1509 Merivale Road

Transportation Impact Assessment

Step 1 Screening Report

Step 2 Scoping Report

Step 3 Forecasting Report

Step 4 Strategy Report

Prepared for:

Katasa Group
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6 Plaza Court
Ottawa, ON K2H 7W1

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PN: 2020-47

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1 Screening

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

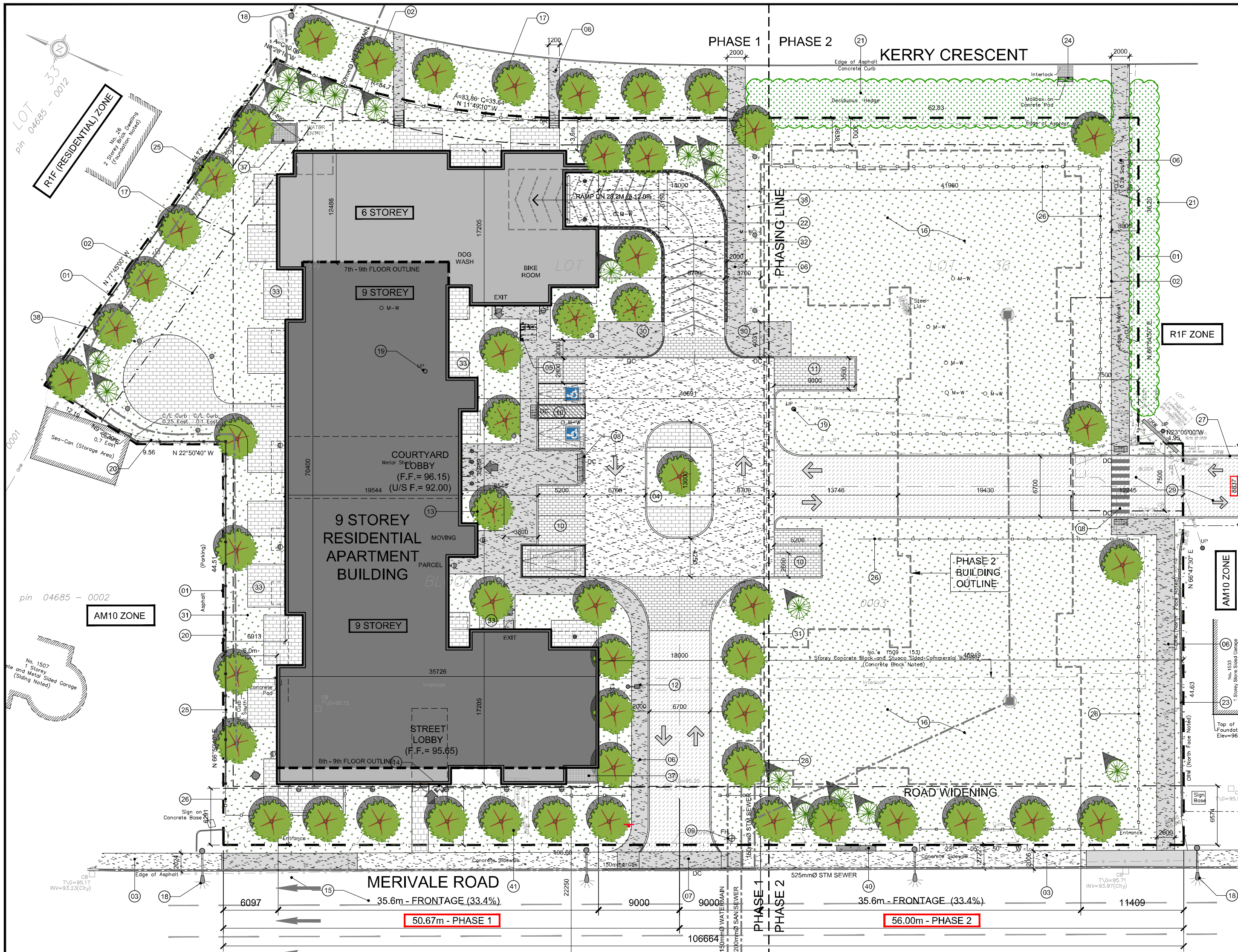
2 Existing and Planned Conditions

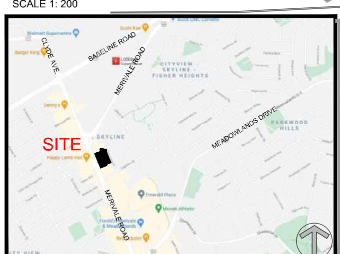
2.1 Proposed Development

The redevelopment is situated on the northern portion of the 1509 Merivale Road land parcel and is proposed as a nine-storey residential building with 202 units, and a surface lot and two levels of underground parking under the Phase 1 area, comprising 202 spaces. The site is proposed to have a right-in/right-out access onto Merivale Road, approximately 120 metres south of the intersection of Merivale Road/Clyde Avenue at Lotta Avenue/Merivale Road, and to use an existing full-movement rear lane access onto Capilano Drive. The anticipated build-out and occupancy horizon for phase one of the redevelopment is 2024. A second phase comprising a mirror of the planned building on the south side of the site is anticipated in the future. The development site is currently zoned as Arterial Mainstreet (AM10) and is within the Merivale Road Secondary Plan area and the Merivale Arterial Mainstreet design priority area. The existing land uses is a commercial strip with surrounding parking lots. Figure 1 illustrates the Study Area Context. Figure 2 illustrates the proposed concept plan.

Figure 1: Area Context Plan

Source: https://maps.ottawa.ca/geoottawabeta/Accessed: October 1, 2020





KEY MAP

TRANSPORTATION ENGINEER	CIVIL ENGINEER	PROJECT DEVELOPER
CGH Transportation Inc. 628 Haines Road Newmarket, ON L3Y 6V5 Tel: (905) 251-4070 Email: andrew.harte@cghtransportation.com	LRL Engineering 5430 Canotek Rd. Ottawa, ON K1J 9G2 Tell: 613 842-3434 E-Mail: asalem@lrl.ca	Katasa 69 Rue Jean-Proulx #301, Gatineau, QC J8Z 1W2 T 819. 771.2787 E-Mail: tanya@katasa.ca
SURVEYOR	**LANDSCAPE ARCHITECT**	**LEGAL DESCRIPTION**
Annis O'Sullivan Vollebekk Ltd. Ontario Land Surveyors 14 Concourse Gate, Suite 500, Nepean, Ontario K2E 7S6 Tel: (613) 727-0850 Fax: (613) 727-1079 E-Mail: andrewb@aovltd.com	Gino J. Aiello Landscape Architect 110 Didsbury Road Unit 9, Ottawa, Ontario K2E 0C2 Tel: (613) 852-1343 Cell: (613) Email: gino@giala.com	PART OF LOTS 34, 35 AND 36 AND PART OF BLOCK A REGISTERED PLAN 313132 CITY OF OTTAWA
	GEOTECHNICAL ENGINEER	**URBAN PLANNER**
	Paterson Group 154 Colonnade Road South Ottawa, Ontario K2E 7J5 Tel: 613.226-7381 Email: DGilbert@Patersongroup.ca	Fotenn Consulting 396 Cooper Street Suite 300 Ottawa, ON K2P 2H7 T 613.730.5709 E-Mail: sutherland@fotenn.com

PROJECT INFORMATION

ZONING	AM10
SITE AREA (OVERALL)	8,896.0 sq. m. 95,756 sq. ft.
SITE AREA (PHASE 1)	5,357.3 sq. m. 57,666 sq. ft.
SITE AREA (PHASE 2)	3,538.7 sq. m. 38,090 sq. ft.

REQUIRED

BUILDING HEIGHT	9 STOREY'S - 30 m
DENSITY - F.S.I.	3.5
FRONT YARD SETBACK	3.0 m
INTERIOR YARD SETBACK	0.0 , 3.0 & 7.5 m
REAR YARD SETBACK	3.0 m.
AMENITY AREA PER UNIT	6.0 sq. m.
VEHICLE PARKING - RESIDENTIAL	0.5 PER UNIT
VEHICLE PARKING - VISITOR ONLY	0.1 PER UNIT (AREA X)
BICYCLE PARKING - RESIDENTIAL	0.5 PER UNIT

PROVIDED

BUILDING HEIGHT		9 STOREY'S - 29.0 m
GRADE		95.80m geo. elev.
DENSITY - F.S.I.	PHASE 1 ONLY	2.74
FRONT YARD SETBACK		6.7 m.
INTERIOR YARD SETBACK		6.1 m.
REAR YARD SETBACK		3.6 m.
AMENITY AREA PER UNIT		6.0 sq. m.
TOWER FOOTPRINT		890 sq. m.
VEHICLE PARKING - RESIDENTIAL		0.79 PER UNIT
VEHICLE PARKING - VISITOR ONLY		0.2 PER UNIT
BICYCLE PARKING - RESIDENTIAL		1 PER UNIT

DRAWING NOTES

1. PROPERTY LINE
2. BUILDING SETBACK LINE
3. EXISTING CONCRETE SIDEWALK TO REMAIN
4. LANDSCAPE ISLAND WITH 150mm BARRIER CURB
5. BICYCLE PARKING SPACES (0.6 x 1.8M) WITH RACK
6. CONCRETE WALK, WIDTH AS NOTED
7. DEPRESSED CURB & SIDEWALK, CONTINUOUS
8. DEPRESSED CURB & TWSI
9. FIRE HYDRANT
10. STANDARD PARKING SPACE (2.6 X 5.2 M)
11. LOADING ZONE
12. LIGHT STANDARD - LOCATION TO BE CONFIRMED
13. BUILDING CANOPY
14. SIAMESE CONNECTION
15. FIRE ROUTE
16. SOFT LANDSCAPING
17. EXISTING CEDAR HEDGE TO BE REMOVED
18. EXISTING STREET LIGHT
19. EXISTING HYDRO POLE TO BE REMOVED
20. EXISTING MOVABLE CURB TO BE REMOVED
21. EXISTING CEDAR HEDGE
22. RAMP RETAINING WALL, MAX. HT. 1.1m ABOVE GRADE
23. EXISTING RETAINING WALL
24. EXISTING CANADA POST MAIL BOXES
25. 2.1m HT. SOLID WOOD FENCE, SEE LANDSCAPE
26. LOW METAL PICKED FENCE, SEE LANDSCAPE
27. EXISTING RETAINING WALL TO BE REMOVED
28. BELOW GRADE CISTERN WITH ACCESS MH
29. EXISTING SERVICE LANE TO BE EXTENDED
30. REFUGE PICK UP AREA WITH DEPRESSED CURB
31. EXTENT OF BELOW GROUND PARKING GARAGE
32. HEATED GARAGE RAMP WITH TRENCH DRAIN
33. PRIVATE PATIO AT GRADE
34. EXISTING FIRE HYDRANT
35. HYDRO EQUIPMENT
36. TEMPORARY SNOW STORAGE AREA
37. INTAKE / EXHAUST GRILL FOR U/G PARKING GARAGE
38. LIGHT BOLLARD
39. REPLACE EXISTING DEPRESSED CURB AND SIDEWALK WITH BARRIER CURB AND SIDEWALK.
40. OC TRANSPO BUS STOP WITH WOODEN BENCHES
41. EXISTING RAISED BILLBOARD TO BE REMOVED

SITE PLAN SYMBOLS

- ASPHALT DRIVING AISLE
- CONCRETE DRIVING AISLE
- CONCRETE SIDEWALK / WALK
- CONCRETE PAVERS, SEE LANDSCAPE DRAWINGS
- CONCRETE PAVERS ON DRIVING SURFACE
- PROPERTY LINE
- BUILDING SETBACK LINE
- 1.2m & 1.5m HT. METAL PICKET FENCE
- 2.1m HT. SOLID WOOD FENCE
- BIKE RACK
- ENTRANCE / EXIT DOOR
- FH FIRE HYDRANT
- VEHICULAR DIRECTION
- PROPOSED TREES
- SIAMESE CONNECTION
- SITE LIGHTING

NOTE:
SEE LANDSCAPE FOR ALL SURFACE MATERIAL AND PATTERN

BUILDING STATISTICS

UNIT STATISTICS

STUDIO	24
1 BEDROOM UNIT	84
1 BEDROOM + DEN UNIT	55
2 BEDROOM UNIT	37
2 BEDROOM + DEN UNIT	2
TOTAL	202

GROSS BUILDING FLOOR AREA
(OTTAWA ZONING DEFINITION)

GROUND FLOOR		913.9 sq. m. 9,837 sq. ft.
2nd - 6th FLOOR	5 x 1,492.4 sq. m. 5 x 16,064 sq. ft.	7,462.0 sq. m. 80,320 sq. ft.
7th FLOOR		1,103.4 sq. m. 11,877 sq. ft.
8th - 9th FLOOR	2 x 1,057.5 sq. m. 2 x 11,383 sq. ft.	2,115 sq. m. 22,766 sq. ft.
TOTAL AREA ABOVE GRADE		11,594.3 sq. m. 124,800 sq. ft.

CAR PARKING

REQUIRED

RESIDENT	0.5 PER UNIT (202 UNITS)	101
VISITOR	0.1 PER UNIT (AREA X)	202
TOTAL		123

PROVIDED

RESIDENT	0.79 PER UNIT	161
VISITOR	0.2 PER UNIT	41
TOTAL		202

LOCATION

SURFACE PARKING SPACES	8
LEVEL P1 PARKING SPACES	93
LEVEL P2 PARKING SPACES	101

TYPE / SIZE

STANDARD PARKING SPACE	2.6 x 5.2 m	173
SMALL CAR PARKING SPACE	2.4 x 4.6 m	27
BARRIER FREE SPACE - TYPE A	3.4 x 5.2 m	2
BARRIER FREE SPACE - TYPE B	2.4 x 5.2 m	0

BICYCLE PARKING

REQUIRED

RESIDENT	0.5 PER UNIT (202 UNITS)	102

PROVIDED

RESIDENT	1 PER UNIT	202

GROUND FLOOR BIKE ROOM	56
UNDERGROUND PARKING LEVEL P1	100
UNDERGROUND PARKING LEVEL P2	46

AMENITY AREA

AT GRADE EXTERIOR - PRIVATE	360.1 sq. m.
AT GRADE EXTERIOR - COMMUNAL	481.1 sq. m.
INTERIOR AMENITY - COMMUNAL	287.6 sq. m.
EXTERIOR AMENITY - COMMUNAL	532.1 sq. m.
BALCONIES - PRIVATE	1,528.1 sq. m.
TOTAL	2,828.8 sq. m.
TOTAL COMMUNAL	1,300.8 sq. m.

