56.4	56.2		42.5	42.5	
Actuated g/C Ratio	0.19	0.19			0.19		0.66	0.66		0.50	0.50	
v/c Ratio	0.57	0.64			0.46		0.38	0.19		0.23	0.50	
Control Delay	39.3	16.8			22.5		9.6	6.8		16.9	16.4	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay	39.3	16.8			22.5		9.6	6.8		16.9	16.4	
LOS	D	B			C		A	A		B	B	
Approach Delay		24.0			22.5			7.6			16.5	
Approach LOS		C			C			A			B	
Queue Length 50th (m)	20.5	13.7			10.6		7.5	10.9		8.3	39.4	
Queue Length 95th (m)	30.7	30.7			21.3		22.5	26.2		24.8	77.5	
Internal Link Dist (m)		257.2			427.6			228.1			212.7	
Turn Bay Length (m)	30.0						75.0			100.0		
Base Capacity (vph)	411	638			434		426	2182		440	1619	
Starvation Cap Reductn	0	0			0		0	0		0	0	
Spillback Cap Reductn	0	0			0		0	0		0	0	
Storage Cap Reductn	0	0			0		0	0		0	0	
Reduced v/c Ratio	0.33	0.45			0.28		0.37	0.19		0.23	0.50	

Intersection Summary
Cycle Length: 85
Actuated Cycle Length: 85
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 15.9	Intersection LOS: B
Intersection Capacity Utilization 71.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 6: Longfields & Marketplace/Clearbrook



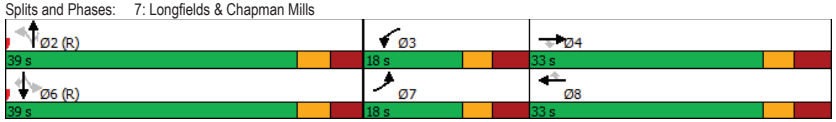
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	65	0	86	0	509	54	167	801	0
Future Volume (vph)	0	0	0	65	0	86	0	509	54	167	801	0
Satd. Flow (prot)	1745	1745	1745	1658	1745	1483	1745	3316	1483	1658	3316	1745
Flt Permitted				0.950						0.465		
Satd. Flow (perm)	1745	1745	1745	1644	1745	1458	1745	3316	1434	808	3316	1745
Satd. Flow (RTOR)						391						
Lane Group Flow (vph)	0	0	0	65	0	86	0	509	54	167	801	0
Turn Type	Prot		Perm	Prot		Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	2	2	2	6	6	6
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	10.0
Minimum Split (s)	12.3	32.5	32.5	12.3	32.5	32.5	38.3	38.3	38.3	38.3	38.3	38.3
Total Split (s)	18.0	33.0	33.0	18.0	33.0	33.0	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	20.0%	36.7%	36.7%	20.0%	36.7%	36.7%	43.3%	43.3%	43.3%	43.3%	43.3%	43.3%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	4.0	4.2	4.2	4.0	4.2	4.2	3.6	3.6	3.6	3.6	3.6	3.6
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)	7.3	7.5	7.5	7.3	7.5	7.5	7.3	7.3	7.3	7.3	7.3	7.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)				9.4		16.6		63.5	63.5	63.5	63.5	
Actuated g/C Ratio				0.10		0.18		0.71	0.71	0.71	0.71	
v/c Ratio				0.38		0.15		0.22	0.05	0.29	0.34	
Control Delay				43.5		0.5		10.8	13.7	13.0	10.0	
Queue Delay				0.0		0.0		0.0	0.0	0.0	0.0	
Total Delay				43.5		0.5		10.8	13.7	13.0	10.0	
LOS				D		A		B	B	B	B	
Approach Delay					19.0			11.1			10.6	
Approach LOS					B			B			B	
Queue Length 50th (m)				10.6		0.0		12.6	2.2	8.4	22.0	
Queue Length 95th (m)				22.6		0.0		45.5	14.8	44.6	80.7	
Internal Link Dist (m)		59.7			203.2			375.7			148.4	
Turn Bay Length (m)				40.0		40.0			65.0	65.0		
Base Capacity (vph)				197		734		2341	1012	570	2341	
Starvation Cap Reductn				0		0		0	0	0	0	
Spillback Cap Reductn				0		0		0	0	0	0	
Storage Cap Reductn				0		0		0	0	0	0	
Reduced v/c Ratio				0.33		0.12		0.22	0.05	0.29	0.34	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 33 (37%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.38

Intersection Signal Delay: 11.5	Intersection LOS: B
Intersection Capacity Utilization 66.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 7: Longfields & Chapman Mills



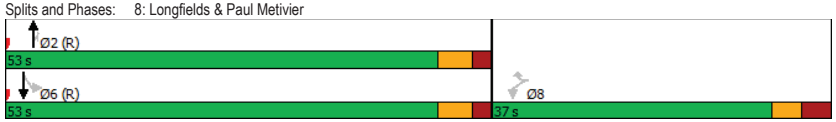
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	91	87	484	68	104	769
Future Volume (vph)	91	87	484	68	104	769
Satd. Flow (prot)	1658	1483	3316	1483	1658	3316
Flt Permitted	0.950				0.476	
Satd. Flow (perm)	1647	1463	3316	1434	825	3316
Satd. Flow (RTOR)		87		68		
Lane Group Flow (vph)	91	87	484	68	104	769
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)	36.6	36.6	36.0	36.0	24.0	24.0
Total Split (s)	37.0	37.0	53.0	53.0	53.0	53.0
Total Split (%)	41.1%	41.1%	58.9%	58.9%	58.9%	58.9%
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	3.3	3.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	14.5	14.5	67.4	67.4	67.4	67.4
Actuated g/C Ratio	0.16	0.16	0.75	0.75	0.75	0.75
v/c Ratio	0.34	0.28	0.19	0.06	0.17	0.31
Control Delay	34.9	8.4	5.8	2.5	3.8	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.9	8.4	5.8	2.5	3.8	3.0
LOS	C	A	A	A	A	A
Approach Delay	22.0		5.4			3.1
Approach LOS	C		A			A
Queue Length 50th (m)	15.0	0.0	10.6	0.0	2.8	10.8
Queue Length 95th (m)	21.8	9.5	32.4	5.8	5.7	15.0
Internal Link Dist (m)	403.8		379.4			375.7
Turn Bay Length (m)	45.0			50.0	70.0	
Base Capacity (vph)	556	551	2484	1091	618	2484
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	0.16	0.19	0.06	0.17	0.31

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 35 (39%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.34

Intersection Signal Delay: 6.0	Intersection LOS: A
Intersection Capacity Utilization 57.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Longfields & Paul Metivier

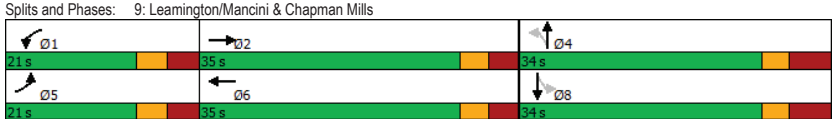


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	107	78	42	101	31	55	10	31	20	12	7
Future Volume (vph)	15	107	78	42	101	31	55	10	31	20	12	7
Satd. Flow (prot)	1658	1619	0	1658	1674	0	0	1622	0	0	1654	0
Flt Permitted	0.950			0.950				0.801			0.788	
Satd. Flow (perm)	1650	1619	0	1654	1674	0	0	1335	0	0	1337	0
Satd. Flow (RTOR)		43			18							
Lane Group Flow (vph)	15	185	0	42	132	0	0	96	0	0	39	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.8	22.6		11.8	22.6		33.7	33.7		33.7	33.7	
Total Split (s)	21.0	35.0		21.0	35.0		34.0	34.0		34.0	34.0	
Total Split (%)	23.3%	38.9%		23.3%	38.9%		37.8%	37.8%		37.8%	37.8%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	3.5	3.3		3.5	3.3		4.7	4.7		4.7	4.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	6.8	6.6		6.8	6.6			7.7			7.7	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	Max		None	Max		None	None		None	None	
Act Effct Green (s)	6.3	37.2		7.4	43.3			13.1			13.1	
Actuated g/C Ratio	0.09	0.56		0.11	0.65			0.20			0.20	
v/c Ratio	0.10	0.20		0.23	0.12			0.37			0.15	
Control Delay	33.8	12.5		33.9	9.7			28.9			24.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	33.8	12.5		33.9	9.7			28.9			24.8	
LOS	C	B		C	A			C			C	
Approach Delay		14.1			15.5			28.9			24.8	
Approach LOS		B			B			C			C	
Queue Length 50th (m)	1.8	10.6		4.9	4.7			11.1			4.3	
Queue Length 95th (m)	7.9	33.1		15.6	25.0			23.6			11.6	
Internal Link Dist (m)		203.2			520.9			265.7			233.3	
Turn Bay Length (m)	40.0			50.0								
Base Capacity (vph)	362	920		362	1089			540			541	
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	0.20		0.12	0.12			0.18			0.07	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 66.9
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.37

Intersection Signal Delay: 18.2 | Intersection LOS: B
Intersection Capacity Utilization 43.9% | ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 9: Leamington/Mancini & Chapman Mills