REQUIRED (202 UNITS X 6 m²) = 1,212 sq. m.
REQUIRED COMMUNAL @ 50% = 606 sq. m.

SITE COVERAGE

BUILDING FOOTPRINT	34.2%	1,804.3 sq. m.
DRIVING SURFACE	18.6%	980.3 sq. m.
LANDSCAPE AREA	47.3%	2,498.4 sq. m.
PHASE 1 TOTAL	100.0%	5,283 sq. m.

SOLID WASTE COLLECTION

		PROVIDED
GARBAGE COMPACTED @ 0.053 cu yd per unit	10.76 yd	12 yd
GMP CONTAINERS @ 0.018 cu yd per unit	3.65 yd	4 yd
FIBRE CONTAINERS @ 0.018 cu yd per unit	7.71 yd	8 yd
ORGANICS CONTAINERS @ one 240L per 50 unit	4.06	4

IT IS THE RESPONSIBILITY OF THE APPROPRIATE CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND TO REPORT ALL ERRORS AND/OR OMISSIONS TO THE ARCHITECT.

ALL CONTRACTORS MUST COMPLY WITH ALL PERTINENT CODES AND BY-LAWS.

THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION UNTIL SIGNED BY THE ARCHITECT.

DO NOT SCALE DRAWINGS.

NOTATION SYMBOLS:

- (00) INDICATES DRAWING NOTES, LISTED ON EACH SHEET.
- ◇00 INDICATES ASSEMBLIE TYPE; REFER TO TYPICAL ASSEMBLIES SCHEDUAL.
- ⬡00 INDICATES WINDOW TYPE; REFER TO WINDOW ELEVATIONS AND DETAILS ON A900 SERIES.
- (000) INDICATES DOOR TYPE; REFER TO DOOR SCHEDULE AND DETAILS ON A900 SERIES.
- DETAIL NUMBER / TITLE / SCALE / DETAIL REFERENCE PAGE / DETAIL CROSS REFERENCE PAGE

GENERAL NOTES:

A. REFER TO TYPICAL ASSEMBLIES SHEET FOR WALL, PARTITION, ROOF CEILING & FLOOR TYPES.
B. FOR DOOR TYPES AND HARDWARE REQUIREMENTS REFER TO DOOR SCHEDULE ON A900 SERIES.
C. ALL INTERIOR DIMENSIONS ARE TAKEN FROM THE FACE OF DRYWALL.
D. ALL EXTERIOR DIMENSIONS ARE TAKEN FROM THE FACE OF CLADDING.
E. ALL EXTERIOR WALLS ARE TO BE TYPE 'W1' UNLESS NOTED OTHER WISE.
F. ALL INTERIOR PARTITIONS ARE TO BE TYPE 'P1' UNLESS NOTED OTHER WISE.

No.	DESCRIPTION	DATE (D/M/Y)
12	ISSUED FOR SPC ROUND 1 CITY RESPONSE	10 04 2023
11	REVISED AS PER UDRP COMMENTS	27 09 2022
10	GENERAL REVISIONS REQUESTED BY OWNER	29 07 2022
9	ISSUED FOR UDRP	22 06 2022
8	ISSUED FOR SPC ROUND 1 CITY RESPONSE	03 05 2022
7	ISSUED FOR SITE PLAN CONTROL	20 12 2021
6	ISSUED FOR CONSULTANT COORDINATION	19 11 2021
5	REVISED BUILDING DESIGN	31/08/2020
4	REVISED BUILDING DESIGN	17/06/2020
3	ISSUED FOR REZONING APPLICATION-R1	31/01/2020
2	ISSUED FOR REZONING APPLICATION	15/10/2019
1	ISSUED FOR COMMUNITY MEETING	03/10/2019

REVISIONS:

ARCHITECT SEAL: ONTARIO ASSOCIATION OF ARCHITECTS — RODERICK LAHEY — LICENCE
NORTH ARROW:
SEAL DATE: STAMP DATE

CLIENT:
KATASA
GROUPE ✦ DÉVELOPPEMENT

ARCHITECT:
rla/architecture
roderick lahey architect inc.
56 beech street, ottawa, ontario K1S 3J6
t.613.724.9932 | f.613.724.1209 rlaarchitecture.ca

PROJECT TITLE:
1509 MERIVALE ROAD
OTTAWA ONTARIO

SHEET TITLE:
SITE PLAN

DRAWN:	CHECKED:
RV	R.V.
SCALE:	SHEET No.:
1:200	SP-1
PROJECT No.:	
2034	

Plan No.: #18657

D07-12-21-0233

PAPER SIZE: ISO Full Bleed B1 (707.00 X 1000.00 MM) | PLOT DATE: Monday, April 10, 2023 | PLOT SCALE: 1:1 | PEN STYLE: 0-RLA-MASTER-100%.ctb | F:\2020\2034 - 1540 Merivale Road (Previously 1618)\01 Design Development\01 Site Plan\2034 Site Plan 2022 11 29.dwg

2.2 Existing Conditions

2.2.1 Area Road Network

Merivale Road: Merivale Road is a City of Ottawa arterial road with a four-lane urban cross-section south of Capilano Drive / Withrow Avenue including a centre median, a six-lane urban cross-section between Lotta Avenue and Capilano Drive / Withrow Avenue including a centre median, and a five-lane urban cross-section east of Clyde Avenue including a two-way left-turn lane. Merivale Road has a posted speed limit of 60 km/h and has sidewalks on both sides of the road. The Ottawa Official Plan reserves a 44.5 metre right of way and is designated as a truck route.

Clyde Avenue: Clyde Avenue is a City of Ottawa arterial road with a five-lane urban cross-section including a two-way left-turn lane. Clyde Avenue has a posted speed limit of 60 km/h and has sidewalks on both sides of the road. The Ottawa Official plan reserves a 34.0-metre right-of-way and is designated as a truck route.

Baseline Road: Baseline Road is a City of Ottawa arterial road with a divided four-lane urban cross-section with a sidewalk on both sides of the road west of Merivale Road, and on the south side of the road to the east. Transit priority measures are present along Baseline Road, including west of Clyde Avenue, where there is a westbound transit lane for 315 metres. The posted speed limit of 60 km/h and the Ottawa Official plan reserves a 44.5-metre right-of-way. Baseline Road is designated as a truck route.

Meadowlands Drive: Meadowlands Drive is a City of Ottawa major collector road with a divided four-lane cross-section between Merivale Road and Chesterton Drive, and a two-lane urban cross-section outside of this section. Meadowlands Drive has sidewalks on both sides of the road and a posted 40 km/h speed limit, and the Ottawa Official plan reserves a 26.0-metre right-of-way within the study area.

Lotta Avenue: Lotta Avenue is a City of Ottawa collector road with a two-lane rural cross-section including grass shoulders. Lotta Avenue has a posted speed limit of 40 km/h and only has sidewalks on both sides of the road for approximately 50 metres to the west of Merivale Road. The Ottawa Official Plan reserves a 24.0-metre right-of-way and is not a designated truck route.

Capilano Drive / Withrow Avenue: Capilano Drive / Withrow Avenue is a City of Ottawa collector road with a two-lane cross-section. Sidewalks are present on the south side of the road and are present intermittently on the north side of road to the east of Merivale Road. On-street parking is provided on the south side of the road, west of Merivale Road. Capilano Drive / Withrow Avenue has a posted speed limit of 40 km/h. The Ottawa Official Plan reserves a 24.0-metre right-of-way and is not a designated truck route.

2.2.2 Existing Intersections

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

Merivale Road at Baseline Road

The intersection of Merivale Road at Baseline Road is a signalized intersection. The northbound approach consists of two through lanes, a pocket bike lane, and an auxiliary right-turn lane and the southbound approach consists of two auxiliary left-turn lanes, two through lanes, a bike lane, and an auxiliary right-turn lane. The eastbound approach consists of an auxiliary left-turn lane, a through lane, and shared through/channelized right-turn lane which, due to the horizontal curvature of Merivale Road south of Baseline Road diverges 35 metres from the stop line. The westbound approach consists of an auxiliar left-turn lane, two through lanes, a pocket bike lane, and an auxiliary channelized right-turn lane. Northbound left-

	turns and eastbound and westbound U-turns are restricted, and no other turn restrictions were noted.
Merivale Road / Clyde Avenue at Lotta Avenue / Merivale Road	The intersection of Merivale Road / Clyde Avenue at Lotta Avenue / Merivale Road is a signalized intersection. The northbound approach consists of an auxiliary left-turn lane, two through lanes, and a channelized right-turn lane. The southbound approach consists of an auxiliary left-turn lane, a through lane, and a shared through-right-turn lane. The eastbound approach consists of an auxiliary left-turn lane and a shared through / right-turn lane. The westbound approach has two auxiliary left-turn lanes, a through lane, and an auxiliary right-turn lane. No turn restrictions were noted.
Merivale Road at Withrow Avenue / Capilano Drive	The intersection of Merivale Road at Withrow Avenue / Capilano Drive is a signalized intersection. The northbound approach consists of an auxiliary left-turn, two through lanes, and an auxiliary right-turn lane. The southbound approach consists of an auxiliary left-turn lane, two through lanes, and a right-turn lane. The eastbound approach has an auxiliary left-turn lane and a shared through/right-turn lane. The westbound approach has an auxiliary left-turn lane, and a shared through/right-turn lane. Trucks are not permitted on Withrow Avenue or Capilano Drive, and no U-turns are permitted for southbound or northbound traffic. No additional turn restrictions were noted.
Merivale Road at Meadowlands Drive	The intersection of Merivale Road at Meadowlands Drive is a signalized intersection. The northbound, southbound, and westbound approaches each consist of an auxiliary left-turn lane, two through lanes, and an auxiliary channelized right-turn lane and the eastbound approach consists of an auxiliary left-turn lane, a through lane, and a shared through/auxiliary right-turn lane. No turn restrictions were noted.

2.2.3 Existing Driveways

Both commercial and residential driveways are located within 200 metres of the proposed site access. While none of the driveways would provide access to significant traffic generators, any generated traffic will be captured at the study area intersection. Additionally, the centre median along Merivale Road limits intersections to right-in/right-out accesses.

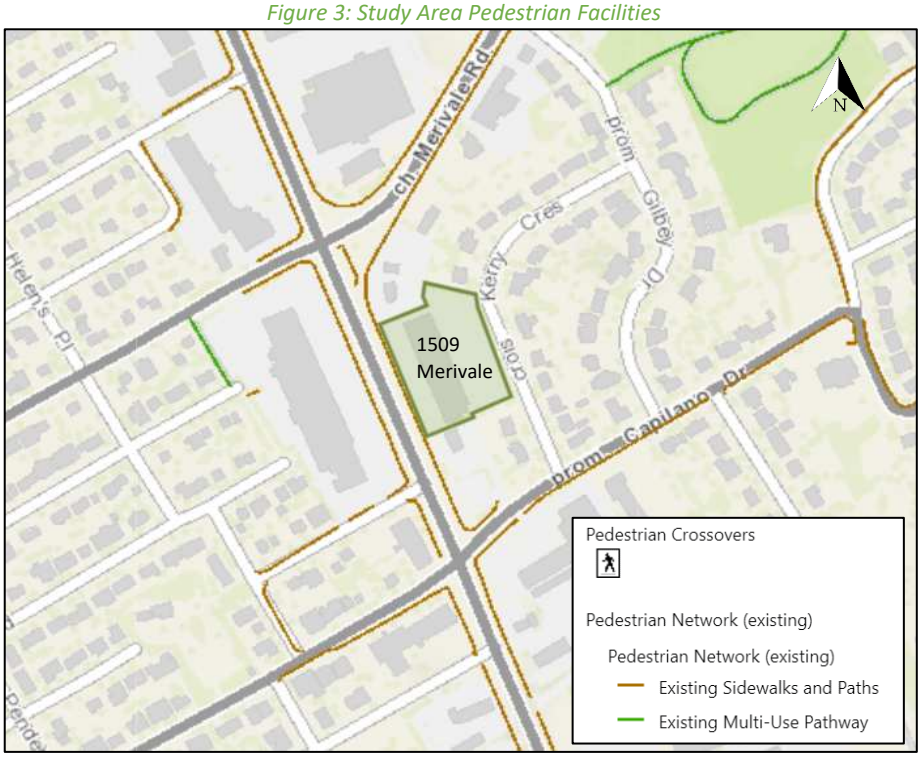
2.2.4 Cycling and Pedestrian Facilities

Figure 3 illustrates the pedestrian facilities in the study area and Figure 4 illustrates the cycling facilities.

Sidewalks are provided along both sides of Merivale Road and Clyde Avenue and are provided on one side of Withrow Avenue and Capilano Drive. Sidewalks are only provided on Lotta Avenue from Merivale Road to approximately 50 metres west of the intersection.

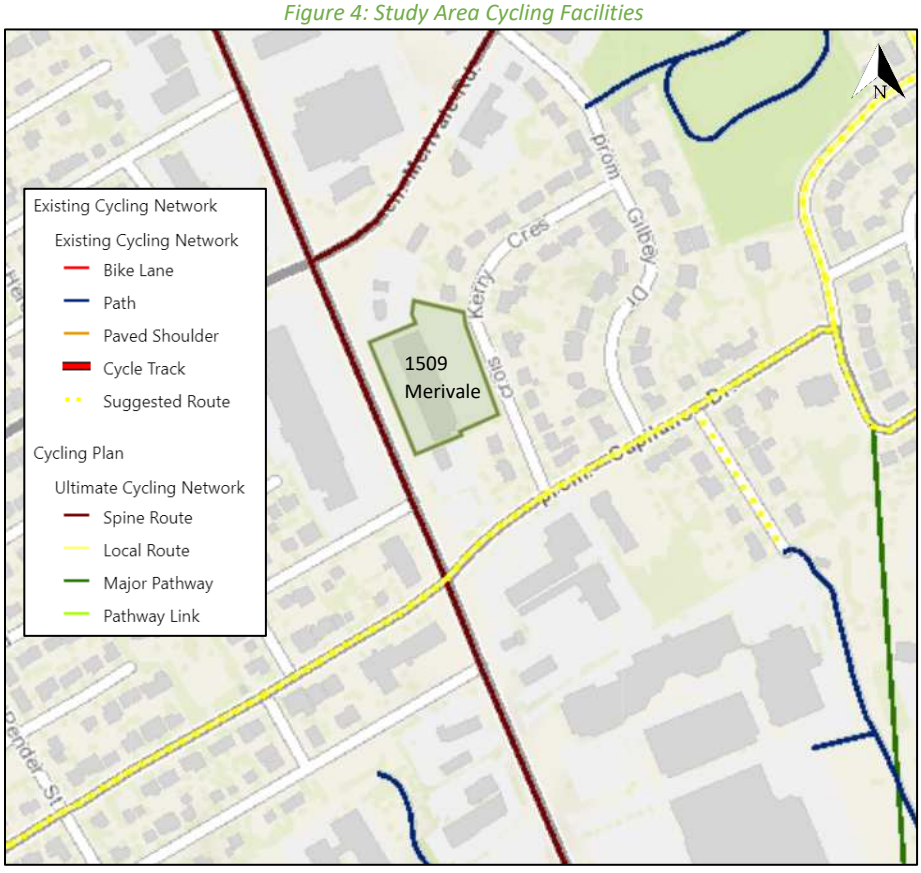
No existing dedicated cycling facilities are present within the study area road network. Merivale Road and Clyde Avenue are spine cycling routes, and Capilano Drive and Withrow Avenue are local routes.

Figure 3: Study Area Pedestrian Facilities



Source: https://maps.ottawa.ca/geoottawabeta/Accessed: October 1, 2020

Figure 4: Study Area Cycling Facilities



Source: https://maps.ottawa.ca/geoottawabeta/Accessed: October 1, 2020

Additionally, the collected intersection counts presented in Section 2.2.7 provided existing pedestrian and cyclist demands at the two Study Area intersections for both AM and PM peak periods. Figure 5 illustrates the existing pedestrian volumes and Figure 6 illustrates the existing cyclist volumes at the Study Area intersections.

Figure 5: Existing Pedestrian Volumes

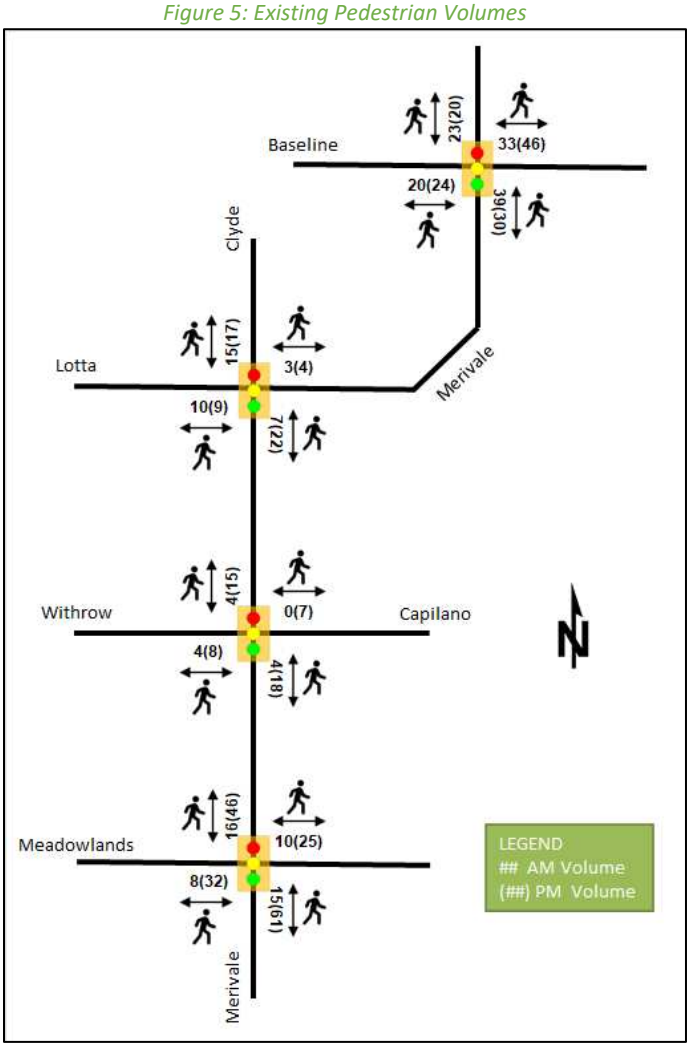
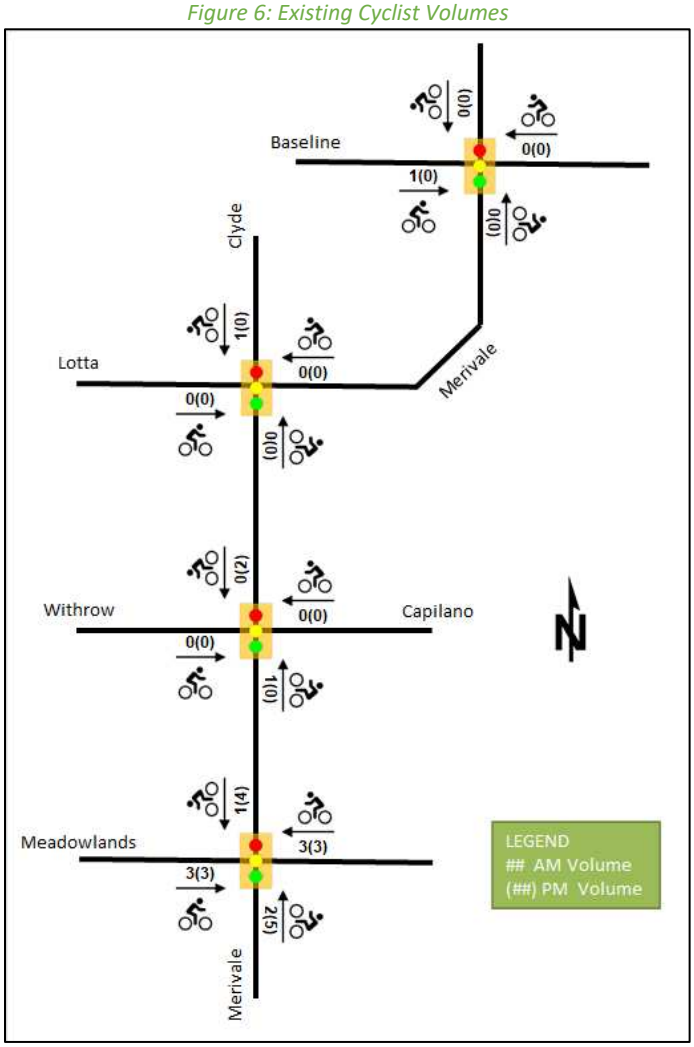


Figure 6: Existing Cyclist Volumes



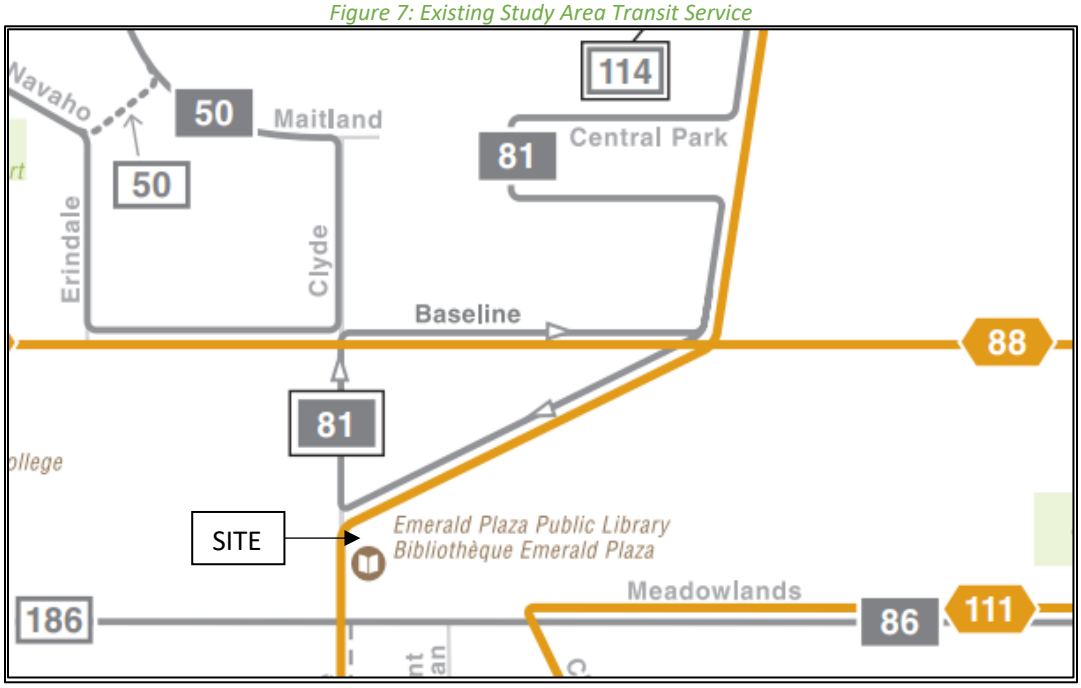
2.2.5 Existing Transit

Within the study area, the route #80 travels along Merivale Road, and the route #81 travels along Merivale Road and Clyde Avenue. The frequency of these routes within proximity of the proposed site currently are:

- Route #80 – 15 to 30-minute service operating all day
- Route #81 – 30-minute service daily

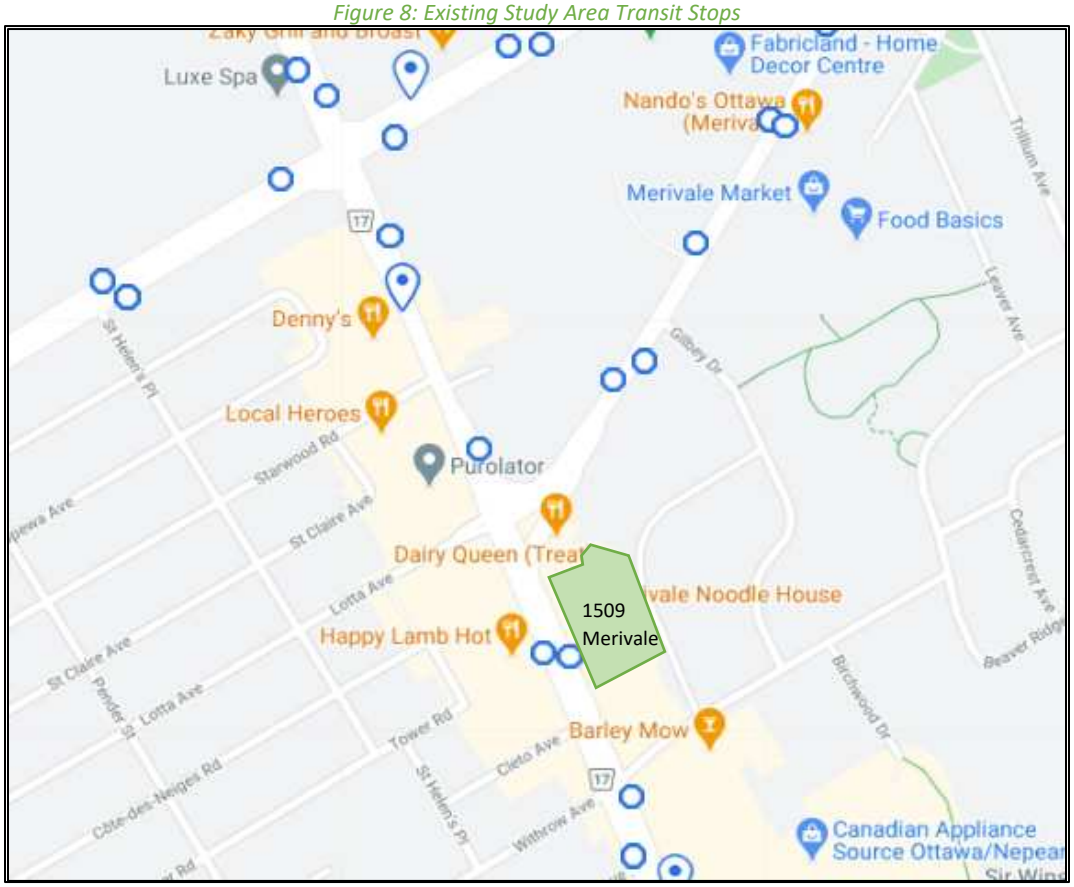
Figure 7 illustrates the transit system map in the study area and Figure 8 illustrates nearby transit stops.

Figure 7: Existing Study Area Transit Service



Source: http://www.octranspo.com/ Accessed: October 2, 2020

Figure 8: Existing Study Area Transit Stops



Source: http://www.octranspo.com/ Accessed: October 2, 2020

2.2.6 Existing Area Traffic Management Measures

Existing area traffic management measures within the study area include street markings indicating the speed limit on both Lotta Avenue and Withrow Avenue.

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
Merivale Road at Baseline Road	Tuesday, February 9, 2016
Merivale Road / Clyde Avenue at Lotta Avenue / Merivale Road	Monday February 10, 2020
Merivale Road at Withrow Avenue / Capilano Drive	Wednesday February 21, 2018
Merivale Road at Meadowlands Drive	Thursday November 1, 2018

Figure 9 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, and average delay for unsignalized intersections. Detailed turning movement count data and traffic data is included in Appendix B. Synchro worksheets for the existing horizon are included in Appendix C.