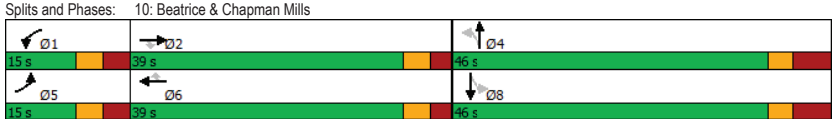


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	109	5	22	147	25	7	42	16	25	51	29
Future Volume (vph)	39	109	5	22	147	25	7	42	16	25	51	29
Satd. Flow (prot)	1658	1745	1483	1658	1745	1483	0	3158	0	0	3093	0
Flt Permitted	0.950			0.950				0.920			0.869	
Satd. Flow (perm)	1640	1745	1446	1639	1745	1446	0	2910	0	0	2718	0
Satd. Flow (RTOR)			122			122						
Lane Group Flow (vph)	39	109	5	22	147	25	0	65	0	0	105	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases			2			6	4			8		
Detector Phase	5	2	2	1	6	6	4	4		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	
Minimum Split (s)	11.5	25.9	25.9	11.5	25.9	25.9	45.7	45.7		45.7	45.7	
Total Split (s)	15.0	39.0	39.0	15.0	39.0	39.0	46.0	46.0		46.0	46.0	
Total Split (%)	15.0%	39.0%	39.0%	15.0%	39.0%	39.0%	46.0%	46.0%		46.0%	46.0%	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.0	3.0		3.0	3.0	
All-Red Time (s)	3.2	2.6	2.6	3.2	2.6	2.6	4.7	4.7		4.7	4.7	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)	6.5	5.9	5.9	6.5	5.9	5.9		7.7			7.7	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Max	Max	None	Max	Max	None	None		None	None	
Act Effct Green (s)	7.4	42.5	42.5	6.9	42.4	42.4		19.1			19.1	
Actuated g/C Ratio	0.10	0.57	0.57	0.09	0.57	0.57		0.26			0.26	
v/c Ratio	0.24	0.11	0.01	0.14	0.15	0.03		0.09			0.15	
Control Delay	41.5	17.9	0.0	41.0	17.8	0.1		20.2			20.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	
Total Delay	41.5	17.9	0.0	41.0	17.8	0.1		20.2			20.8	
LOS	D	B	A	D	B	A		C			C	
Approach Delay		23.3			18.1			20.2			20.8	
Approach LOS		C			B			C			C	
Queue Length 50th (m)	3.7	4.3	0.0	2.1	6.0	0.0		3.0			4.9	
Queue Length 95th (m)	17.3	27.4	0.0	11.4	35.7	0.0		8.5			12.3	
Internal Link Dist (m)		520.9			367.7			322.5			353.5	
Turn Bay Length (m)	40.0		40.0	45.0		60.0						
Base Capacity (vph)	204	1000	881	204	997	878		1621			1514	
Starvation Cap Reductn	0	0	0	0	0	0		0			0	
Spillback Cap Reductn	0	0	0	0	0	0		0			0	
Storage Cap Reductn	0	0	0	0	0	0		0			0	
Reduced v/c Ratio	0.19	0.11	0.01	0.11	0.15	0.03		0.04			0.07	

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 74.1
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.24

Intersection Signal Delay: 20.5	Intersection LOS: C
Intersection Capacity Utilization 60.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 10: Beatrice & Chapman Mills



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	92	0	573	858	64
Future Volume (vph)	0	92	0	573	858	64
Satd. Flow (prot)	0	1510	0	3316	3283	0
Flt Permitted						
Satd. Flow (perm)	0	1510	0	3316	3283	0
Lane Group Flow (vph)	0	92	0	573	922	0
Sign Control	Stop			Free	Free	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 39.9%		ICU Level of Service A
Analysis Period (min) 15		

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	92	0	573	858	64
Future Vol, veh/h	0	92	0	573	858	64
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	92	0	573	858	64

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	461	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	547	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	547	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	547	-	-
HCM Lane V/C Ratio	-	0.168	-	-
HCM Control Delay (s)	-	12.9	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.6	-	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	4	54	18	55	51	1
Future Volume (vph)	4	54	18	55	51	1
Satd. Flow (prot)	0	1740	1567	0	1658	0
Flt Permitted		0.997			0.953	
Satd. Flow (perm)	0	1740	1567	0	1658	0
Lane Group Flow (vph)	0	58	73	0	52	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Control Type: Unsignalized			
Intersection Capacity Utilization	16.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	54	18	55	51	1
Future Vol, veh/h	4	54	18	55	51	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	54	18	55	51	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	73	0	-	0	108	46
Stage 1	-	-	-	-	46	-
Stage 2	-	-	-	-	62	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1527	-	-	-	889	1023
Stage 1	-	-	-	-	976	-
Stage 2	-	-	-	-	961	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1527	-	-	-	886	1023
Mov Cap-2 Maneuver	-	-	-	-	886	-
Stage 1	-	-	-	-	973	-
Stage 2	-	-	-	-	961	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	9.3
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1527	-	-	-	888
HCM Lane V/C Ratio	0.003	-	-	-	0.059
HCM Control Delay (s)	7.4	0	-	-	9.3
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	24	0	0	69	0
Future Volume (vph)	0	24	0	0	69	0
Satd. Flow (prot)	1510	0	1745	0	0	1658
Flt Permitted						0.950
Satd. Flow (perm)	1510	0	1745	0	0	1658
Lane Group Flow (vph)	24	0	0	0	0	69
Sign Control	Stop		Free			Free

Intersection Summary			
Control Type: Unsignalized			
Intersection Capacity Utilization	14.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	24	0	0	69	0
Future Vol, veh/h	0	24	0	0	69	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	24	0	0	69	0

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	138	0	0	0	0	0
Stage 1	0	-	-	-	-	-
Stage 2	138	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	855	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	889	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	855	-	-	-	-	-
Mov Cap-2 Maneuver	855	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	889	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		0	
HCM LOS	-		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	-	-
HCM Lane LOS	-	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-

Appendix K

Synchro Intersection Worksheets – 2031 Future Total Conditions

CGH TRANSPORTATION

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	168	770	150	75	796	361	219	806	82	180	282	83
Future Volume (vph)	168	770	150	75	796	361	219	806	82	180	282	83
Satd. Flow (prot)	1658	3316	1483	1658	3316	1483	3216	3263	0	3216	3316	1483
Flt Permitted	0.154			0.238			0.950			0.950		
Satd. Flow (perm)	269	3316	1452	414	3316	1460	3203	3263	0	3203	3316	1460
Satd. Flow (RTOR)			150			361		8				149
Lane Group Flow (vph)	168	770	150	75	796	361	219	888	0	180	282	83
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	11.6	33.5	33.5	11.6	33.5	33.5	11.3	35.5		11.3	35.5	35.5
Total Split (s)	19.0	41.0	41.0	19.0	41.0	41.0	24.0	36.0		24.0	36.0	36.0
Total Split (%)	15.8%	34.2%	34.2%	15.8%	34.2%	34.2%	20.0%	30.0%		20.0%	30.0%	30.0%
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
All-Red Time (s)	2.9	2.8	2.8	2.9	2.8	2.8	2.6	2.8		2.6	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.6	6.5	6.5	6.6	6.5	6.5	6.3	6.5		6.3	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	50.4	40.8	40.8	43.9	35.4	35.4	13.4	35.2		12.0	33.8	33.8
Actuated g/C Ratio	0.42	0.34	0.34	0.37	0.30	0.30	0.11	0.29		0.10	0.28	0.28
v/c Ratio	0.69	0.68	0.25	0.31	0.81	0.53	0.61	0.92		0.56	0.30	0.16
Control Delay	36.8	39.1	6.0	17.5	31.1	6.3	75.1	52.3		58.0	35.6	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	36.8	39.1	6.0	17.5	31.1	6.3	75.1	52.3		58.0	35.6	0.7
LOS	D	D	A	B	C	A	E	D		E	D	A
Approach Delay		34.2			23.0			56.8			37.7	
Approach LOS		C			C			E			D	
Queue Length 50th (m)	23.9	84.4	0.0	3.8	85.6	15.2	26.9	115.1		21.1	27.5	0.0
Queue Length 95th (m)	#44.3	110.7	14.8	m12.6	95.6	25.0	41.1	#150.5		31.8	41.2	0.0
Internal Link Dist (m)		384.5			263.2			179.3			219.3	
Turn Bay Length (m)	60.0		100.0	120.0			65.0			75.0		150.0
Base Capacity (vph)	256	1126	592	293	978	685	474	962		474	933	517
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	0.66	0.68	0.25	0.26	0.81	0.53	0.46	0.92		0.38	0.30	0.16

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 94 (78%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

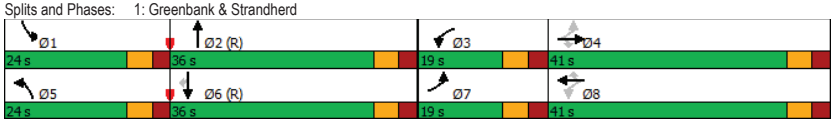
Maximum v/c Ratio: 0.92

Intersection Signal Delay: 37.5	Intersection LOS: D
Intersection Capacity Utilization 86.4%	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: 1: Greenbank & Strandherd

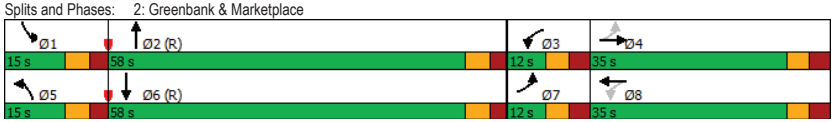


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	17	31	49	29	66	93	1060	81	40	378	19
Future Volume (vph)	13	17	31	49	29	66	93	1060	81	40	378	19
Satd. Flow (prot)	1658	1552	0	1658	1549	0	1658	3275	0	3216	3289	0
Flt Permitted	0.695			0.635			0.950			0.950		
Satd. Flow (perm)	1211	1552	0	1096	1549	0	1656	3275	0	3211	3289	0
Satd. Flow (RTOR)		31			66			8			5	
Lane Group Flow (vph)	13	48	0	49	95	0	93	1141	0	40	397	0
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8								
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	11.4	34.5		11.4	34.5		11.3	31.2		11.3	31.2	
Total Split (s)	12.0	35.0		12.0	35.0		15.0	58.0		15.0	58.0	
Total Split (%)	10.0%	29.2%		10.0%	29.2%		12.5%	48.3%		12.5%	48.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.1	3.2		3.1	3.2		2.6	2.5		2.6	2.5	
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	6.5		6.4	6.5		6.3	6.2		6.3	6.2	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	18.2	13.6		20.7	18.4		11.2	73.2		7.0	66.6	
Actuated g/C Ratio	0.15	0.11		0.17	0.15		0.09	0.61		0.06	0.56	
v/c Ratio	0.06	0.24		0.23	0.32		0.60	0.57		0.22	0.22	
Control Delay	34.6	24.4		38.6	19.5		62.6	21.7		62.0	10.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	34.6	24.4		38.6	19.5		62.6	21.7		62.0	10.5	
LOS	C	C		D	B		E	C		E	B	
Approach Delay		26.5			26.0			24.7			15.2	
Approach LOS		C			C			C			B	
Queue Length 50th (m)	2.6	3.8		9.8	5.7		21.9	87.6		5.0	13.8	
Queue Length 95th (m)	6.6	12.9		16.8	19.2		#48.7	121.8		10.9	24.9	
Internal Link Dist (m)		208.1			171.2			364.0			179.3	
Turn Bay Length (m)	25.0			55.0			55.0			50.0		
Base Capacity (vph)	204	392		215	418		156	2000		233	1826	
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	0.06	0.12		0.23	0.23		0.60	0.57		0.17	0.22	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 89 (74%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60
Intersection Signal Delay: 22.7 — Intersection LOS: C
Intersection Capacity Utilization 65.9% — 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.