Figure 9: Existing Traffic Counts

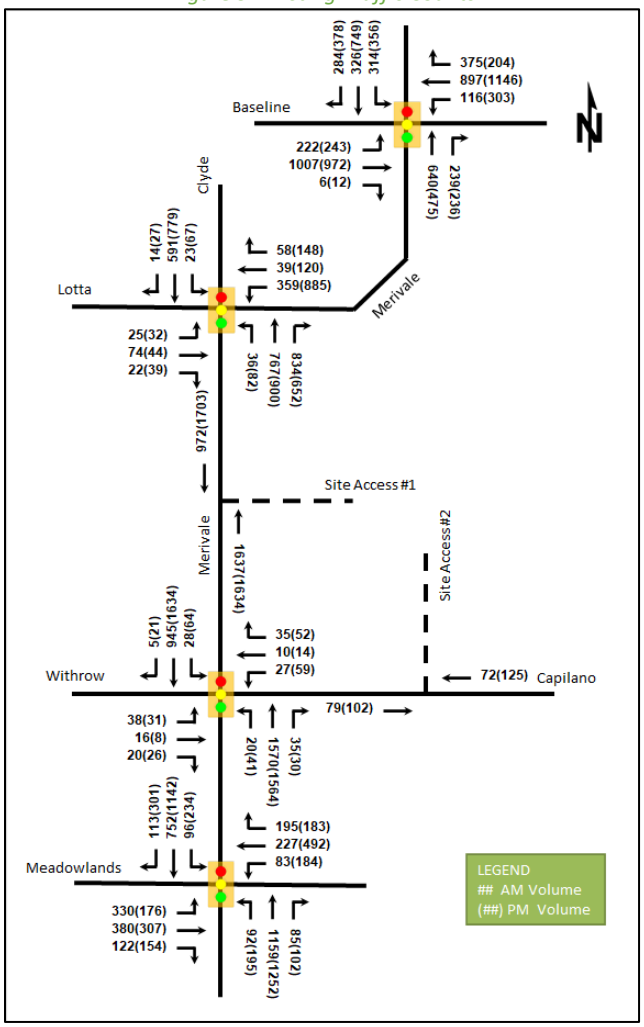


Table 2: Existing Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Merivale Road at Baseline Road *Signalized*	EBL	**F**	**1.04**	**120.0**	**#114.8**	**F**	**1.14**	**152.5**	**#149.4**
	EBT/R	**F**	**1.04**	**79.0**	**#204.8**	D	0.87	49.5	176.8
	WBL	B	0.69	69.6	49.0	**F**	**1.42**	**253.6**	**#192.4**
	WBT	**F**	**1.02**	**74.5**	**#170.6**	**F**	**1.02**	**72.6**	**#238.1**
	WBR	C	0.73	26.3	83.2	A	0.37	14.3	38.5
	NBT	E	0.94	66.2	**#121.5**	D	0.85	68.7	94.5
	NBR	A	0.48	18.6	46.9	A	0.50	25.7	60.4
	SBL	**F**	**1.14**	**144.5**	**#78.9**	**F**	**1.28**	**196.3**	**#103.9**
	SBT	A	0.30	26.5	42.4	C	0.76	47.0	129.7
	SBR	A	0.43	4.7	17.4	B	0.64	16.9	66.7
	Overall	**F**	**1.06**	**66.3**	-	**F**	**1.08**	**78.6**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Merivale Road / Clyde Avenue at Lotta Avenue / Merivale Road ***Signalized***	EBL	A	0.12	44.6	14.3	A	0.10	34.8	15.1
	EBT/R	A	0.52	56.7	37.9	A	0.46	42.1	28.4
	WBL	C	0.76	61.3	65.0	D	0.84	46.1	**#180.7**
	WBT	A	0.14	49.7	19.5	A	0.26	44.0	48.9
	WBR	A	0.20	6.7	8.0	A	0.30	8.1	18.3
	NBL	A	0.12	7.6	m2.4	A	0.56	42.8	m17.7
	NBT	A	0.45	9.4	38.2	**F**	**1.02**	**67.1**	**#196.8**
	NBR	C	0.79	16.6	283.1	D	0.88	22.1	**#128.2**
	SBL	A	0.10	18.0	10.3	A	0.48	38.5	**#24.0**
	SBT/R	A	0.36	17.3	79.5	E	1.00	76.0	**#170.8**
	Overall	**B**	**0.67**	**22.2**	-	**D**	**0.85**	**51.4**	-
Merivale Road at Withrow Avenue / Capilano Drive ***Signalized***	EBL	A	0.28	53.2	17.6	A	0.17	43.5	15.0
	EBT/R	A	0.20	27.5	12.4	A	0.14	17.5	10.2
	WBL	A	0.20	50.5	13.6	A	0.33	48.5	25.1
	WBT/R	A	0.23	20.2	11.8	A	0.25	15.4	14.7
	NBL	A	0.06	6.0	5.4	A	0.33	14.2	9.3
	NBT	B	0.70	15.2	**#287.8**	C	0.79	22.7	**#283.6**
	NBR	A	0.04	0.1	0.0	A	0.03	0.1	0.0
	SBL	A	0.16	4.8	m2.7	A	0.45	19.3	m2.8
	SBT	A	0.42	4.0	27.8	D	0.83	15.8	**m#281.6**
	SBR	A	0.01	0.0	m0.0	A	0.02	0.1	m0.0
	Overall	**B**	**0.67**	**12.1**	-	**C**	**0.73**	**19.4**	-
Merivale Road at Meadowlands Drive ***Signalized***	EBL	**F**	**1.04**	**97.8**	**#113.8**	D	0.89	74.0	**#75.5**
	EBT/R	D	0.84	58.9	88.3	D	0.83	57.8	**#81.8**
	WBL	A	0.45	36.6	27.5	D	0.89	71.8	**#74.8**
	WBT	A	0.49	52.2	42.4	E	0.91	71.7	**#102.1**
	WBR	B	0.66	29.7	45.8	A	0.50	12.6	25.1
	NBL	A	0.36	19.0	22.5	**F**	**1.06**	**112.2**	**#97.6**
	NBT	D	0.86	39.5	**#195.4**	**F**	**1.03**	**70.4**	**#242.8**
	NBR	A	0.14	1.5	3.8	A	0.18	3.1	8.0
	SBL	B	0.63	36.6	**#44.7**	**F**	**1.04**	**103.0**	**#112.7**
	SBT	A	0.54	27.1	103.6	D	0.87	41.2	184.7
	SBR	A	0.17	3.6	10.0	A	0.43	4.9	21.1
	Overall	**E**	**0.94**	**42.5**	-	**F**	**1.02**	**57.9**	-

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

The intersection of Merivale Road at Baseline Road is shown as being overcapacity at both peak hours. During the AM peak hour, the eastbound left, the eastbound through, the westbound through and the southbound left all show as being overcapacity with high delay and extended queuing, where the northbound through movement is additionally shown as being approaching capacity. During the PM peak hour, the eastbound left, westbound left, westbound through, and southbound left movements are all shown as being overcapacity with high delay and extended queuing.

The intersection of Merivale Road at Meadowlands Drive during the AM peak hour shows the eastbound left as overcapacity with high delay and extended queuing, where the northbound through and southbound left additionally show as having extended queuing. During the PM peak hours, the northbound left, northbound through and southbound left movements are shown as being overcapacity with high delay and extended queuing,

the eastbound left, eastbound through/right, westbound left, and westbound through movements are shown to exhibit extended queues, and the overall intersection is shown as being overcapacity.

The intersection of Merivale Road/Clyde Avenue at Lotta Avenue/Merivale Road during the PM peak hour is shown to experience extended queuing on the westbound left, northbound through, northbound right, southbound left, and southbound through/right movements, where the northbound through movement is additionally shown to be overcapacity and the southbound through movement is shown to be at capacity.

The intersection of Merivale Road at Withrow Avenue/Capilano Drive is shown to experience extended queuing on the northbound through movement during the AM peak hour and on the northbound through and southbound through movements during the PM peak hour.

2.2.8 Collision Analysis

Collision data has 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 10 illustrates the intersections and segments analyzed, and Table 4 summarizes the total collisions for each of these locations. Collision data is included in Appendix D.

Table 3: Study Area Collision Summary, 2014-2018

		Number	%
Total Collisions		232	**100%**
Classification	**Fatality**	1	<1%
	Non-Fatal Injury	32	14%
	Property Damage Only	199	86%
Initial Impact Type	**Angled**	33	14%
	Rear end	111	48%
	Sideswipe	33	14%
	Turning Movement	42	18%
	SMV Other	9	4%
	Other	4	2%
Road Surface Condition	**Dry**	150	65%
	Wet	54	23%
	Loose Snow	16	7%
	Slush	7	3%
	Packed Snow	3	1%
	Ice	2	1%
Pedestrian Involved		1	<1%
Cyclists Involved		6	3%

Figure 10: Study Area Collision Records – Representation of 2014-2018

Source: https://maps.bikeottawa.ca/collisions/ Accessed: October 5, 2020

Table 4: Summary of Collision Locations, 2014-2018

	Number	%
Intersections / Segments	**232**	**100%**
Merivale Rd/Clyde Ave @ Lotta Ave/Merivale Rd	108	47%
Merivale Rd @ Capilano Dr/Withrow Ave	38	16%
Clyde Ave btwn Baseline Rd & Nepean/Ottawa Boundary	3	1%
Clyde Ave btwn Baseline Road & Starwood Rd	20	9%
Merivale Rd btwn Lotta Ave & Gilbey Dr	16	7%
Merivale Rd btwn Lotta Ave & Rita Ave (Cleto Ave)	21	9%
Merivale Rd btwn Withrow Ave & Rita Ave (Cleto Ave)	6	3%
Merivale Rd btwn Withrow Ave & Rossland Ave	10	4%
Merivale Rd btwn Merivale Rd & Merivale Rd	2	1%
Lotta Ave btwn St. Helen's Pl & Clyde Ave	1	<1%
Withrow Ave btwn St. Helen's Pl & Merivale Rd	2	1%
Capilano Dr btwn Withrow Ave & Kerry Cres	5	2%

When reviewing the five-year collision dataset, it was noted that the intersection of Merivale Road and Cleto Avenue was referenced as Rita Avenue. Within the study area, the intersection of Merivale Road/Clyde Avenue at Lotta Avenue/Merivale Road, Merivale Road at Capilano Drive/Withrow Avenue, and the segments of Clyde Avenue between Baseline Road and Starwood Road, Merivale Road between Lotta Avenue and Gilbey Drive, and Merivale Avenue between Lotta Avenue and Rita Avenue are noted to have experiences higher collisions than other locations. The collision types and conditions for these locations are summarized in Table 5, Table 6, Table 7, Table 8, and Table 9 respectively below.

Table 5: Merivale Road/Clyde Avenue at Lotta Avenue/Merivale Road Collision Summary

		Number	%
Total Collisions		108	**100%**
Classification	**Fatality**	1	1%
	Non-Fatal Injury	11	10%
	Property Damage Only	96	89%
Initial Impact Type	**Angled**	9	8%
	Rear end	56	52%
	Sideswipe	15	14%
	Turning Movement	21	19%
	SMV Other	5	5%
	Other	2	2%
Road Surface Condition	**Dry**	69	64%
	Wet	24	22%
	Loose Snow	8	7%
	Slush	4	4%
	Packed Snow	2	2%
	Ice	1	1%
Pedestrian Involved		0	0%
Cyclists Involved		1	1%

The Merivale Road/Clyde Avenue at Lotta Avenue/Merivale Road intersection had a total of 108 collisions during the 2014-2018 time period, with 96 involving property damage, 11 having non-fatal injuries, and one collision involving a fatal injury. The fatal collision occurred on Thursday, November 27, 2014 under clear, dry, daylit conditions, when a garbage truck, evidently making a southbound right turn, struck a cyclist. The collision types are most represented by rear end with 56 collisions, followed by turning movement with 21 collisions, sideswipe with 15, angled with nine, SMV other with five, and other with two. Rear end collisions are typical of congested intersections, and sideswipe collisions may be influenced by the westbound channelized right-turn and northbound channelized right-turn lane that also acts as a trap lane along Merivale Road. The turning movement collisions, representing right-turns have a conflict point where westbound right-turning vehicles turn directly onto Clyde Avenue using a channelized right-turn. Weather/road conditions are not considered a contributing factor at this location. Beyond a higher friction pavement during future resurfacing operations to potentially reduce rear-end collisions, the intersection would require significant reconstruction to improve the operations and remove the channelized right-turns.

Table 6: Merivale Road at Capilano Drive/Withrow Avenue Collision Summary

		Number	%
Total Collisions		38	**100%**
Classification	**Fatality**	0	0%
	Non-Fatal Injury	7	18%
	Property Damage Only	31	82%
Initial Impact Type	**Angled**	4	11%
	Rear end	22	58%
	Sideswipe	4	11%
	Turning Movement	6	16%
	SMV Other	2	5%
Road Surface Condition	**Dry**	24	63%
	Wet	10	26%
	Loose Snow	2	5%

		Number	%
Total Collisions		38	**100%**
	Slush	1	3%
	Packed Snow	1	3%
Pedestrian Involved		1	3%
Cyclists Involved		1	3%

The Merivale Road at Capilano Drive/Withrow Avenue intersection had a total of 38 collisions during the 2014-2018 time period, with 31 involving property damage and seven having non-fatal injuries. The collision types are most represented by rear end with 22 collisions, followed by turning movement with 6 collisions, sideswipe with four, angled with four, and SMV other with two. Rear end collisions are typical of congested intersections. Weather/road conditions are not considered a contributing factor at this location. No geometric mitigation is recommended for this section to reduce the collisions, although the City could investigate a higher friction pavement during future resurfacing operations.

Table 7: Clyde Avenue between Baseline Road and Starwood Road Collision Summary

		Number	%
Total Collisions		20	**100%**
Classification	**Fatality**	0	0%
	Non-Fatal Injury	2	10%
	Property Damage Only	18	90%
Initial Impact Type	**Angled**	7	35%
	Rear end	2	10%
	Sideswipe	5	25%
	Turning Movement	4	20%
	SMV Other	1	5%
	Other	1	5%
Road Surface Condition	**Dry**	13	65%
	Wet	3	15%
	Loose Snow	2	10%
	Slush	2	10%
Pedestrian Involved		0	0%
Cyclists Involved		1	5%

The segment of Clyde Avenue between Baseline Road and Starwood Road had a total of 20 collisions during the 2014-2018 time period, with 18 involving property damage and two having non-fatal injuries. The collision types are most represented by angled impact types with seven collisions, followed by sideswipe with five, turning movement with four, rear end with two, SMV other with one, and other with one. Angle collisions, typically represented by left-turn movements, are only permitted in a 50 metre sections in proximity to Starwood Road when the median for the intersection to the south ends and becomes a two-way left-turn lane. Sideswipe collisions are likely influenced by the westbound channelized right-turn lane. Weather/road conditions are not considered a contributing factor at this location. Removal of the two-way left turn lane configuration and the channelized right-turn lane to the south are potential solutions to the collisions observed in this section.

Table 8: Merivale Road between Lotta Avenue and Gilbey Drive Collision Summary

		Number	%
Total Collisions		16	**100%**
Classification	**Fatality**	0	0%
	Non-Fatal Injury	1	6%
	Property Damage Only	15	94%

		Number	%
Total Collisions		16	**100%**
Initial Impact Type	**Angled**	1	6%
	Rear end	6	38%
	Sideswipe	1	6%
	Turning Movement	7	44%
	SMV Other	1	6%
Road Surface Condition	**Dry**	10	63%
	Wet	3	19%
	Loose Snow	2	13%
	Ice	1	6%
Pedestrian Involved		0	0%
Cyclists Involved		0	0%

The segment of Merivale Road between Clyde Avenue and Gilbey Drive had a total of 16 collisions during the 2014-2018 time period, with 15 involving property damage and one non-fatal injury. The collision types are most represented by turning movement with 7 collisions, followed by rear end with six, and angled, sideswipe, and SMV other, with one collision each. The turning movement collisions, typically represented by right-turn movements, are likely due to the driveway accesses on the south side of Merivale Road and the free-flow channelized northbound right-turn from the adjacent intersection. Weather/road conditions are not considered a contributing factor at this location. Any mitigation for these intersections is tied to geometric improvements at the Merivale Road and Clyde Avenue intersection.

Table 9: Merivale Road between Lotta Avenue and Rita Avenue (Cleto Avenue) Collision Summary

		Number	%
Total Collisions		21	**100%**
Classification	**Fatality**	0	0%
	Non-Fatal Injury	5	24%
	Property Damage Only	16	76%
Initial Impact Type	**Angled**	2	10%
	Rear end	14	67%
	Sideswipe	3	14%
	Turning Movement	2	10%
Road Surface Condition	**Dry**	11	52%
	Wet	9	43%
	Loose Snow	1	5%
Pedestrian Involved		0	0%
Cyclists Involved		0	0%

The segment of Merivale Road between Lotta Avenue and Cleto Avenue had a total of 21 collisions during the 2014-2018 time period, with 16 involving property damage and five non-fatal injuries. The collision types are most represented by rear end with 14 collisions, followed by sideswipe with three, turning movement with two, and rear end with two. Rear end collisions are typical of congested road segments. Weather/road conditions are considered a contributing factor for 48% of collisions at this location. No geometric mitigation is recommended for this section to reduce the collisions, although the City could investigate a higher friction pavement during future resurfacing operations.

2.3 Planned Conditions

2.3.1 Changes to the Area Transportation Network

The Ottawa Official Plan, Ottawa Transportation Master Plan, Ottawa Pedestrian Plan and the Ottawa Cycling Plan have all been reviewed in order to determine any proposed changes to the transportation network. Proposed measures include:

- A transit priority corridor (continuous lanes) on Merivale Road within the study area as part of the Ultimate Network, however it is not included in the Affordable Network (unspecified date)
- A spine route on Merivale Road within the study area as part of the Ultimate Network, however it is not included in the Affordable Network (unspecified date)
- Designation of a local cycling route on Withrow Avenue / Capilano Drive within the study area as part of the Ultimate Network, and was completed as part of the Nepean Trail
- Bus Rapid Transit (BRT) along Baseline Road through the study area

Additionally, the subject development is within the Merivale Road Secondary Plan area and the Merivale Arterial Mainstreet design priority area. The Nepean Trail (P1-8 from the Ottawa Cycling Plan) has been completed in this area.

2.3.2 Other Study Area Developments

1375 Clyde Avenue

The proposed development application includes a site plan for a self-storage facility, a restaurant, and an expansion of an existing retail building. The development is anticipated to generate 47 new two-way AM peak hour auto trips, 93 new two-way PM peak hour auto trips, and 136 new two-way Saturday peak hour auto trips (Parsons 2017).

1357 Baseline Road

The proposed development application includes a site plan for a 228-unit senior adult housing, 174-unit high rise apartments, and a 5,500 square foot shopping centre. The development is anticipated to generate 93 new two-way AM peak hour auto trips and 128 new two-way PM peak hour auto trips (Stantec 2020).

1356 Clyde Avenue

The proposed development application includes a site plan for 468 residential units, 32,930 square feet of office space, and 18,570 square feet of retail space. The development is anticipated to generate 88 new two-way AM peak hour auto trips and 59 new two-way PM peak hour auto trips during Phase 1 (2022). During Phase 2 (2026), the AM peak hour trip generation will increase by 30 new two-way auto trips, and the PM peak hour trip generation will decrease by 42 trips (Parsons 2020).

1500 Merivale Road

The proposed development application includes a site plan for a mixed-use campus comprising mid- and high-rise buildings totaling 1,967 dwelling units and 12,150 square feet of retail space. The first phase of development is anticipated to be built out by 2023, and an interim horizon of 2031 is anticipated to generate 118 new two-way AM peak hour auto trips and 131 new two-way PM peak hour auto trips (Novatech 2021).

3 Study Area and Time Periods

3.1 Study Area

The study area will include the existing intersections of:

- Merivale Road at:
  - Baseline Road
  - Clyde Avenue and Lotta Avenue
  - Withrow Avenue/Capilano Drive
  - Meadowlands Drive

The boundary roads will be Merivale Road and Kerry Crescent and no screenlines are present within proximity to the site.

3.2 Time Periods

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

3.3 Horizon Years

The anticipated build-out year is 2024. As a result, the full build-out plus five years horizon year is 2029.

4 Exemption Review

Table 10 summarizes the exemptions for this TIA.

Table 10: 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
	4.2.3 New Street Networks	Only required for plans of subdivision	Exempt
4.2 Parking	4.2.1 Parking Supply	Only required for site plans	Required
	4.2.2 Spillover Parking	Only required for site plans where parking supply is 15% below unconstrained demand	Exempt
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 Trip Generation and Mode Shares

This TIA has been prepared using the vehicle and person trip rates for the residential dwellings using the TRANS Trip Generation Manual (2020). Table 11 summarizes the person trip rates for the proposed residential land use for each peak period.

Table 11: Residential Trip Generation Person Trip Rates by Peak Period

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

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

Table 12: Total Residential Person Trip Generation by Peak Period

Land Use	Units	AM Peak Period			PM Peak Period		
		In	Out	Total	In	Out	Total
Multi-Unit (High-Rise)	202	50	112	162	106	76	182

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 Merivale have been summarized in Table 13.

Table 13: Mode Shares – Merivale

Travel Mode	Multi-Unit (High-Rise)	
	AM	PM
Auto Driver	41%	41%
Auto Passenger	6%	11%
Transit	42%	33%
Cycling	2%	2%
Walking	8%	13%
Total	**100%**	**100%**

Using the above mode share targets and the person trip rates, the person trips by mode have been projected. Table 14 summarizes the residential trip generation by mode and peak period.

Table 14: Residential Peak Period Trip Generation by Mode

Travel Mode		AM Peak Period				PM Peak Period			
		Mode Share	In	Out	Total	Mode Share	In	Out	Total
Multi-Unit (High-Rise)	Auto Driver	**41%**	21	46	66	**41%**	43	32	75
	Auto Passenger	**6%**	3	7	10	**11%**	12	8	20
	Transit	**42%**	21	47	68	**33%**	35	25	60
	Cycling	**2%**	1	2	3	**2%**	2	2	4
	Walking	**8%**	4	9	13	**13%**	14	10	24
	Total	**100%**	**50**	**112**	**162**	**100%**	**106**	**77**	**183**

From the above trip generation by mode for each component, the total trip generation by mode and peak hour can be forecasted using the prescribed conversion factors presented in the TRANS Trip Generation Manual (2020) for the residential development. Table 15 summarizes the total site trip generation by mode and peak hour.

Table 15: Total Peak Hour Trip Generation by Mode

Travel Mode		AM Peak Hour				PM Peak Hour			
		Adjustment Factor	In	Out	Total	Adjustment Factor	In	Out	Total
Multi-Unit (High-Rise)	Auto Driver	**0.48**	10	22	32	**0.44**	19	14	33
	Auto Passenger	**0.48**	1	3	5	**0.44**	5	4	9
	Transit	**0.55**	12	26	37	**0.47**	16	12	28
	Cycling	**0.58**	1	1	2	**0.48**	1	1	2
	Walking	**0.58**	2	5	8	**0.52**	7	5	12
	Total	**0.50**	**25**	**56**	**81**	**0.44**	**47**	**34**	**81**

As shown above, a total of 32 AM and 33 PM new peak hour two-way vehicle trips are projected as a result of the proposed development.

5.2 Trip Distribution

To understand the travel patterns of the subject development, the OD Survey has been reviewed to determine the travel patterns, applied based on the build-out of Merivale. Table 16 below summarizes the distributions.

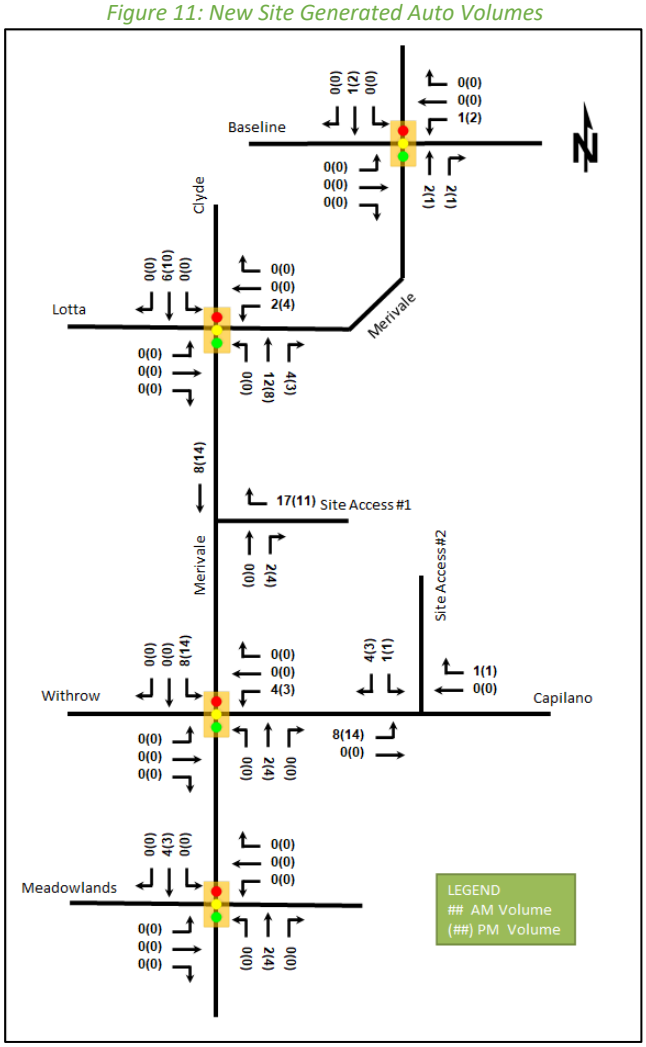
Table 16: OD Survey Distribution - Merivale

To/From	% of Trips	Via
North	40%	5% Merivale Rd, 5% Clyde Ave, 30% Hwy 417
South	10%	Merivale Rd
East	25%	10% Baseline Rd, 10% Hwy 417, 5% Capilano Dr
West	25%	10% W Hunt Club Rd, 15% Hwy 417
Total	100%	-

5.3 Trip Assignment

Using the distribution outlined above, turning movement splits, and access to major transportation infrastructure, the trips generated by the site have been assigned to the study area road network. Figure 11 illustrates the new site generated volumes.

Figure 11: New Site Generated Auto Volumes



6 Background Network Travel Demands

6.1 Transportation Network Plans

The transportation network plans were discussed in Section 2.3.1. No substantive changes are planned for the study area within the study horizons of this TIA.

6.2 Background Growth

A review of the background projections from the City's TRANS Regional Model for the 2011 to 2031 horizons, and the TRANS 2011 horizon to existing 2020 volumes was completed to determine the background growth for each of the study area roadways. Table 17 summarizes the growth rate review, and the projections are provided in Appendix E.

Table 17: TRANS Regional Model Projections - Study Area Growth Rates

Street	Direction Growth % 2011 to 2031		Direction Growth % 2011 to Existing 2020 (pre-pandemic)	
	Eastbound	Westbound	Eastbound	Westbound
Meadowlands Dr	-0.26%	-0.47%	13.07%	15.11%
Lotta Ave	-0.50%	-0.42%	-7.87%	10.24%
Withrow Ave	-3.43%	7.37%	-12.30%	19.58%
Capilano Dr	-3.65%	-2.46%	2.91%	-7.12%
Baseline Rd	-0.04%	0.41%	-1.60%	0.18%
	Northbound	**Southbound**	**Northbound**	**Southbound**
Clyde Ave	0.19%	1.14%	5.00%	-0.88%
Merivale Rd, east of Clyde	0.05%	-0.20%	-3.57%	-4.81%
Merivale Rd, south of Clyde	0.48%	0.02%	0.89%	-2.03%

A review of the 2011 and 2031 TRANS model horizons anticipated that a slight decrease in network volumes would be observed in the area. The existing volumes do show an increase in the network volumes, and it was determined that a comparison of the TRANS 2011 horizon and the existing volumes was required to determine the extent of the historic growth rates. The last columns of Table 17 summarize this growth, showing a significant increase along Meadowlands Drive and a general decrease in north-south volumes along Merivale Road.

Overall, the existing operations outline a number of capacity constraints on the network that would limit the historic growth rate from continuing on the network, therefore a constrained approach would be required. Table 18 summarizes the growth rates applied to the area network for the AM peak hour. The growth percentages will be reversed for the PM peak hour.

Table 18: TRANS Regional Model Projections - Study Area Growth Rates

Street	Applied AM Directional Growth Rates		Applied PM Directional Growth Rates	
	Eastbound	Westbound	Eastbound	Westbound
Meadowlands Dr	1.00%	1.00%	1.00%	1.00%
Lotta Ave	0.00%	2.00%	2.00%	0.00%
Withrow Ave	0.00%	2.00%	2.00%	0.00%
Capilano Dr	2.00%	0.00%	0.00%	2.00%
Baseline Rd	0.00%	0.25%	0.25%	0.00%
	Northbound	**Southbound**	**Northbound**	**Southbound**
Clyde Ave	2.00%	0.00%	0.00%	2.00%
Merivale Rd, east of Clyde Ave	0.00%	0.00%	0.00%	0.00%
Merivale Rd, south of Clyde Ave	0.50%	0.00%	0.00%	0.50%

It is noted that an analysis of the 2020 existing volumes to the TRANS 2031 horizon would result in a reflection of the historic growth rates as they return to an approximate 2011 levels, and therefore was not included in summary above.

6.3 Other Developments

The background developments were discussed in Section 2.3.2. The 1356 Clyde Avenue, 1375 Clyde Avenue and 1357 Baseline Road developments will be considered explicitly in the background volumes.

Background development volumes are provided in Appendix F.

7 Demand Rationalization

7.1 2024 Future Background Operations

Figure 12 illustrates the 2024 background volumes and Table 19 summarizes the 2024 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 2024 future background horizon are provided in Appendix G.