Splits and Phases: 2: Greenbank & Marketplace



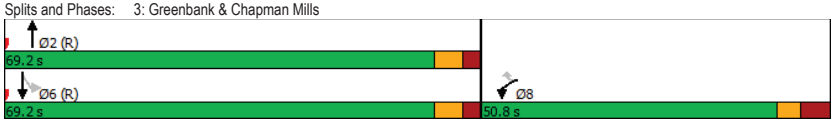
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	75	304	943	106	77	366
Future Volume (vph)	75	304	943	106	77	366
Satd. Flow (prot)	1658	1483	3266	0	1658	3316
Flt Permitted	0.950				0.209	
Satd. Flow (perm)	1658	1483	3266	0	365	3316
Satd. Flow (RTOR)		98	15			
Lane Group Flow (vph)	75	304	1049	0	77	366
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0		10.0	10.0
Minimum Split (s)	50.8	50.8	42.9		42.9	42.9
Total Split (s)	50.8	50.8	69.2		69.2	69.2
Total Split (%)	42.3%	42.3%	57.7%		57.7%	57.7%
Yellow Time (s)	3.3	3.3	4.2		4.2	4.2
All-Red Time (s)	4.5	4.5	2.7		2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	7.8	7.8	6.9		6.9	6.9
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max		C-Max	C-Max
Act Effct Green (s)	36.9	36.9	68.4		68.4	68.4
Actuated g/C Ratio	0.31	0.31	0.57		0.57	0.57
v/c Ratio	0.15	0.58	0.56		0.37	0.19
Control Delay	27.7	26.3	19.4		14.2	6.8
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	27.7	26.3	19.4		14.2	6.8
LOS	C	C	B		B	A
Approach Delay	26.6		19.4			8.1
Approach LOS	C		B			A
Queue Length 50th (m)	11.8	37.3	87.4		6.0	7.8
Queue Length 95th (m)	22.6	64.3	108.5		6.0	10.9
Internal Link Dist (m)	332.9		448.3			364.0
Turn Bay Length (m)	38.0				38.0	
Base Capacity (vph)	594	594	1866		207	1888
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.13	0.51	0.56		0.37	0.19

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 18.2	Intersection LOS: B
Intersection Capacity Utilization 65.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Greenbank & Chapman Mills

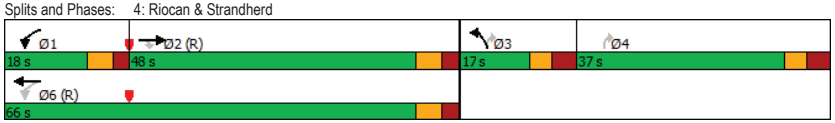


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø4
Lane Configurations							
Traffic Volume (vph)	904	78	104	1341	51	57	
Future Volume (vph)	904	78	104	1341	51	57	
Satd. Flow (prot)	3316	1483	1658	3316	3216	1483	
Flt Permitted			0.239		0.950		
Satd. Flow (perm)	3316	1448	417	3316	3159	1483	
Satd. Flow (RTOR)		78				57	
Lane Group Flow (vph)	904	78	104	1341	51	57	
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm	
Protected Phases	2		1	6	3		4
Permitted Phases		2	6			3 4	
Detector Phase	2	2	1	6	3	3 4	
Switch Phase							
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0		5.0
Minimum Split (s)	36.3	36.3	11.0	36.3	16.8		35.8
Total Split (s)	48.0	48.0	18.0	66.0	17.0		37.0
Total Split (%)	40.0%	40.0%	15.0%	55.0%	14.2%		31%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3		3.3
All-Red Time (s)	2.6	2.6	2.3	2.6	3.5		3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.3	6.3	6.0	6.3	6.8		
Lead/Lag	Lag	Lag	Lead		Lead		Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes		Yes
Recall Mode	C-Max	C-Max	None	C-Max	None		None
Act Effct Green (s)	71.4	71.4	86.0	87.0	10.0	24.6	
Actuated g/C Ratio	0.60	0.60	0.72	0.72	0.08	0.20	
v/c Ratio	0.46	0.09	0.27	0.56	0.19	0.16	
Control Delay	12.6	3.9	2.6	4.4	53.2	8.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	12.6	3.9	2.6	4.4	53.2	8.5	
LOS	B	A	A	A	D	A	
Approach Delay	11.9			4.3	29.6		
Approach LOS	B			A	C		
Queue Length 50th (m)	32.1	0.2	0.9	6.6	5.8	0.0	
Queue Length 95th (m)	m53.5	m2.3	m4.5	184.5	12.1	8.4	
Internal Link Dist (m)	263.2			413.3	180.6		
Turn Bay Length (m)		80.0	150.0		40.0		
Base Capacity (vph)	1973	893	423	2403	273	513	
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	0.46	0.09	0.25	0.56	0.19	0.11	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 30 (25%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.56
Intersection Signal Delay: 8.3 — Intersection LOS: A
Intersection Capacity Utilization 58.4% — ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Riocan & Strandherd

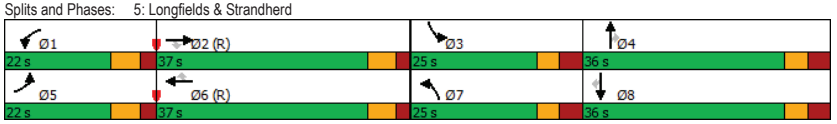


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	161	694	152	164	853	128	385	596	351	100	224	130
Future Volume (vph)	161	694	152	164	853	128	385	596	351	100	224	130
Satd. Flow (prot)	3216	3316	1483	3216	3316	1483	3216	1745	1483	1658	1745	1483
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3192	3316	1446	3188	3316	1444	3177	1745	1407	1629	1745	1451
Satd. Flow (RTOR)			155			155			300			152
Lane Group Flow (vph)	161	694	152	164	853	128	385	596	351	100	224	130
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)	11.6	36.6	36.6	11.6	35.4	35.4	11.7	35.7	35.7	11.7	35.7	35.7
Total Split (s)	22.0	37.0	37.0	22.0	37.0	37.0	25.0	36.0	36.0	25.0	36.0	36.0
Total Split (%)	18.3%	30.8%	30.8%	18.3%	30.8%	30.8%	20.8%	30.0%	30.0%	20.8%	30.0%	30.0%
Yellow Time (s)	4.2	4.2	4.2	4.2	4.2	4.2	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.4	2.2	2.2	2.4	2.2	2.2	3.4	3.4	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.4	6.4	6.6	6.4	6.4	6.7	6.7	6.7	6.7	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
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	11.3	34.6	34.6	11.4	34.7	34.7	17.5	35.1	35.1	12.5	30.1	30.1
Actuated g/C Ratio	0.09	0.29	0.29	0.10	0.29	0.29	0.15	0.29	0.29	0.10	0.25	0.25
v/c Ratio	0.53	0.73	0.29	0.54	0.89	0.24	0.82	1.17	0.56	0.58	0.51	0.27
Control Delay	32.4	47.3	16.8	57.9	53.9	4.2	64.9	134.7	10.9	63.8	43.8	5.2
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	32.4	47.3	16.8	57.9	53.9	4.2	64.9	134.7	10.9	63.8	43.8	5.2
LOS	C	D	B	E	D	A	E	F	B	E	D	A
Approach Delay		40.3			48.9			81.9			37.2	
Approach LOS		D			D			F			D	
Queue Length 50th (m)	15.0	91.3	14.9	19.3	101.2	0.0	45.5	~167.0	8.8	22.8	45.9	0.0
Queue Length 95th (m)	23.4	110.9	42.5	29.4	#147.0	9.4	#65.8	#252.4	39.0	38.8	71.0	10.8
Internal Link Dist (m)		413.3			403.0			212.7			202.0	
Turn Bay Length (m)	90.0		55.0	80.0		195.0	50.0		90.0	50.0		50.0
Base Capacity (vph)	412	955	527	412	958	527	490	509	623	252	438	478
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	0.39	0.73	0.29	0.40	0.89	0.24	0.79	1.17	0.56	0.40	0.51	0.27

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: 100
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.17
Intersection Signal Delay: 56.5 Intersection LOS: E
Intersection Capacity Utilization 90.7% 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: Longfields & Strandherd



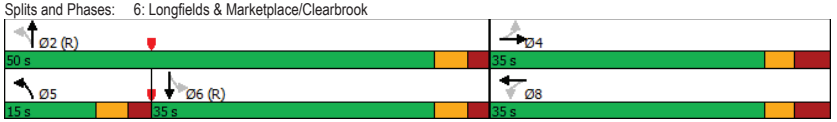
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	25	63	21	39	136	100	1162	19	31	339	38
Future Volume (vph)	65	25	63	21	39	136	100	1162	19	31	339	38
Satd. Flow (prot)	1658	1541	0	0	1543	0	1658	3305	0	1658	3259	0
Flt Permitted	0.564				0.959		0.466			0.239		
Satd. Flow (perm)	973	1541	0	0	1487	0	812	3305	0	413	3259	0
Satd. Flow (RTOR)		63			49			3			15	
Lane Group Flow (vph)	65	88	0	0	196	0	100	1181	0	31	377	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	34.8	34.8		34.8	34.8		10.6	24.8		24.8	24.8	
Total Split (s)	35.0	35.0		35.0	35.0		15.0	50.0		35.0	35.0	
Total Split (%)	41.2%	41.2%		41.2%	41.2%		17.6%	58.8%		41.2%	41.2%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.8	3.8		3.8	3.8		2.3	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.8	6.8			6.8		5.6	5.8		5.8	5.8	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	
Act Effct Green (s)	18.2	18.2			18.2		54.4	54.2		43.3	43.3	
Actuated g/C Ratio	0.21	0.21			0.21		0.64	0.64		0.51	0.51	
v/c Ratio	0.31	0.23			0.55		0.17	0.56		0.15	0.23	
Control Delay	28.9	10.5			26.1		8.8	11.7		20.0	14.7	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay	28.9	10.5			26.1		8.8	11.7		20.0	14.7	
LOS	C	B			C		A	B		B	B	
Approach Delay		18.3			26.1			11.5			15.1	
Approach LOS		B			C			B			B	
Queue Length 50th (m)	9.6	3.5			22.5		4.6	41.9		2.4	15.0	
Queue Length 95th (m)	17.0	12.3			34.9		15.2	92.4		10.8	33.6	
Internal Link Dist (m)		257.2			427.6			228.1			212.7	
Turn Bay Length (m)	30.0						75.0			100.0		
Base Capacity (vph)	322	553			526		613	2107		210	1666	
Starvation Cap Reductn	0	0			0		0	0		0	0	
Spillback Cap Reductn	0	0			0		0	0		0	0	
Storage Cap Reductn	0	0			0		0	0		0	0	
Reduced v/c Ratio	0.20	0.16			0.37		0.16	0.56		0.15	0.23	