Figure 12: 2024 Future Background Volumes

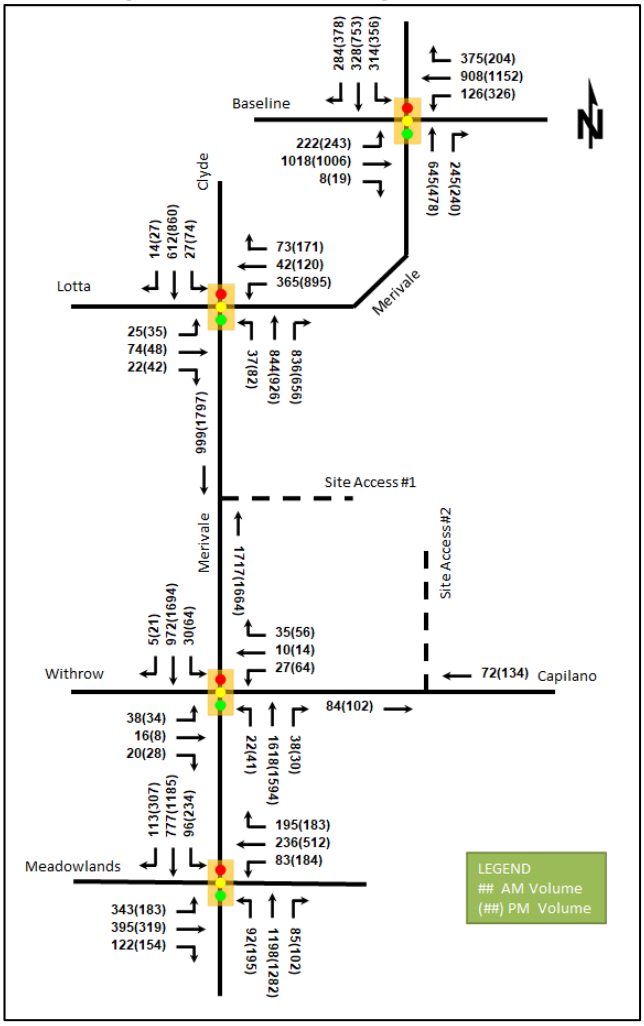


Table 19: 2024 Future Background Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Merivale Road at Baseline Road *Signalized*	EBL	E	0.92	**91.9**	**#100.2**	E	0.98	**111.4**	**#132.1**
	EBT/R	E	0.92	53.4	**#178.4**	D	0.82	45.8	161.5
	WBL	B	0.68	68.9	48.0	**F**	**1.32**	**213.4**	**#185.5**
	WBT	E	0.91	53.9	**#147.0**	E	0.92	54.1	**#201.2**
	WBR	B	0.65	21.5	67.9	A	0.33	12.4	31.7
	NBT	D	0.88	59.8	**#103.7**	C	0.80	65.1	84.8
	NBR	A	0.46	17.5	41.6	A	0.46	23.8	53.6
	SBL	**F**	**1.03**	**112.4**	**#69.3**	**F**	**1.15**	**151.9**	**#90.8**
	SBT	A	0.27	26.6	38.5	B	0.70	45.1	114.5
	SBR	A	0.41	4.6	16.7	A	0.58	13.2	50.2
	Overall	**E**	**0.96**	**51.2**	-	**E**	**0.99**	**65.6**	-
Merivale Road / Clyde Avenue at Lotta Avenue / Merivale Road *Signalized*	EBL	A	0.12	45.9	13.2	A	0.11	36.3	14.7
	EBT/R	A	0.49	55.2	34.6	A	0.45	41.6	27.7
	WBL	C	0.74	61.8	60.3	D	0.89	54.1	**#156.0**
	WBT	A	0.14	49.9	19.0	A	0.26	45.8	44.7
	WBR	A	0.23	9.6	10.6	A	0.34	8.5	18.5
	NBL	A	0.10	7.2	m2.2	A	0.49	38.8	m18.1
	NBT	A	0.44	8.8	31.7	D	0.81	40.1	**#175.8**
	NBR	B	0.70	10.5	258.1	C	0.77	13.7	**#62.9**
	SBL	A	0.10	17.0	10.4	A	0.46	35.2	**#25.7**
	SBT/R	A	0.32	15.9	71.4	D	0.83	49.4	**#168.4**
	Overall	**A**	**0.58**	**19.8**	-	**C**	**0.78**	**39.7**	-
Merivale Road at Withrow Avenue / Capilano Drive *Signalized*	EBL	A	0.25	52.4	16.3	A	0.17	43.6	15.0
	EBT/R	A	0.18	27.5	11.4	A	0.14	17.3	9.8
	WBL	A	0.18	50.0	12.7	A	0.32	48.2	24.6
	WBT/R	A	0.21	20.6	11.2	A	0.24	15.0	14.0
	NBL	A	0.05	6.0	5.4	A	0.25	11.4	8.3
	NBT	B	0.65	14.0	**#252.5**	C	0.73	20.4	226.6
	NBR	A	0.04	0.1	0.0	A	0.03	0.1	0.0
	SBL	A	0.14	4.3	m2.8	A	0.34	10.0	m1.9
	SBT	A	0.39	4.0	26.1	C	0.77	13.6	**#265.4**
	SBR	A	0.00	0.0	m0.0	A	0.02	0.0	m0.0
	Overall	**B**	**0.62**	**11.3**	-	**B**	**0.68**	**17.2**	-
Merivale Road at Meadowlands Drive *Signalized*	EBL	E	1.00	**88.8**	**#98.1**	D	0.81	61.6	**#63.0**
	EBT/R	D	0.81	58.1	80.7	C	0.79	55.2	73.5
	WBL	A	0.40	36.4	25.2	C	0.78	56.7	**#56.0**
	WBT	A	0.50	53.8	40.0	D	0.87	67.9	**#91.7**
	WBR	B	0.62	26.5	37.8	A	0.46	10.1	19.8
	NBL	A	0.29	16.7	20.7	D	0.86	57.1	**#70.7**
	NBT	C	0.77	33.4	171.4	E	0.94	50.0	**#212.0**
	NBR	A	0.12	1.0	2.2	A	0.16	2.2	5.6
	SBL	A	0.49	24.9	**#24.3**	E	0.94	78.5	**#96.5**
	SBT	A	0.49	25.3	94.6	C	0.80	36.6	166.3
	SBR	A	0.15	2.6	7.5	A	0.39	3.9	16.3
	Overall	**D**	**0.86**	**38.9**	-	**E**	**0.93**	**46.0**	-

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Peak Hour Factor = 1.00

Delay = average vehicle delay in seconds
m = metered queue
# = volume for the 95th %ile cycle exceeds capacity

The intersection operations are forecasted to continue to exhibit capacity, delay, and queuing issues within the study area at the 2024 future background horizon. With the peak hour factor of 1.00 for forecasted conditions, however, operations are noted to be better than existing throughout.

This effect is most notable at the intersection of Merivale Road at Baseline Road where during the AM peak hour the eastbound left, eastbound through/right, and westbound through movements have seen a reduction in their v/c ratios to below 1.00, and during the PM peak hour where the eastbound left and westbound through movements have additionally seen such a reduction.

At the intersection of Merivale Road/Clyde Avenue at Lotta Avenue/Merivale Road during the PM peak hour, the northbound through movement's v/c has reduced to just under 1.00. The same effect has been observed at the intersection of Merivale Road at Meadowlands Drive on the northbound left, northbound through, and southbound left movements and the overall intersection during the PM peak hour, and on the eastbound left movement during the AM peak hour which is forecasted to be at theoretical capacity at this horizon.

7.2 2029 Future Background Operations

Figure 13 illustrates the 2029 background volumes and Table 20 summarizes the 2029 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 2029 future background horizon are provided in Appendix H.

Figure 13: 2029 Future Background Volumes

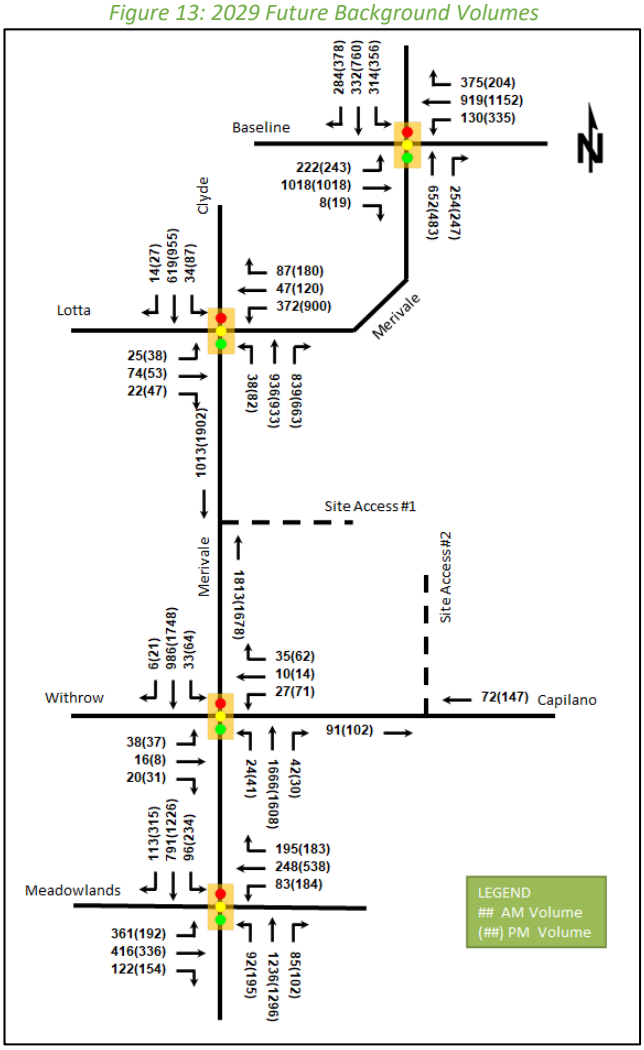


Table 20: 2029 Future Background Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Merivale Road at Baseline Road *Signalized*	EBL	E	0.93	**92.7**	**#100.2**	E	0.98	**112.3**	**#132.1**
	EBT/R	E	0.93	54.4	**#178.4**	D	0.83	46.4	164.2
	WBL	B	0.70	69.9	49.6	**F**	**1.36**	**228.9**	**#191.3**
	WBT	E	0.92	55.5	**#150.0**	E	0.92	54.1	**#201.2**
	WBR	B	0.65	21.7	68.5	A	0.33	12.4	31.7
	NBT	D	0.89	60.3	**#105.5**	C	0.80	65.5	85.8
	NBR	A	0.47	18.1	43.8	A	0.47	24.4	55.7
	SBL	**F**	**1.03**	**112.4**	**#69.3**	**F**	**1.15**	**151.9**	**#90.8**
	SBT	A	0.28	26.6	38.9	C	0.71	45.2	115.8
	SBR	A	0.41	4.6	16.7	A	0.58	13.5	51.1
	Overall	**E**	**0.96**	**51.9**	-	**E**	**1.00**	**67.0**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Merivale Road / Clyde Avenue at Lotta Avenue / Merivale Road ***Signalized***	EBL	A	0.12	45.8	13.2	A	0.09	32.8	15.7
	EBT/R	A	0.49	55.2	34.6	A	0.49	44.0	30.9
	WBL	C	0.75	61.7	61.2	D	0.89	53.9	**#157.4**
	WBT	A	0.16	50.0	20.6	A	0.37	53.1	44.7
	WBR	A	0.27	11.5	13.7	A	0.43	9.8	18.9
	NBL	A	0.10	7.5	m2.2	A	0.51	42.1	m18.4
	NBT	A	0.48	9.6	43.8	D	0.89	46.6	**#177.4**
	NBR	C	0.71	10.2	255.8	C	0.80	15.4	**#65.9**
	SBL	A	0.14	18.1	12.9	A	0.53	39.1	**#35.2**
	SBT/R	A	0.33	16.1	72.6	E	0.93	59.4	**#195.9**
	Overall	**A**	**0.58**	**19.7**	-	**D**	**0.82**	**44.3**	-
Merivale Road at Withrow Avenue / Capilano Drive ***Signalized***	EBL	A	0.25	52.4	16.3	A	0.19	43.8	16.1
	EBT/R	A	0.18	27.5	11.4	A	0.15	16.6	10.2
	WBL	A	0.18	50.0	12.7	A	0.35	49.1	26.9
	WBT/R	A	0.21	20.6	11.2	A	0.26	14.4	14.5
	NBL	A	0.06	5.9	5.6	A	0.27	12.1	8.3
	NBT	B	0.67	14.4	**#266.0**	C	0.73	20.7	**#232.6**
	NBR	A	0.04	0.1	0.3	A	0.03	0.1	0.0
	SBL	A	0.16	4.6	m3.0	A	0.35	10.5	m1.9
	SBT	A	0.39	4.0	26.5	C	0.80	14.0	**m#276.2**
	SBR	A	0.01	0.0	m0.0	A	0.02	0.0	m0.0
	Overall	**B**	**0.64**	**11.5**	-	**B**	**0.70**	**17.6**	-
Merivale Road at Meadowlands Drive ***Signalized***	EBL	**F**	**1.05**	**100.5**	**#110.2**	D	0.86	69.3	**#72.4**
	EBT/R	D	0.83	58.6	84.5	C	0.80	56.2	77.3
	WBL	A	0.41	36.2	25.2	C	0.78	56.9	**#57.7**
	WBT	A	0.51	53.5	41.9	D	0.90	70.3	**#99.6**
	WBR	B	0.61	25.7	37.8	A	0.45	10.0	19.8
	NBL	A	0.30	17.2	20.7	D	0.90	69.9	**#77.9**
	NBT	D	0.81	35.3	179.9	E	0.95	52.6	**#216.0**
	NBR	A	0.12	1.0	2.2	A	0.16	2.2	5.6
	SBL	A	0.53	27.6	**#27.2**	E	0.95	**81.2**	**#96.0**
	SBT	A	0.51	25.8	96.7	D	0.84	39.2	175.1
	SBR	A	0.15	2.6	7.5	A	0.40	4.0	16.4
	Overall	**D**	**0.90**	**41.1**	-	**E**	**0.96**	**48.7**	-

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

Intersection operations at the 2029 future background horizon are similar to the 2024 future background horizon operations.

During the PM peak hour, the overall v/c ratio for the intersection of Merivale Road at Baseline Road is forecast to be 1.00 at this horizon.