Intersection Summary
Cycle Length: 85
Actuated Cycle Length: 85
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 14.1	Intersection LOS: B
Intersection Capacity Utilization 80.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 6: Longfields & Marketplace/Clearbrook

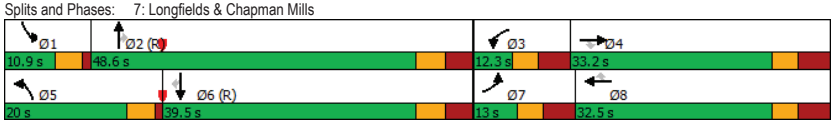


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	7	74	34	4	149	328	1087	54	88	312	31
Future Volume (vph)	99	7	74	34	4	149	328	1087	54	88	312	31
Satd. Flow (prot)	1658	1745	1483	1658	1745	1483	1658	3316	1483	1658	3316	1483
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1652	1745	1483	1658	1745	1460	1649	3316	1391	1648	3316	1441
Satd. Flow (RTOR)			214			214						216
Lane Group Flow (vph)	99	7	74	34	4	149	328	1087	54	88	312	31
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.3	32.5	32.5	12.3	32.5	32.5	9.5	38.3	38.3	9.5	38.3	38.3
Total Split (s)	13.0	33.2	33.2	12.3	32.5	32.5	20.0	48.6	48.6	10.9	39.5	39.5
Total Split (%)	12.4%	31.6%	31.6%	11.7%	31.0%	31.0%	19.0%	46.3%	46.3%	10.4%	37.6%	37.6%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.5	3.7	3.7	3.5	3.7	3.7
All-Red Time (s)	4.0	4.2	4.2	4.0	4.2	4.2	1.0	3.6	3.6	1.0	3.6	3.6
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)	7.3	7.5	7.5	7.3	7.5	7.5	4.5	7.3	7.3	4.5	7.3	7.3
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
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	5.7	18.6	18.6	5.0	13.0	13.0	27.5	49.3	49.3	10.4	32.2	32.2
Actuated g/C Ratio	0.05	0.18	0.18	0.05	0.12	0.12	0.26	0.47	0.47	0.10	0.31	0.31
v/c Ratio	1.10	0.02	0.17	0.44	0.02	0.40	0.76	0.70	0.08	0.54	0.31	0.05
Control Delay	172.0	36.0	0.8	66.0	36.2	4.4	49.7	25.9	17.7	59.0	28.9	0.2
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	172.0	36.0	0.8	66.0	36.2	4.4	49.7	25.9	17.7	59.0	28.9	0.2
LOS	F	D	A	E	D	A	D	C	B	E	C	A
Approach Delay		96.3			16.3			30.9			33.0	
Approach LOS		F			B			C			C	
Queue Length 50th (m)	~23.1	1.3	0.0	6.9	0.8	0.0	59.1	87.5	5.8	17.0	25.5	0.0
Queue Length 95th (m)	#55.9	4.6	0.0	#17.7	3.3	4.2	#140.6	131.0	15.0	#46.7	37.0	0.0
Internal Link Dist (m)		383.3			203.2			375.7			148.4	
Turn Bay Length (m)	38.0		38.0	40.0		40.0	90.0		65.0	65.0		75.0
Base Capacity (vph)	90	427	524	78	415	510	434	1558	653	163	1016	591
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.10	0.02	0.14	0.44	0.01	0.29	0.76	0.70	0.08	0.54	0.31	0.05

Intersection Summary
Cycle Length: 105
Actuated Cycle Length: 105
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10
Intersection Signal Delay: 35.3 — Intersection LOS: D
Intersection Capacity Utilization 73.6% — 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: Longfields & Chapman Mills



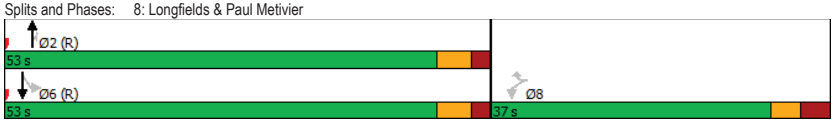
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	69	105	1022	100	37	342
Future Volume (vph)	69	105	1022	100	37	342
Satd. Flow (prot)	1658	1483	3316	1483	1658	3316
Flt Permitted	0.950				0.261	
Satd. Flow (perm)	1653	1464	3316	1437	455	3316
Satd. Flow (RTOR)		78		100		
Lane Group Flow (vph)	69	105	1022	100	37	342
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)	36.6	36.6	36.0	36.0	24.0	24.0
Total Split (s)	37.0	37.0	53.0	53.0	53.0	53.0
Total Split (%)	41.1%	41.1%	58.9%	58.9%	58.9%	58.9%
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	3.3	3.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	14.1	14.1	67.8	67.8	67.8	67.8
Actuated g/C Ratio	0.16	0.16	0.75	0.75	0.75	0.75
v/c Ratio	0.27	0.36	0.41	0.09	0.11	0.14
Control Delay	33.5	14.0	7.1	2.1	7.9	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.5	14.0	7.1	2.1	7.9	5.5
LOS	C	B	A	A	A	A
Approach Delay	21.7		6.7			5.7
Approach LOS	C		A			A
Queue Length 50th (m)	11.2	4.3	27.3	0.0	1.4	7.0
Queue Length 95th (m)	17.5	14.0	78.5	6.9	8.7	22.8
Internal Link Dist (m)	403.8		379.4			375.7
Turn Bay Length (m)	45.0			50.0	70.0	
Base Capacity (vph)	558	546	2498	1107	342	2498
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.19	0.41	0.09	0.11	0.14

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 35 (39%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.41

Intersection Signal Delay: 8.0	Intersection LOS: A
Intersection Capacity Utilization 51.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 8: Longfields & Paul Metivier

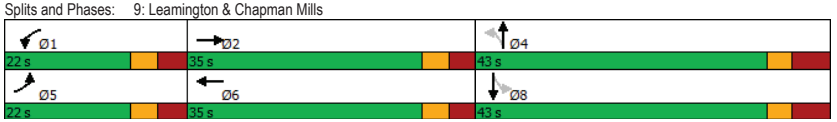


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	70	42	69	68	33	93	26	77	38	24	33
Future Volume (vph)	33	70	42	69	68	33	93	26	77	38	24	33
Satd. Flow (prot)	1658	1557	0	1658	1640	0	0	1600	0	0	1614	0
Flt Permitted	0.950			0.950				0.802			0.805	
Satd. Flow (perm)	1635	1557	0	1476	1640	0	0	1310	0	0	1326	0
Satd. Flow (RTOR)		30			24							
Lane Group Flow (vph)	33	112	0	69	101	0	0	196	0	0	95	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.8	22.6		11.8	22.6		41.7	41.7		41.7	41.7	
Total Split (s)	22.0	35.0		22.0	35.0		43.0	43.0		43.0	43.0	
Total Split (%)	22.0%	35.0%		22.0%	35.0%		43.0%	43.0%		43.0%	43.0%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	3.5	3.3		3.5	3.3		4.7	4.7		4.7	4.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	6.8	6.6		6.8	6.6			7.7			7.7	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	Max		None	Max		None	None		None	None	
Act Effct Green (s)	7.2	30.8		8.7	37.9			17.8			17.8	
Actuated g/C Ratio	0.09	0.41		0.11	0.50			0.23			0.23	
v/c Ratio	0.21	0.17		0.37	0.12			0.64			0.31	
Control Delay	39.0	16.1		39.6	13.3			36.1			26.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	39.0	16.1		39.6	13.3			36.1			26.5	
LOS	D	B		D	B			D			C	
Approach Delay		21.3			24.0			36.1			26.5	
Approach LOS		C			C			D			C	
Queue Length 50th (m)	4.4	7.3		9.1	4.2			25.3			11.2	
Queue Length 95th (m)	14.7	24.5		24.5	21.8			47.1			23.9	
Internal Link Dist (m)		203.2			520.9			265.7			233.3	
Turn Bay Length (m)	40.0			50.0								
Base Capacity (vph)	341	651		341	831			625			633	
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	0.17		0.20	0.12			0.31			0.15	

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 75.8
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.64

Intersection Signal Delay: 27.6 — Intersection LOS: C
Intersection Capacity Utilization 42.1% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 9: Leamington & Chapman Mills

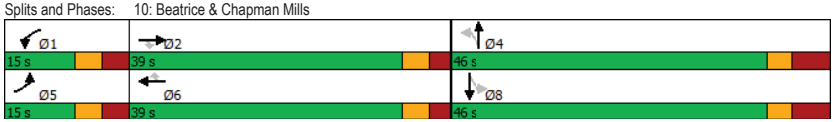


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	162	27	14	57	18	7	53	51	58	38	13
Future Volume (vph)	65	162	27	14	57	18	7	53	51	58	38	13
Satd. Flow (prot)	1658	1745	1483	1658	1745	1483	0	2949	0	0	3157	0
Flt Permitted	0.950			0.950				0.938			0.758	
Satd. Flow (perm)	1603	1745	1387	1586	1745	1413	0	2772	0	0	2376	0
Satd. Flow (RTOR)			122			122						
Lane Group Flow (vph)	65	162	27	14	57	18	0	111	0	0	109	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases			2			6	4			8		
Detector Phase	5	2	2	1	6	6	4	4		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	
Minimum Split (s)	11.5	25.9	25.9	11.5	25.9	25.9	45.7	45.7		45.7	45.7	
Total Split (s)	15.0	39.0	39.0	15.0	39.0	39.0	46.0	46.0		46.0	46.0	
Total Split (%)	15.0%	39.0%	39.0%	15.0%	39.0%	39.0%	46.0%	46.0%		46.0%	46.0%	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.0	3.0		3.0	3.0	
All-Red Time (s)	3.2	2.6	2.6	3.2	2.6	2.6	4.7	4.7		4.7	4.7	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)	6.5	5.9	5.9	6.5	5.9	5.9		7.7			7.7	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Max	Max	None	Max	Max	None	None		None	None	
Act Effct Green (s)	7.9	50.3	50.3	6.7	42.1	42.1		31.0			31.0	
Actuated g/C Ratio	0.09	0.56	0.56	0.07	0.47	0.47		0.34			0.34	
v/c Ratio	0.45	0.17	0.03	0.11	0.07	0.02		0.12			0.13	
Control Delay	54.1	18.3	0.1	45.4	23.5	0.1		20.3			20.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	
Total Delay	54.1	18.3	0.1	45.4	23.5	0.1		20.3			20.6	
LOS	D	B	A	D	C	A		C			C	
Approach Delay		25.5			22.2			20.3			20.6	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	12.2	17.2	0.0	2.6	7.5	0.0		7.1			7.0	
Queue Length 95th (m)	25.6	38.6	0.0	8.6	16.4	0.0		12.9			12.8	
Internal Link Dist (m)		520.9			367.7			322.5			353.5	
Turn Bay Length (m)	40.0		40.0	45.0		60.0						
Base Capacity (vph)	165	970	825	165	813	723		1246			1068	
Starvation Cap Reductn	0	0	0	0	0	0		0			0	
Spillback Cap Reductn	0	0	0	0	0	0		0			0	
Storage Cap Reductn	0	0	0	0	0	0		0			0	
Reduced v/c Ratio	0.39	0.17	0.03	0.08	0.07	0.02		0.09			0.10	