The intersection of Merivale Road at Meadowlands Drive's eastbound left-turn movement's v/c is forecast to be over capacity during the AM peak hour as in the existing conditions. No other new capacity issues are noted between the 2024 and 2029 future background horizons.

7.3 Demand Rationalization Conclusions

Merivale Road is subject to high regional travel demand based upon the layout of the area transportation network within Nepean. This regional demand is also balanced by the need to support local travel and destinations on the corridor and increases in these local generators will displace the regional travel. As the network capacity constraints and City's forecasting illustrate, the area will likely experience a negative growth rate for background traffic as the displacement noted above occurs with new development, the growth rates applied are considered valid to evaluate the network as it currently exists and consistent with the growth trends in the area. Ideally, future traffic counts and analysis will verify that the volumes and operations have stayed consistent, or that an overall decrease in volumes is actually realized through continued redevelopment of the area and other City initiatives for cycling and transit.

A reduction of approximately 50 vehicles making the southbound left movement at the intersection of Merivale Road at Baseline Road during the PM peak hour, in addition to signal timing adjustments, would be required to address capacity issues at the intersection. The future conditions will further be subject to the Baseline Road BRT implementation and the City should continue to monitor the evolution of traffic patterns and volumes along this corridor as part of that planning work and future traffic studies.

As discussed in Sections 11.3.1 and 11.3.2, impacts from the low amount of site-generated traffic are negligible, and thus rationalization for site travel demand is not required.

8 Development Design

8.1 Design for Sustainable Modes

The proposed development is a residential building. Vehicle parking is proposed across a surface lot and an underground parking level and bike parking is proposed both within a secure room on the main floor and within the underground parking level. Hard surface connections are provided between the building entrances and the surrounding pedestrian facilities. The site also proposes a mid-block connection from Kerry Crescent to Merivale Road. All local bus routes referenced in Section 2.2.5 are within 400 metres walk of the building entrances.

8.2 Circulation and Access

Site access is proposed via a consolidation of two existing right-in/right-out accesses onto Merivale Road at a new location, and an existing full-movements access onto Capilano Drive via an existing lane behind the 1533 and 1537 Merivale Road parcels. Both accesses connect to the internal drive aisles providing access to the surface parking, loading bays, garbage storage, and the ramp to underground parking. Bicycle access is via the ramp to the underground parking level, and cyclists access the secure room on the ground floor.

Garbage collection is to take place within the internal site drive aisle. Emergency services are assumed to service the site from the Kerry Crescent and Merivale Road frontages. Turning templates are provided in the Appendix I.

9 Parking

9.1 Parking Supply

The site is proposed to provide 161 vehicle parking spaces for residents and 41 spaces for visitors, with eight within the surface lot and 194 within the underground parking levels. Bicycle parking constituting 203 spaces is proposed, with 56 spaces within the secure room on the main floor, 147 spaces within the underground parking levels, and four spaces in a surface rack near the main entrance.

The minimum number of vehicle parking spaces required by the zoning by-law is 102 spaces for tenants and 41 spaces for visitors, and the minimum bicycle parking spaces required is 102 spaces. The site plan meets the minimum rates from the zoning by-law.

10 Boundary Street Design

Table 21 summarizes the MMLOS analysis for the boundary streets of Merivale Road and Kerry Crescent. The existing and future conditions for both streets will be the same and are considered in one row. The boundary street analysis is based on the policy area of "Within 300m of a school" for Merivale Road as the segment analyzed is within this distance of Elizabeth Wyn Wood School, and of "Within 600m of a rapid transit station" for Kerry Crescent. The MMLOS worksheets has been provided in Appendix J.

Table 21: Boundary Street MMLOS Analysis

Segment	Pedestrian LOS		Bicycle LOS		Transit LOS		Truck LOS	
	PLOS	Target	BLOS	Target	TLOS	Target	TrLOS	Target
Merivale Road	F	A	F	C	D	D	A	D
Kerry Crescent	F	A	B	D	-	-	-	-

Both boundary streets are not expected to meet the pedestrian LOS targets. Traffic volumes and operating speeds prevent Merivale Road from achieving any score higher than LOS D. The existing sidewalk on Merivale Road is 2.0 metres in width, is consistent with the remainder of the corridor, and abuts the property line at present. Kerry Crescent is a local road providing access to 18 detached single dwellings and an empty lot. Given the contexts noted, no improvements are recommended for the boundary street pedestrian facilities at this time.

Merivale Road is additionally not expected to meet bicycle LOS. Mixed flow conditions limit the LOS where the curb lane is an auxiliary turning lane for the upstream intersection with Clyde Avenue/Lotta Avenue. Based upon the constrained right of way, limited opportunities for cycling improvements are available outside of a future road widening project outside of the scope of this report.

Crowding PLOS is not considered in the PLOS due to the excessively high-volume threshold. At the lowest threshold given, of 250 pedestrians per hour, the minimum effective sidewalk width required to achieve LOS A would be 3.0 metres, whereby nearly any sidewalk considered for installation in the City would not be able to meet this target.

11 Access Intersections Design

11.1 Location and Design of Access

The site will access Merivale Road via a proposed consolidation of the two existing right-in/right-out accesses at a new location and will access Capilano Drive via an existing full-movement access. The through and left-turn movements to and from Merivale Road are restricted by a centre median.

11.2 Intersection Control

The existing access onto Capilano Drive is assumed to remain stop-controlled on the minor approach with Capilano Drive operating under free flow conditions. The proposed access onto Merivale Road is assumed to be stop controlled on the access approach with Merivale Road operating under free flow conditions, as in the existing conditions for the two current Merivale Road accesses to the site.

11.3 Access Intersection Design

11.3.1 2024 Future Total Access Intersection Operations

The 2024 future total intersection volumes are illustrated in Figure 14 and the access intersection operations are summarized below in Table 22. The level of service is based on HCM 2010 average delay for unsignalized intersections. The synchro worksheets have been provided in Appendix K.

Figure 14: 2024 Future Total Volumes

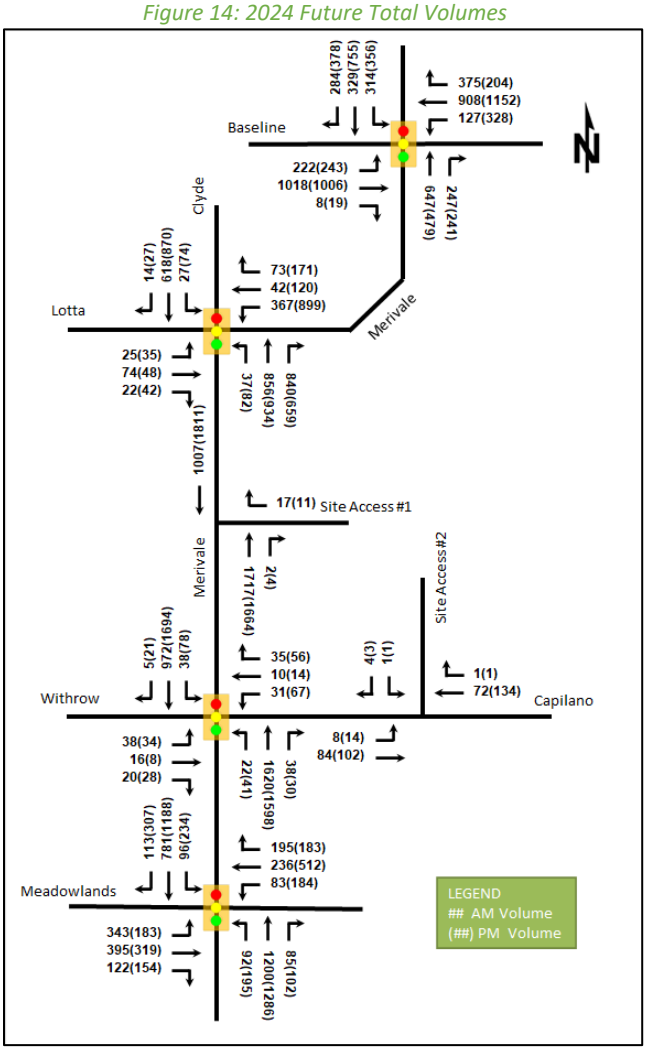


Table 22: 2024 Future Total Access Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Merivale Road at Site Access *Unsignalized*	WBR	C	0.07	20.0	1.5	C	0.04	19.1	0.8
	NBT/R	-	-	-	-	-	-	-	-
	SBT	-	-	-	-	-	-	-	-
	Overall	**A**	**-**	**0.1**	**-**	**A**	**-**	**0.1**	**-**

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Site Access at Capilano Drive *Unsignalized*	EBL/T	A	0.01	7.4	0.0	A	0.01	7.5	0.0
	WBT/R	-	-	-	-	-	-	-	-
	SBL/R	A	0.01	8.8	0.0	A	0.01	9.2	0.0
	Overall	**A**	**-**	**0.6**	**-**	**A**	**-**	**0.6**	**-**

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

The access intersections for the 2024 future total horizon are forecasted to operate well. No capacity issues are noted.

11.3.2 2029 Future Total Access Intersection Operations

The 2029 future total intersection volumes are illustrated in Figure 15 and the access intersection operations are summarized below in Table 23. The level of service is based on HCM 2010 average delay for unsignalized intersections. The synchro worksheets have been provided in Appendix L.

Figure 15: 2029 Future Total Volumes

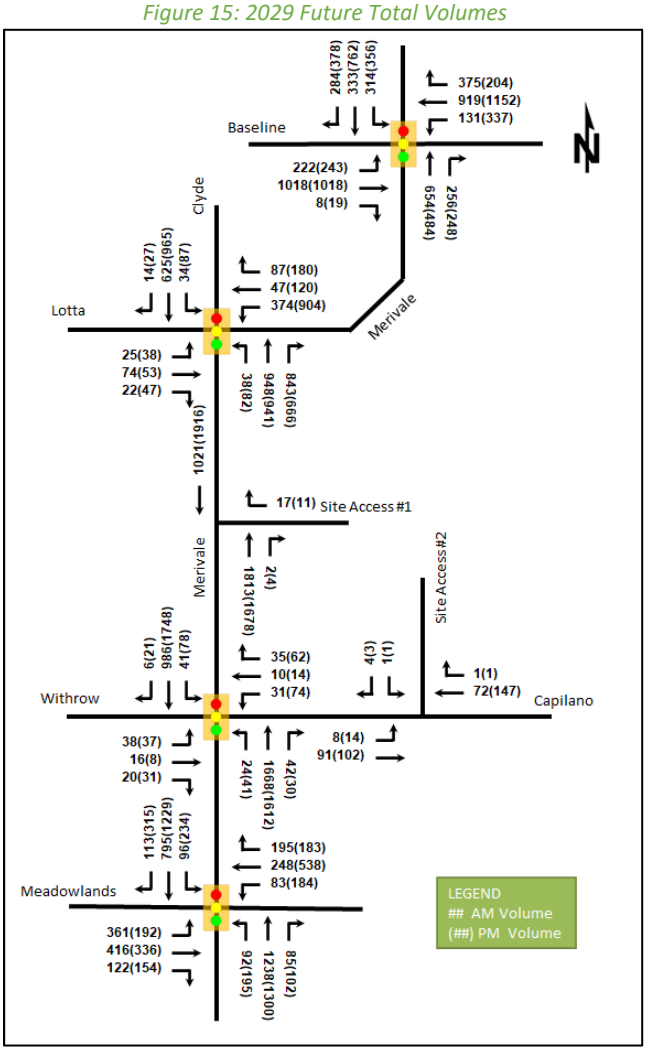


Table 23: 2029 Future Total Access Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Merivale Road at Site Access *Unsignalized*	WBR	C	0.07	21.2	1.5	C	0.04	19.2	0.8
	NBT/R	-	-	-	-	-	-	-	-
	SBT	-	-	-	-	-	-	-	-
	Overall	**A**	**-**	**0.1**	**-**	**A**	**-**	**0.1**	**-**
Site Access at Capilano Drive *Unsignalized*	EBL/T	A	0.01	7.4	0.0	A	0.01	7.5	0.0
	WBT/R	-	-	-	-	-	-	-	-
	SBL/R	A	0.01	8.8	0.0	A	0.01	9.3	0.0
	Overall	**A**	**-**	**0.6**	**-**	**A**	**-**	**0.5**	**-**

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

The access intersections for the 2029 future total horizon are forecasted to operate well. No capacity issues are noted.

11.3.3 Access Intersection MMLOS

As the access intersection is not signalized, no access MMLOS analysis has been performed.

11.3.4 Recommended Design Elements

No design elements for the access intersections are proposed outside of the typical application of the provisions from the private approach by-law.

12 Transportation Demand Management

12.1 Context for TDM

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

The subject site is within the Merivale Arterial Mainstreet Design Priority Area.

The total bedroom count within the development is 247 with 159 bachelor or one-bedroom units and 44 two-bedroom units. No age restrictions are noted.

12.2 Need and Opportunity

The subject site has been assumed to rely predominantly on auto travel across the two peak hours, with high transit mode share typical of the district, and those assumptions have been carried through the analysis. Risks associated with failure to meet typical area mode shares would be highest on the westbound left movement at the intersection of Merivale Road and Baseline Road, however, as discussed in Section 7.3 for movements at or over capacity, increases in local traffic may displace regional traffic.

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 M. The key TDM measures recommended include:

- Display local area maps with walking, cycling, and relevant transit information with route schedules
- Provide a multimodal travel option information package to new residents
- Inclusion of a 6-month Presto card for first time new townhome purchase and apartment rental, with a set time frame for this offer (e.g. 6-months) from the initial opening of the site

- Unbundle parking cost from purchase or rental costs

13 Neighbourhood Traffic Management

The proposed development will connect to the arterial road network at Merivale Road via the proposed access on Merivale Road, and via an existing access on Capilano Drive, a collector road.

Two-way background volumes on Capilano Drive at the build-out horizon are forecasted to be 155 vehicles in the AM peak hour and 227 vehicles in the PM peak hour. Site-generated traffic accessing Capilano Drive is anticipated to be 26 vehicles in the AM peak hour and 46 vehicles in the PM peak hour. The resultant volumes forecasted on Capilano Drive between the site access and Merivale Road are 181 AM and 273 PM peak hour two-way volumes, which are below the TIA guideline classification thresholds of 300 peak hour vehicles for 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 24 summarizes the transit trip generation.

Table 24: Trip Generation by Transit Mode

Travel Mode	Mode Share AM(PM)	AM Peak Period			PM Peak Period		
		In	Out	Total	In	Out	Total
Transit	20%(15%)	12	26	37	16	12	28

The proposed development is anticipated to generate an additional 37 AM peak hour transit trips and 28 PM peak hour transit trips. Of these trips, 26 outbound AM trips and 16 inbound PM trips are anticipated. From the trip distribution found in Section 5.2, these values can be further broken down.