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 90.4
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.45

Intersection Signal Delay: 23.0 — Intersection LOS: C
Intersection Capacity Utilization 65.5% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 10: Beatrice & Chapman Mills



Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	55	0	1135	412	60
Future Vol, veh/h	0	55	0	1135	412	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	55	0	1135	412	60

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	236	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	766	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %					-	-
Mov Cap-1 Maneuver	-	766	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	766	-	-
HCM Lane V/C Ratio	-	0.072	-	-
HCM Control Delay (s)	-	10.1	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.2	-	-

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	11	23	57	50	0
Future Vol, veh/h	5	11	23	57	50	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	11	23	57	50	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	80	0	-	0	73	52
Stage 1	-	-	-	-	52	-
Stage 2	-	-	-	-	21	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1518	-	-	-	931	1016
Stage 1	-	-	-	-	970	-
Stage 2	-	-	-	-	1002	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1518	-	-	-	928	1016
Mov Cap-2 Maneuver	-	-	-	-	928	-
Stage 1	-	-	-	-	967	-
Stage 2	-	-	-	-	1002	-

Approach	EB	WB	SB
HCM Control Delay, s	2.3	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1518	-	-	-	928
HCM Lane V/C Ratio	0.003	-	-	-	0.054
HCM Control Delay (s)	7.4	0	-	-	9.1
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	3.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	37	0	18	14	0	21
Future Vol, veh/h	37	0	18	14	0	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	37	0	18	14	0	21

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	46	25	0	0	32	0
Stage 1	25	-	-	-	-	-
Stage 2	21	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	964	1051	-	-	1580	-
Stage 1	998	-	-	-	-	-
Stage 2	1002	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	964	1051	-	-	1580	-
Mov Cap-2 Maneuver	964	-	-	-	-	-
Stage 1	998	-	-	-	-	-
Stage 2	1002	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	964	1580	-
HCM Lane V/C Ratio	-	-	0.038	-	-
HCM Control Delay (s)	-	-	8.9	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	19	164	332	13	11	47
Future Volume (vph)	19	164	332	13	11	47
Satd. Flow (prot)	1658	1745	1736	0	1541	0
Flt Permitted	0.554				0.991	
Satd. Flow (perm)	967	1745	1736	0	1541	0
Satd. Flow (RTOR)			3		47	
Lane Group Flow (vph)	19	164	345	0	58	0
Turn Type	Perm	NA	NA		Perm	
Protected Phases		2	6			
Permitted Phases	2				8	
Detector Phase	2	2	6		8	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0		10.0	
Minimum Split (s)	24.9	24.9	37.9		26.1	
Total Split (s)	50.0	50.0	50.0		40.0	
Total Split (%)	55.6%	55.6%	55.6%		44.4%	
Yellow Time (s)	3.3	3.3	3.3		3.3	
All-Red Time (s)	3.6	3.6	3.6		3.8	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.9	6.9	6.9		7.1	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max	Max	Max		None	
Act Effct Green (s)	52.1	52.1	52.1		10.0	
Actuated g/C Ratio	0.79	0.79	0.79		0.15	
v/c Ratio	0.03	0.12	0.25		0.21	
Control Delay	4.5	4.2	4.7		13.0	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	4.5	4.2	4.7		13.0	
LOS	A	A	A		B	
Approach Delay		4.2	4.7		13.0	
Approach LOS		A	A		B	
Queue Length 50th (m)	0.7	6.9	16.2		1.2	
Queue Length 95th (m)	2.7	13.0	27.4		10.1	
Internal Link Dist (m)		332.9	383.3		121.0	
Turn Bay Length (m)	38.0					
Base Capacity (vph)	759	1370	1364		789	
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	0.03	0.12	0.25		0.07	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 66.3
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.25

Intersection Signal Delay: 5.4 | Intersection LOS: A
Intersection Capacity Utilization 39.3% | ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 16: Chapman Mills & Riocan

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	221	907	210	223	1058	271	263	627	125	437	916	211
Future Volume (vph)	221	907	210	223	1058	271	263	627	125	437	916	211
Satd. Flow (prot)	1658	3316	1483	1658	3316	1483	3216	3222	0	3216	3316	1483
Flt Permitted	0.116			0.116			0.950			0.950		
Satd. Flow (perm)	202	3316	1459	202	3316	1457	3205	3222	0	3202	3316	1453
Satd. Flow (RTOR)			210			225		19				211
Lane Group Flow (vph)	221	907	210	223	1058	271	263	752	0	437	916	211
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	11.6	33.5	33.5	11.6	33.5	33.5	11.3	35.5		11.3	35.5	35.5
Total Split (s)	18.0	41.0	41.0	18.0	41.0	41.0	24.0	37.0		24.0	37.0	37.0
Total Split (%)	15.0%	34.2%	34.2%	15.0%	34.2%	34.2%	20.0%	30.8%		20.0%	30.8%	30.8%
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
All-Red Time (s)	2.9	2.8	2.8	2.9	2.8	2.8	2.6	2.8		2.6	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.6	6.5	6.5	6.6	6.5	6.5	6.3	6.5		6.3	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	45.8	34.5	34.5	45.8	34.5	34.5	14.7	30.5		17.7	33.5	33.5
Actuated g/C Ratio	0.38	0.29	0.29	0.38	0.29	0.29	0.12	0.25		0.15	0.28	0.28
v/c Ratio	1.03	0.95	0.37	1.04	1.11	0.47	0.67	0.90		0.92	0.99	0.38
Control Delay	100.4	61.9	6.3	106.9	93.6	9.9	71.3	59.6		76.6	71.1	6.8
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	100.4	61.9	6.3	106.9	93.6	9.9	71.3	59.6		76.6	71.1	6.8
LOS	F	E	A	F	F	A	E	E		E	E	A
Approach Delay		59.5			80.9			62.6			63.9	
Approach LOS		E			F			E			E	
Queue Length 50th (m)	~40.9	110.3	0.0	~36.4	~154.5	11.4	34.1	92.5		52.9	113.6	0.0
Queue Length 95th (m)	#90.2	#150.4	17.4	#94.5	#187.8	30.9	47.9	#122.7		#82.3	#167.2	18.3
Internal Link Dist (m)		384.5			263.2			179.3			219.3	
Turn Bay Length (m)	60.0		100.0	120.0			65.0			75.0		150.0
Base Capacity (vph)	215	953	569	215	953	579	474	833		474	925	557
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	1.03	0.95	0.37	1.04	1.11	0.47	0.55	0.90		0.92	0.99	0.38

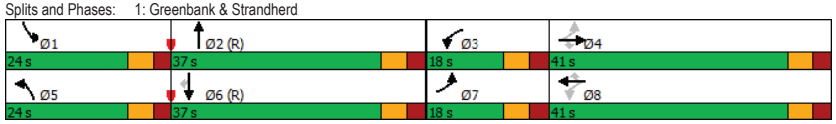
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 7 (6%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 135
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.11

Intersection Signal Delay: 67.4	Intersection LOS: E
Intersection Capacity Utilization 102.7%	ICU Level of Service G
Analysis Period (min) 15	

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

Splits and Phases: 1: Greenbank & Strandherd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	80	117	162	71	169	161	772	71	176	1054	46
Future Volume (vph)	74	80	117	162	71	169	161	772	71	176	1054	46
Satd. Flow (prot)	1658	1538	0	1658	1533	0	1658	3268	0	3216	3296	0
Flt Permitted	0.425			0.458			0.950			0.950		
Satd. Flow (perm)	736	1538	0	775	1533	0	1658	3268	0	3209	3296	0
Satd. Flow (RTOR)		58			94			9			4	
Lane Group Flow (vph)	74	197	0	162	240	0	161	843	0	176	1100	0
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8								
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	11.4	34.5		11.4	34.5		11.3	31.2		11.3	31.2	
Total Split (s)	13.0	35.0		13.0	35.0		20.0	52.0		20.0	52.0	
Total Split (%)	10.8%	29.2%		10.8%	29.2%		16.7%	43.3%		16.7%	43.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.1	3.2		3.1	3.2		2.6	2.5		2.6	2.5	
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	6.5		6.4	6.5		6.3	6.2		6.3	6.2	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	28.2	21.6		29.5	24.2		14.1	54.8		11.7	52.3	
Actuated g/C Ratio	0.24	0.18		0.25	0.20		0.12	0.46		0.10	0.44	
v/c Ratio	0.33	0.61		0.68	0.63		0.83	0.56		0.56	0.76	
Control Delay	33.7	38.4		49.7	33.4		85.8	22.3		59.2	23.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	33.7	38.4		49.7	33.4		85.8	22.3		59.2	23.7	
LOS	C	D		D	C		F	C		E	C	
Approach Delay		37.1			40.0			32.4			28.6	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	11.9	28.1		27.6	30.0		39.7	44.0		22.2	60.6	
Queue Length 95th (m)	23.0	51.3		45.1	56.4		#74.9	71.1		m24.0	m66.6	
Internal Link Dist (m)		208.1			171.2			364.0			179.3	
Turn Bay Length (m)	25.0			55.0			55.0			50.0		
Base Capacity (vph)	224	409		239	435		199	1496		370	1438	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.33	0.48		0.68	0.55		0.81	0.56		0.48	0.76	

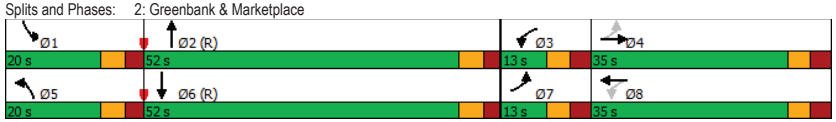
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 117 (98%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 32.2	Intersection LOS: C
Intersection Capacity Utilization 92.6%	ICU Level of Service F
Analysis Period (min) 15	

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

Splits and Phases: 2: Greenbank & Marketplace



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	66	239	651	18	358	891
Future Volume (vph)	66	239	651	18	358	891
Satd. Flow (prot)	1658	1483	3302	0	1658	3316
Flt Permitted	0.950				0.257	
Satd. Flow (perm)	1658	1483	3302	0	448	3316
Satd. Flow (RTOR)		60	2			
Lane Group Flow (vph)	66	239	669	0	358	891
Turn Type	Perm	pm+ov	NA		pm+pt	NA
Protected Phases		1	2		1	6
Permitted Phases	8	8			6	
Detector Phase	8	1	2		1	6
Switch Phase						
Minimum Initial (s)	10.0	5.0	10.0		5.0	10.0
Minimum Split (s)	50.8	12.8	42.9		12.8	42.9
Total Split (s)	50.8	26.2	43.0		26.2	69.2
Total Split (%)	42.3%	21.8%	35.8%		21.8%	57.7%
Yellow Time (s)	3.3	3.3	4.2		3.3	4.2
All-Red Time (s)	4.5	4.5	2.7		4.5	2.7
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	7.8	7.8	6.9		7.8	6.9
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Recall Mode	None	None	C-Max		None	C-Max
Act Effct Green (s)	36.4	57.8	47.5		71.6	73.8
Actuated g/C Ratio	0.30	0.48	0.40		0.60	0.62
v/c Ratio	0.13	0.32	0.51		0.81	0.44
Control Delay	27.3	12.9	34.0		47.9	29.1
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	27.3	12.9	34.0		47.9	29.1
LOS	C	B	C		D	C
Approach Delay	16.0		34.0			34.5
Approach LOS	B		C			C
Queue Length 50th (m)	10.3	19.3	72.4		79.2	90.4
Queue Length 95th (m)	20.3	33.4	92.9		m#122.9	111.6
Internal Link Dist (m)	332.9		431.5			364.0
Turn Bay Length (m)	38.0				38.0	
Base Capacity (vph)	594	760	1306		452	2040
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	0.11	0.31	0.51		0.79	0.44

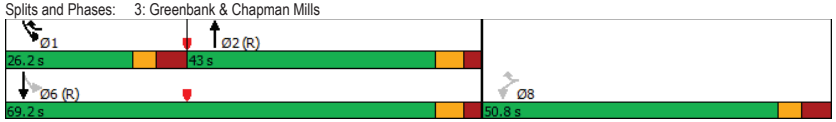
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 31.8	Intersection LOS: C
Intersection Capacity Utilization 67.6%	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: 3: Greenbank & Chapman Mills



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø4
Lane Configurations							
Traffic Volume (vph)	1155	180	272	1300	186	134	
Future Volume (vph)	1155	180	272	1300	186	134	
Satd. Flow (prot)	3316	1483	1658	3316	3216	1483	
Flt Permitted			0.077		0.950		
Satd. Flow (perm)	3316	1448	134	3316	3140	1456	
Satd. Flow (RTOR)		159				134	
Lane Group Flow (vph)	1155	180	272	1300	186	134	
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm	
Protected Phases	2		1	6	3		4
Permitted Phases		2	6			3 4	
Detector Phase	2	2	1	6	3	3 4	
Switch Phase							
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0		5.0
Minimum Split (s)	36.3	36.3	11.0	36.3	16.8		35.8
Total Split (s)	49.0	49.0	15.0	64.0	19.0		37.0
Total Split (%)	40.8%	40.8%	12.5%	53.3%	15.8%		31%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3		3.3
All-Red Time (s)	2.6	2.6	2.3	2.6	3.5		3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.3	6.3	6.0	6.3	6.8		
Lead/Lag	Lag	Lag	Lead		Lead		Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes		Yes
Recall Mode	C-Max	C-Max	None	C-Max	None		None
Act Effct Green (s)	46.0	46.0	78.7	78.4	11.5	28.5	
Actuated g/C Ratio	0.38	0.38	0.66	0.65	0.10	0.24	
v/c Ratio	0.91	0.28	0.64	0.60	0.61	0.30	
Control Delay	31.0	6.0	27.2	7.8	60.8	6.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	31.0	6.0	27.2	7.8	60.8	6.4	
LOS	C	A	C	A	E	A	
Approach Delay	27.6			11.2	38.0		
Approach LOS	C			B	D		
Queue Length 50th (m)	58.8	6.0	16.5	6.5	21.8	0.0	
Queue Length 95th (m)	m#163.4	m6.7	m#85.0	m176.8	33.7	11.8	
Internal Link Dist (m)	263.2			413.3	180.6		
Turn Bay Length (m)		80.0	150.0		40.0		
Base Capacity (vph)	1270	652	423	2166	326	646	
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	0.91	0.28	0.64	0.60	0.57	0.21	

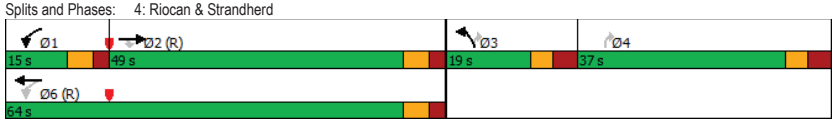
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 70 (58%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 20.6	Intersection LOS: C
Intersection Capacity Utilization 73.9%	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: 4: Riocan & Strandherd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	214	942	200	340	1241	127	119	256	201	116	424	173
Future Volume (vph)	214	942	200	340	1241	127	119	256	201	116	424	173
Satd. Flow (prot)	3216	3316	1483	3216	3316	1483	3216	1745	1483	1658	1745	1483
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3211	3316	1457	3207	3316	1458	3179	1745	1444	1641	1745	1447
Satd. Flow (RTOR)			215			155			212			212
Lane Group Flow (vph)	214	942	200	340	1241	127	119	256	201	116	424	173
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)	11.6	36.6	36.6	11.6	35.4	35.4	11.7	35.7	35.7	11.7	35.7	35.7
Total Split (s)	13.0	42.0	42.0	24.0	53.0	53.0	18.0	36.0	36.0	18.0	36.0	36.0
Total Split (%)	10.8%	35.0%	35.0%	20.0%	44.2%	44.2%	15.0%	30.0%	30.0%	15.0%	30.0%	30.0%
Yellow Time (s)	4.2	4.2	4.2	4.2	4.2	4.2	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.4	2.2	2.2	2.4	2.2	2.2	3.4	3.4	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.4	6.4	6.6	6.4	6.4	6.7	6.7	6.7	6.7	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
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	6.4	36.7	36.7	16.3	46.6	46.6	9.5	29.8	29.8	10.8	31.1	31.1
Actuated g/C Ratio	0.05	0.31	0.31	0.14	0.39	0.39	0.08	0.25	0.25	0.09	0.26	0.26
v/c Ratio	1.25	0.93	0.34	0.78	0.96	0.19	0.47	0.59	0.39	0.78	0.94	0.33
Control Delay	173.8	53.9	17.9	63.2	54.1	2.7	58.5	46.5	6.5	85.8	74.2	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	173.8	53.9	17.9	63.2	54.1	2.7	58.5	46.5	6.5	85.8	74.2	3.8
LOS	F	D	B	E	D	A	E	D	A	F	E	A
Approach Delay		67.5			52.1			35.0			59.0	
Approach LOS		E			D			D			E	
Queue Length 50th (m)	~31.6	124.4	25.8	40.0	148.4	0.0	14.0	53.7	0.0	27.1	98.4	0.0
Queue Length 95th (m)	m#39.4	m#147.2	m33.0	55.7	#195.5	7.5	23.1	81.1	16.0	#55.8	#164.6	9.5
Internal Link Dist (m)		413.3			403.0			212.7			202.0	
Turn Bay Length (m)	90.0		55.0	80.0		195.0	50.0		90.0	50.0		50.0
Base Capacity (vph)	171	1015	595	466	1287	660	302	433	517	156	451	531
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	1.25	0.93	0.34	0.73	0.96	0.19	0.39	0.59	0.39	0.74	0.94	0.33

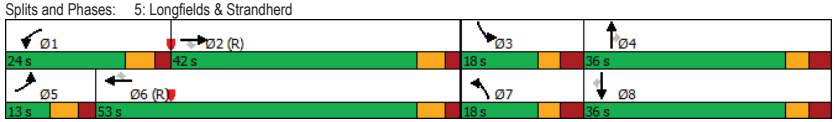
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 18 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.25

Intersection Signal Delay: 55.8	Intersection LOS: E
Intersection Capacity Utilization 92.5%	ICU Level of Service F
Analysis Period (min) 15	

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

Splits and Phases: 5: Longfields & Strandherd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	71	217	17	52	54	139	466	15	100	762	176
Future Volume (vph)	133	71	217	17	52	54	139	466	15	100	762	176
Satd. Flow (prot)	1658	1533	0	0	1618	0	1658	3296	0	1658	3208	0
Flt Permitted	0.714				0.737		0.206			0.477		
Satd. Flow (perm)	1239	1533	0	0	1200	0	359	3296	0	828	3208	0
Satd. Flow (RTOR)		194			50			6			36	
Lane Group Flow (vph)	133	288	0	0	123	0	139	481	0	100	938	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	34.8	34.8		34.8	34.8		10.6	24.8		24.8	24.8	
Total Split (s)	35.0	35.0		35.0	35.0		15.0	50.0		35.0	35.0	
Total Split (%)	41.2%	41.2%		41.2%	41.2%		17.6%	58.8%		41.2%	41.2%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.8	3.8		3.8	3.8		2.3	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.8	6.8			6.8		5.6	5.8		5.8	5.8	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	
Act Effct Green (s)	16.1	16.1			16.1		56.5	56.3		42.8	42.8	
Actuated g/C Ratio	0.19	0.19			0.19		0.66	0.66		0.50	0.50	
v/c Ratio	0.57	0.64			0.46		0.39	0.22		0.24	0.57	
Control Delay	39.2	16.9			22.7		10.0	7.0		17.1	18.0	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay	39.2	16.9			22.7		10.0	7.0		17.1	18.0	
LOS	D	B			C		A	A		B	B	
Approach Delay		24.0			22.7			7.6			17.9	
Approach LOS		C			C			A			B	
Queue Length 50th (m)	20.4	13.7			10.6		6.6	12.8		8.3	48.3	
Queue Length 95th (m)	30.4	30.7			21.3		20.3	30.4		25.2	#96.2	
Internal Link Dist (m)		257.2			427.6			228.1			212.7	
Turn Bay Length (m)	30.0						75.0			100.0		
Base Capacity (vph)	411	638			431		383	2184		416	1632	
Starvation Cap Reductn	0	0			0		0	0		0	0	
Spillback Cap Reductn	0	0			0		0	0		0	0	
Storage Cap Reductn	0	0			0		0	0		0	0	
Reduced v/c Ratio	0.32	0.45			0.29		0.36	0.22		0.24	0.57	

Intersection Summary
Cycle Length: 85
Actuated Cycle Length: 85
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 16.4	Intersection LOS: B
Intersection Capacity Utilization 74.5%	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: 6: Longfields & Marketplace/Clearbrook

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	6	367	65	4	82	230	562	54	161	874	45
Future Volume (vph)	12	6	367	65	4	82	230	562	54	161	874	45
Satd. Flow (prot)	1658	1745	1483	1658	1745	1483	1658	3316	1483	1658	3316	1483
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1648	1745	1451	1643	1745	1457	1645	3316	1433	1650	3316	1400
Satd. Flow (RTOR)			188			185						187
Lane Group Flow (vph)	12	6	367	65	4	82	230	562	54	161	874	45
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.3	32.5	32.5	12.3	32.5	32.5	9.5	38.3	38.3	9.5	38.3	38.3
Total Split (s)	12.3	32.5	32.5	12.3	32.5	32.5	11.0	40.2	40.2	10.0	39.2	39.2
Total Split (%)	12.9%	34.2%	34.2%	12.9%	34.2%	34.2%	11.6%	42.3%	42.3%	10.5%	41.3%	41.3%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.5	3.7	3.7	3.5	3.7	3.7
All-Red Time (s)	4.0	4.2	4.2	4.0	4.2	4.2	1.0	3.6	3.6	1.0	3.6	3.6
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)	7.3	7.5	7.5	7.3	7.5	7.5	4.5	7.3	7.3	4.5	7.3	7.3
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
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	5.0	18.2	18.2	5.0	25.6	25.6	15.8	33.5	33.5	14.2	31.9	31.9
Actuated g/C Ratio	0.05	0.19	0.19	0.05	0.27	0.27	0.17	0.35	0.35	0.15	0.34	0.34
v/c Ratio	0.14	0.02	0.86	0.75	0.01	0.16	0.84	0.48	0.11	0.65	0.79	0.08
Control Delay	46.7	27.3	36.3	90.9	23.5	0.6	70.1	25.9	21.9	57.9	34.5	0.2
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	46.7	27.3	36.3	90.9	23.5	0.6	70.1	25.9	21.9	57.9	34.5	0.2
LOS	D	C	D	F	C	A	E	C	C	E	C	A
Approach Delay		36.5			40.1			37.6			36.5	
Approach LOS		D			D			D			D	
Queue Length 50th (m)	2.1	0.9	32.4	12.0	0.5	0.0	~45.5	42.2	6.7	29.1	75.3	0.0
Queue Length 95th (m)	7.7	3.9	62.0	#34.0	3.0	0.0	#111.2	57.4	14.8	#81.5	98.2	0.0
Internal Link Dist (m)		383.3			203.2			375.7			148.4	
Turn Bay Length (m)	38.0		38.0	40.0		40.0	90.0		65.0	65.0		75.0
Base Capacity (vph)	87	459	520	87	524	567	275	1170	505	247	1113	594
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	0.14	0.01	0.71	0.75	0.01	0.14	0.84	0.48	0.11	0.65	0.79	0.08

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

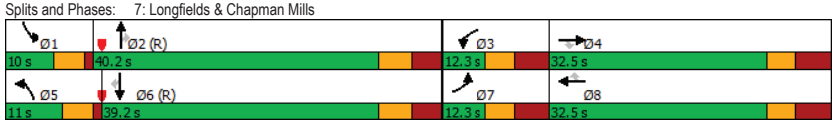
Maximum v/c Ratio: 0.86

Intersection Signal Delay: 37.1	Intersection LOS: D
Intersection Capacity Utilization 73.2%	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: Longfields & Chapman Mills



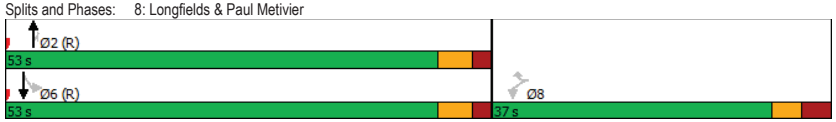
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	91	87	549	68	104	869
Future Volume (vph)	91	87	549	68	104	869
Satd. Flow (prot)	1658	1483	3316	1483	1658	3316
Flt Permitted	0.950				0.447	
Satd. Flow (perm)	1647	1463	3316	1434	775	3316
Satd. Flow (RTOR)		87		68		
Lane Group Flow (vph)	91	87	549	68	104	869
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)	36.6	36.6	36.0	36.0	24.0	24.0
Total Split (s)	37.0	37.0	53.0	53.0	53.0	53.0
Total Split (%)	41.1%	41.1%	58.9%	58.9%	58.9%	58.9%
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	3.3	3.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	14.5	14.5	67.4	67.4	67.4	67.4
Actuated g/C Ratio	0.16	0.16	0.75	0.75	0.75	0.75
v/c Ratio	0.34	0.28	0.22	0.06	0.18	0.35
Control Delay	34.9	8.4	5.9	2.5	7.6	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.9	8.4	5.9	2.5	7.6	6.8
LOS	C	A	A	A	A	A
Approach Delay	22.0		5.5			6.8
Approach LOS	C		A			A
Queue Length 50th (m)	15.0	0.0	12.3	0.0	4.3	22.1
Queue Length 95th (m)	21.8	9.5	37.0	5.8	19.3	63.2
Internal Link Dist (m)	403.8		379.4			375.7
Turn Bay Length (m)	45.0			50.0	70.0	
Base Capacity (vph)	556	551	2484	1091	580	2484
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	0.16	0.22	0.06	0.18	0.35

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 35 (39%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.35

Intersection Signal Delay: 7.9	Intersection LOS: A
Intersection Capacity Utilization 57.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Longfields & Paul Metivier

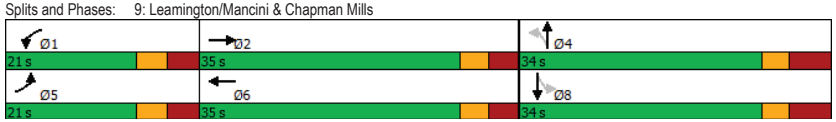


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	107	78	42	101	31	55	10	31	20	12	7
Future Volume (vph)	15	107	78	42	101	31	55	10	31	20	12	7
Satd. Flow (prot)	1658	1619	0	1658	1674	0	0	1622	0	0	1657	0
Flt Permitted	0.950			0.950				0.801			0.788	
Satd. Flow (perm)	1650	1619	0	1654	1674	0	0	1336	0	0	1339	0
Satd. Flow (RTOR)		43			18							
Lane Group Flow (vph)	15	185	0	42	132	0	0	96	0	0	39	0
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.8	22.6		11.8	22.6		33.7	33.7		33.7	33.7	
Total Split (s)	21.0	35.0		21.0	35.0		34.0	34.0		34.0	34.0	
Total Split (%)	23.3%	38.9%		23.3%	38.9%		37.8%	37.8%		37.8%	37.8%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	3.5	3.3		3.5	3.3		4.7	4.7		4.7	4.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	6.8	6.6		6.8	6.6			7.7			7.7	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	Max		None	Max		None	None		None	None	
Act Effct Green (s)	6.3	37.2		7.4	43.3			13.1			13.1	
Actuated g/C Ratio	0.09	0.56		0.11	0.65			0.20			0.20	
v/c Ratio	0.10	0.20		0.23	0.12			0.37			0.15	
Control Delay	33.8	12.5		33.9	9.7			28.9			24.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	33.8	12.5		33.9	9.7			28.9			24.8	
LOS	C	B		C	A			C			C	
Approach Delay		14.1			15.5			28.9			24.8	
Approach LOS		B			B			C			C	
Queue Length 50th (m)	1.8	10.6		4.9	4.7			11.1			4.3	
Queue Length 95th (m)	7.9	33.1		15.6	25.0			23.6			11.6	
Internal Link Dist (m)		203.2			520.9			265.7			233.3	
Turn Bay Length (m)	40.0			50.0								
Base Capacity (vph)	362	920		362	1089			540			542	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.04	0.20		0.12	0.12			0.18			0.07	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 66.9
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.37

Intersection Signal Delay: 18.2 | Intersection LOS: B
Intersection Capacity Utilization 43.9% | ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 9: Leamington/Mancini & Chapman Mills

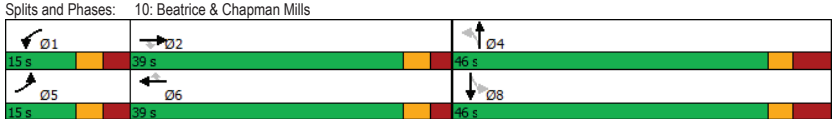


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	109	5	22	147	25	7	42	16	25	51	29
Future Volume (vph)	39	109	5	22	147	25	7	42	16	25	51	29
Satd. Flow (prot)	1658	1745	1483	1658	1745	1483	0	3158	0	0	3093	0
Flt Permitted	0.950			0.950				0.920			0.869	
Satd. Flow (perm)	1640	1745	1446	1639	1745	1446	0	2910	0	0	2718	0
Satd. Flow (RTOR)			122			122						
Lane Group Flow (vph)	39	109	5	22	147	25	0	65	0	0	105	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases			2			6	4			8		
Detector Phase	5	2	2	1	6	6	4	4		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	
Minimum Split (s)	11.5	25.9	25.9	11.5	25.9	25.9	45.7	45.7		45.7	45.7	
Total Split (s)	15.0	39.0	39.0	15.0	39.0	39.0	46.0	46.0		46.0	46.0	
Total Split (%)	15.0%	39.0%	39.0%	15.0%	39.0%	39.0%	46.0%	46.0%		46.0%	46.0%	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.0	3.0		3.0	3.0	
All-Red Time (s)	3.2	2.6	2.6	3.2	2.6	2.6	4.7	4.7		4.7	4.7	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)	6.5	5.9	5.9	6.5	5.9	5.9		7.7			7.7	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Max	Max	None	Max	Max	None	None		None	None	
Act Effct Green (s)	7.4	42.5	42.5	6.9	42.4	42.4		19.1			19.1	
Actuated g/C Ratio	0.10	0.57	0.57	0.09	0.57	0.57		0.26			0.26	
v/c Ratio	0.24	0.11	0.01	0.14	0.15	0.03		0.09			0.15	
Control Delay	41.5	17.9	0.0	41.0	17.8	0.1		20.2			20.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	
Total Delay	41.5	17.9	0.0	41.0	17.8	0.1		20.2			20.8	
LOS	D	B	A	D	B	A		C			C	
Approach Delay		23.3			18.1			20.2			20.8	
Approach LOS		C			B			C			C	
Queue Length 50th (m)	3.7	4.3	0.0	2.1	6.0	0.0		3.0			4.9	
Queue Length 95th (m)	17.3	27.4	0.0	11.4	35.7	0.0		8.5			12.3	
Internal Link Dist (m)		520.9			367.7			322.5			353.5	
Turn Bay Length (m)	40.0		40.0	45.0		60.0						
Base Capacity (vph)	204	1000	881	204	997	878		1621			1514	
Starvation Cap Reductn	0	0	0	0	0	0		0			0	
Spillback Cap Reductn	0	0	0	0	0	0		0			0	
Storage Cap Reductn	0	0	0	0	0	0		0			0	
Reduced v/c Ratio	0.19	0.11	0.01	0.11	0.15	0.03		0.04			0.07	

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 74.1
Natural Cycle: 85
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.24

Intersection Signal Delay: 20.5	Intersection LOS: C
Intersection Capacity Utilization 60.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 10: Beatrice & Chapman Mills



Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	54	0	631	956	70
Future Vol, veh/h	0	54	0	631	956	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	54	0	631	956	70

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	513	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	506	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	506	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	506	-	-
HCM Lane V/C Ratio	-	0.107	-	-
HCM Control Delay (s)	-	13	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.4	-	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	18	25	55	50	0
Future Vol, veh/h	3	18	25	55	50	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	18	25	55	50	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	80	0	-	0	77	53
Stage 1	-	-	-	-	53	-
Stage 2	-	-	-	-	24	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1518	-	-	-	926	1014
Stage 1	-	-	-	-	970	-
Stage 2	-	-	-	-	999	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1518	-	-	-	924	1014
Mov Cap-2 Maneuver	-	-	-	-	924	-
Stage 1	-	-	-	-	968	-
Stage 2	-	-	-	-	999	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1518	-	-	-	924
HCM Lane V/C Ratio	0.002	-	-	-	0.054
HCM Control Delay (s)	7.4	0	-	-	9.1
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	0	21	27	0	67
Future Vol, veh/h	25	0	21	27	0	67
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	0	21	27	0	67

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	102	35	0	0	48	0
Stage 1	35	-	-	-	-	-
Stage 2	67	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	896	1038	-	-	1559	-
Stage 1	987	-	-	-	-	-
Stage 2	956	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	896	1038	-	-	1559	-
Mov Cap-2 Maneuver	896	-	-	-	-	-
Stage 1	987	-	-	-	-	-
Stage 2	956	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	896	1559	-
HCM Lane V/C Ratio	-	-	0.028	-	-
HCM Control Delay (s)	-	-	9.1	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	29	347	251	20	38	54
Future Volume (vph)	29	347	251	20	38	54
Satd. Flow (prot)	1658	1745	1728	0	1575	0
Flt Permitted	0.593				0.980	
Satd. Flow (perm)	1035	1745	1728	0	1575	0
Satd. Flow (RTOR)			7		54	
Lane Group Flow (vph)	29	347	271	0	92	0
Turn Type	Perm	NA	NA		Perm	
Protected Phases		2	6			
Permitted Phases	2				8	
Detector Phase	2	2	6		8	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0		10.0	
Minimum Split (s)	24.9	24.9	37.9		26.1	
Total Split (s)	56.0	56.0	56.0		34.0	
Total Split (%)	62.2%	62.2%	62.2%		37.8%	
Yellow Time (s)	3.3	3.3	3.3		3.3	
All-Red Time (s)	3.6	3.6	3.6		3.8	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.9	6.9	6.9		7.1	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max	Max	Max		None	
Act Effct Green (s)	53.6	53.6	53.6		10.2	
Actuated g/C Ratio	0.74	0.74	0.74		0.14	
v/c Ratio	0.04	0.27	0.21		0.35	
Control Delay	4.4	5.3	4.8		18.5	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	4.4	5.3	4.8		18.5	
LOS	A	A	A		B	
Approach Delay		5.2	4.8		18.5	
Approach LOS		A	A		B	
Queue Length 50th (m)	1.1	16.5	11.8		4.7	
Queue Length 95th (m)	3.6	28.4	21.3		16.8	
Internal Link Dist (m)		332.9	383.3		121.0	
Turn Bay Length (m)	38.0					
Base Capacity (vph)	761	1284	1272		615	
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	0.04	0.27	0.21		0.15	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 72.9
Natural Cycle: 65
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.35

Intersection Signal Delay: 6.7 — Intersection LOS: A
Intersection Capacity Utilization 45.4% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 16: Chapman Mills & Riocan

Appendix L

TDM Checklist

CGH TRANSPORTATION

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	☐

TDM-Supportive Development Design and Infrastructure Checklist:
Residential Developments (multi-family or condominium)

Legend

REQUIRED	The Official Plan or Zoning By-law provides related guidance that must be followed
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

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	1.	**WALKING & CYCLING: ROUTES**	
	1.1	**Building location & access points**	
BASIC	1.1.1	Locate building close to the street, and do not locate parking areas between the street and building entrances	☑
BASIC	1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	☑
BASIC	1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	☑
	1.2	**Facilities for walking & cycling**	
REQUIRED	1.2.1	Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; minimize walking distances from buildings to rapid transit; provide pedestrian-friendly, weather-protected (where possible) environment between rapid transit accesses and building entrances; ensure quality linkages from sidewalks through building entrances to integrated stops/stations *(see Official Plan policy 4.3.3)*	☑
REQUIRED	1.2.2	Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible *(see Official Plan policy 4.3.12)*	☑

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
REQUIRED	1.2.3	Provide sidewalks of smooth, well-drained walking surfaces of contrasting materials or treatments to differentiate pedestrian areas from vehicle areas, and provide marked pedestrian crosswalks at intersection sidewalks *(see Official Plan policy 4.3.10)*	☑
REQUIRED	1.2.4	Make sidewalks and open space areas easily accessible through features such as gradual grade transition, depressed curbs at street corners and convenient access to extra-wide parking spaces and ramps *(see Official Plan policy 4.3.10)*	☑
REQUIRED	1.2.5	Include adequately spaced inter-block/street cycling and pedestrian connections to facilitate travel by active transportation. Provide links to the existing or planned network of public sidewalks, multi-use pathways and on-road cycle routes. Where public sidewalks and multi-use pathways intersect with roads, consider providing traffic control devices to give priority to cyclists and pedestrians *(see Official Plan policy 4.3.11)*	☑
BASIC	1.2.6	Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	☑
BASIC	1.2.7	Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	☐
BASIC	1.2.8	Design roads used for access or circulation by cyclists using a target operating speed of no more than 30 km/h, or provide a separated cycling facility	☐
	1.3	**Amenities for walking & cycling**	
BASIC	1.3.1	Provide lighting, landscaping and benches along walking and cycling routes between building entrances and streets, sidewalks and trails	☐
BASIC	1.3.2	Provide wayfinding signage for site access (where required, e.g. when multiple buildings or entrances exist) and egress (where warranted, such as when directions to reach transit stops/stations, trails or other common destinations are not obvious)	☐

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	2.	**WALKING & CYCLING: END-OF-TRIP FACILITIES**	
	2.1	**Bicycle parking**	
REQUIRED	2.1.1	Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible *(see Official Plan policy 4.3.6)*	☑
REQUIRED	2.1.2	Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well-used areas *(see Zoning By-law Section 111)*	☑
REQUIRED	2.1.3	Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored *(see Zoning By-law Section 111)*	☑
BASIC	2.1.4	Provide bicycle parking spaces equivalent to the expected number of resident-owned bicycles, plus the expected peak number of visitor cyclists	☐
	2.2	**Secure bicycle parking**	
REQUIRED	2.2.1	Where more than 50 bicycle parking spaces are provided for a single residential building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers *(see Zoning By-law Section 111)*	☐
BETTER	2.2.2	Provide secure bicycle parking spaces equivalent to at least the number of units at condominiums or multi-family residential developments	☐
	2.3	**Bicycle repair station**	
BETTER	2.3.1	Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)	☐
	3.	**TRANSIT**	
	3.1	**Customer amenities**	
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	☐
BASIC	3.1.2	Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter	☐
BETTER	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	☐

TDM-Supportive Development Design and Infrastructure Checklist **City of Ottawa**
Version 1.0 (30 June 2017)

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	4.	**RIDESHARING**	
	4.1	**Pick-up & drop-off facilities**	
BASIC	4.1.1	Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones	☐
	5.	**CARSHARING & BIKESHARING**	
	5.1	**Carshare parking spaces**	
BETTER	5.1.1	Provide up to three carshare parking spaces in an R3, R4 or R5 Zone for specified residential uses *(see Zoning By-law Section 94)*	☐
	5.2	**Bikeshare station location**	
BETTER	5.2.1	Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection	☐
	6.	**PARKING**	
	6.1	**Number of parking spaces**	
REQUIRED	6.1.1	Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for	☐
BASIC	6.1.2	Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking	☐
BASIC	6.1.3	Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly *(see Zoning By-law Section 104)*	☐
BETTER	6.1.4	Reduce the minimum number of parking spaces required by zoning by one space for each 13 square metres of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking *(see Zoning By-law Section 111)*	☐
	6.2	**Separate long-term & short-term parking areas**	
BETTER	6.2.1	Provide separate areas for short-term and long-term parking (using signage or physical barriers) to permit access controls and simplify enforcement (i.e. to discourage residents from parking in visitor spaces, and vice versa)	☐