Assuming all site-generated transit trips travelling to/from the north, east, and west take the route #80 to/from the north and those travelling to/from the south take the route #80 to/from the south, the resultant ridership increases would be 23 additional riders on the northbound bus and three additional riders on the southbound bus outbound from the site in the AM peak hour and 14 additional riders on the southbound bus and two additional riders on the northbound bus inbound to the site in the PM peak hour. Based upon the existing frequency, the resultant ridership increase would amount to five-to-six riders per bus in the AM peak direction and three-to-four riders per bus in the PM peak direction and the resultant increase in service requirements may be on the order of the substitution of a single higher-capacity bus per peak direction/hour (i.e. an articulated bus in place of a standard bus) for the route #80.

14.2 Transit Priority

The increase in delay on any of the bus movements within the study area with the addition of site traffic to the network is 1.1 second or less. No transit priority is required to mitigate this delay increase.

15 Network Intersection Design

15.1 Network Intersection Control

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

15.2 Network Intersection Design

15.2.1 2024 Future Total Network Intersection Operations

The 2024 future total network intersection operations are summarized below in Table 25. 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 25: 2024 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)
Merivale Road at Baseline Road *Signalized*	EBL	E	0.92	**92.1**	**#100.2**	E	0.98	**111.8**	**#132.1**
	EBT/R	E	0.93	53.7	**#178.4**	D	0.82	45.8	161.5
	WBL	B	0.69	69.1	48.5	**F**	**1.33**	**217.3**	**#186.7**
	WBT	E	0.91	54.0	**#147.0**	E	0.92	54.1	**#201.2**
	WBR	B	0.65	21.5	67.9	A	0.33	12.4	31.7
	NBT	D	0.89	59.9	**#104.0**	C	0.80	65.2	85.2
	NBR	A	0.46	17.6	42.2	A	0.46	23.9	53.9
	SBL	**F**	**1.03**	**112.4**	**#69.3**	**F**	**1.15**	**151.9**	**#90.8**
	SBT	A	0.28	26.6	38.6	B	0.70	45.1	114.9
	SBR	A	0.41	4.6	16.7	A	0.58	13.2	50.2
	Overall	**E**	**0.96**	**51.3**	**-**	**E**	**0.99**	**65.9**	**-**
Merivale Road / Clyde Avenue at Lotta Avenue / Merivale Road *Signalized*	EBL	A	0.12	45.8	13.2	A	0.11	36.3	14.7
	EBT/R	A	0.49	55.2	34.6	A	0.45	41.6	27.7
	WBL	C	0.75	61.8	60.6	D	0.89	54.0	**#157.2**
	WBT	A	0.14	49.9	19.0	A	0.26	45.7	44.7
	WBR	A	0.23	9.6	10.6	A	0.34	8.5	18.5
	NBL	A	0.10	7.1	m2.1	A	0.50	40.4	m18.2
	NBT	A	0.44	8.2	34.0	D	0.82	39.8	**#178.2**
	NBR	C	0.71	10.3	258.0	C	0.78	13.6	**#64.9**
	SBL	A	0.10	17.1	10.4	A	0.47	35.8	**#24.6**
	SBT/R	A	0.33	16.0	72.3	D	0.84	50.4	**#171.0**
	Overall	**A**	**0.58**	**19.5**	**-**	**C**	**0.78**	**39.8**	**-**
Merivale Road at Withrow Avenue / Capilano Drive *Signalized*	EBL	A	0.25	52.4	16.3	A	0.17	43.5	15.0
	EBT/R	A	0.18	27.5	11.4	A	0.14	17.3	9.8
	WBL	A	0.21	50.8	14.0	A	0.33	48.6	25.5
	WBT/R	A	0.21	20.6	11.2	A	0.24	15.0	14.0
	NBL	A	0.05	6.0	5.4	A	0.25	11.4	8.3
	NBT	B	0.67	15.1	**#253.1**	C	0.75	21.7	228.0
	NBR	A	0.04	0.1	0.0	A	0.03	0.1	0.0
	SBL	A	0.18	4.9	m3.3	A	0.43	14.3	m2.9
	SBT	A	0.39	4.0	26.1	C	0.77	13.5	**#265.3**
	SBR	A	0.00	0.0	m0.0	A	0.02	0.0	m0.0
	Overall	**B**	**0.62**	**12.0**	**-**	**B**	**0.69**	**17.9**	**-**

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Merivale Road at Meadowlands Drive *Signalized*	EBL	E	1.00	**88.8**	**#98.1**	D	0.81	61.6	**#63.0**
	EBT/R	D	0.81	58.1	80.7	C	0.79	55.2	73.5
	WBL	A	0.40	36.4	25.2	C	0.78	56.7	**#56.0**
	WBT	A	0.50	53.8	40.0	D	0.87	67.9	**#91.7**
	WBR	B	0.62	26.5	37.8	A	0.46	10.1	19.8
	NBL	A	0.29	16.7	20.7	D	0.86	58.4	**#71.2**
	NBT	C	0.77	33.5	172.0	E	0.94	50.4	**#212.8**
	NBR	A	0.12	1.0	2.2	A	0.16	2.2	5.6
	SBL	A	0.49	24.9	**#24.3**	E	0.94	78.4	**#96.5**
	SBT	A	0.50	25.4	95.3	C	0.80	36.6	166.8
	SBR	A	0.15	2.6	7.5	A	0.39	3.9	16.3
	Overall	**D**	**0.86**	**38.9**	**-**	**E**	**0.93**	**46.2**	**-**

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

The network intersections at the 2024 future total horizon operate similarly to the 2024 future background conditions. No new capacity issues are noted.

15.2.2 2029 Future Total Network Intersection Operations

The 2029 future total network intersection operations are summarized below in Table 26. 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, and HCM average delay for unsignalized intersections. The synchro worksheets have been provided in Appendix L.

Table 26: 2029 Future Total Network Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Merivale Road at Baseline Road *Signalized*	EBL	E	0.93	**92.8**	**#100.2**	E	0.99	**112.5**	**#132.1**
	EBT/R	E	0.93	54.8	**#178.4**	D	0.83	46.4	164.2
	WBL	B	0.70	70.0	49.9	**F**	**1.37**	**232.5**	**#192.4**
	WBT	E	0.92	55.5	**#150.0**	E	0.92	54.1	**#201.2**
	WBR	B	0.65	21.7	68.5	A	0.33	12.4	31.7
	NBT	D	0.89	60.4	**#106.0**	C	0.80	65.5	86.1
	NBR	A	0.47	18.2	44.3	A	0.48	24.5	56.0
	SBL	**F**	**1.03**	**112.4**	**#69.3**	**F**	**1.15**	**151.9**	**#90.8**
	SBT	A	0.28	26.6	39.0	C	0.71	45.3	116.2
	SBR	A	0.41	4.6	16.7	A	0.58	13.5	51.1
	Overall	**E**	**0.96**	**52.0**	**-**	**E**	**1.00**	**67.3**	**-**

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Merivale Road / Clyde Avenue at Lotta Avenue / Merivale Road ***Signalized***	EBL	A	0.12	45.7	13.2	A	0.09	32.7	15.7
	EBT/R	A	0.49	55.2	34.6	A	0.49	44.0	30.9
	WBL	C	0.75	61.6	61.5	D	0.89	53.7	**#158.5**
	WBT	A	0.16	50.0	20.6	A	0.37	53.1	44.7
	WBR	A	0.27	11.5	13.7	A	0.43	9.8	18.9
	NBL	A	0.10	7.4	m2.3	A	0.51	41.9	m17.6
	NBT	A	0.49	9.0	46.7	D	0.90	46.8	**#179.7**
	NBR	C	0.71	10.0	255.8	D	0.81	15.3	**#70.0**
	SBL	A	0.14	18.3	13.0	A	0.53	39.2	**#35.2**
	SBT/R	A	0.33	16.2	73.4	E	0.95	61.8	**#199.0**
	Overall	**A**	**0.59**	**19.5**	-	**D**	**0.83**	**44.9**	-
Merivale Road at Withrow Avenue / Capilano Drive ***Signalized***	EBL	A	0.25	52.4	16.3	A	0.19	43.7	16.1
	EBT/R	A	0.18	27.5	11.4	A	0.15	16.5	10.2
	WBL	A	0.21	50.8	14.0	A	0.36	49.5	27.6
	WBT/R	A	0.21	20.6	11.2	A	0.26	14.4	14.5
	NBL	A	0.06	6.0	5.6	A	0.27	12.1	8.3
	NBT	B	0.69	15.5	**#266.8**	C	0.76	22.1	**#235.0**
	NBR	A	0.04	0.1	0.3	A	0.03	0.1	0.0
	SBL	A	0.20	6.0	m3.5	A	0.44	15.1	m3.1
	SBT	A	0.39	4.0	26.5	C	0.80	14.1	**m#271.9**
	SBR	A	0.01	0.0	m0.0	A	0.02	0.0	m0.0
	Overall	**B**	**0.64**	**12.3**	-	**C**	**0.71**	**18.4**	-
Merivale Road at Meadowlands Drive ***Signalized***	EBL	**F**	**1.05**	**100.5**	**#110.2**	D	0.86	69.3	**#72.4**
	EBT/R	D	0.83	58.6	84.5	C	0.80	56.2	77.3
	WBL	A	0.41	36.2	25.2	C	0.78	56.9	**#57.7**
	WBT	A	0.51	53.5	41.9	D	0.90	70.3	**#99.6**
	WBR	B	0.61	25.7	37.8	A	0.45	10.0	19.8
	NBL	A	0.30	17.2	20.7	E	0.92	72.4	**#77.6**
	NBT	D	0.81	35.3	180.6	E	0.95	53.1	**#217.1**
	NBR	A	0.12	1.0	2.2	A	0.16	2.2	5.6
	SBL	A	0.53	27.6	**#27.2**	E	0.95	**80.8**	**#96.0**
	SBT	A	0.51	25.9	97.3	D	0.84	38.9	175.8
	SBR	A	0.15	2.6	7.5	A	0.40	4.0	16.4
	Overall	**E**	**0.91**	**41.1**	-	**E**	**0.95**	**48.8**	-

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

The network intersections at the 2029 future total horizon operate similarly to the 2029 future background conditions. No new capacity issues are noted. Average delay on the westbound left movement at the intersection of Merivale Road at Baseline Road, which is the movement with the most critical capacity issues within the study area, is only forecasted to increase by 3.6 seconds.

15.2.3 Network Intersection MMLOS

Table 27 summarizes the MMLOS analysis for the network intersections of Merivale Road at Baseline Road, Merivale Road/Clyde Avenue at Lotta Avenue/Merivale Road, Merivale Road at Withrow Avenue/Capilano Drive, and Merivale Road at Meadowlands Drive. The existing and future conditions for the intersections will be the same and are considered in one row. The intersection analysis is based on the policy area of "Within 300m of a school" for the intersection of Merivale Road at Withrow Avenue/Capilano Drive, being within this distance of

Elizabeth Wyn Wood School, on the policy area of "Within 600m of a rapid transit station" for the intersections of Merivale Road at Baseline Road and Merivale Road/Clyde Avenue at Lotta Avenue/Merivale Road, and on the land use designation of "Arterial Main Street" for the intersection of Merivale Road at Meadowlands Drive. The MMLOS worksheets has been provided in Appendix J.

Table 27: 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
Merivale Road at Baseline Road	F	A	F	A	F	A	D	D	F	E
Merivale Road / Clyde Avenue at Lotta Avenue / Merivale Road	F	A	F	C	F	D	B	D	D	E
Merivale Road at Withrow Avenue / Capilano Drive	F	A	F	B	D	D	-	-	E	E
Merivale Road at Meadowlands Drive	F	C	F	C	F	D	-	-	F	D

The MMLOS targets will not be met for the pedestrian and bicycle LOS at all network intersections, the transit LOS at all study area intersections except Merivale Road at Withrow Avenue/Capilano Drive, and the truck and auto LOS at the intersection of Merivale Road at Baseline Road.

The pedestrian level of service would require a maximum crossing distance of two lane-widths at a crossing to meet a LOS A and three lane-widths at a crossing to meet LOS C.

Both the mixed traffic approaches for cyclists and left-turn arrangements at the study area intersections govern the bicycle LOS at each intersection, requiring left-turn boxes or two-stage crossings and separated facilities on each approach that does not meet targets.

The transit LOS will not be met due to the intersection delays at on transit approaches throughout the intersection and would require delays of 30 seconds or less on each of these approaches to meet targets at all but the Merivale Road at Baseline Road intersection. At that intersection, transit delays would be required to be zero seconds to meet TLOS of A, which despite being an unrealizable target, would be more appropriately evaluated after the buildout of the Baseline BRT project. Achieving the City's desired balance of MMLOS trade-offs will be incumbent on this project's team through its design and implementation.

The truck LOS is not met at the intersection of Merivale Road and Baseline Road due to the narrow curb radius. It is noted that to meet truck LOS targets here would constitute a reduction to pedestrian LOS on the east crossing, although would not change the intersection PLOS score.

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 202 apartment units
- Accesses will be provided along via a right-in/right-out access on Merivale Road and via an existing access on Capilano Drive

- This application considers the first phase of the redevelopment to be built out by 2024
- The Trip Generation, Location, and Safety Triggers were met for the TIA Screening
- This TIA supports a site plan application

Existing Conditions

- Merivale Road, Clyde Avenue, and Baseline Road are arterial roads, Meadowlands Drive is a major collector, and Lotta Avenue, Capilano Drive, and Withrow Avenue are collector roads in the study area
- Sidewalks are provided on both sides of the study area arterial roadways, and on one side of Capilano Drive and Withrow Avenue, Merivale Road and Clyde Avenue are spine cycling routes, and Capilano Drive and Withrow Avenue are local routes
- Two transit routes operate within proximity of the site, with 15–30-minute service on the route #80
- The high volumes roadways have produced a high number of collisions at the study area intersections, primarily at the Merivale Road/Clyde Avenue at Lotta Avenue/Merivale Road intersection
- The collisions are predominantly rear end and sideswipe and turning movement collisions indicating that they may be associated with congestion and right-turn channels
- The intersection of Merivale Road at Baseline Road is over capacity during both peak hours on multiple movements, and the intersection of Merivale Road at Meadowlands Drive is over capacity during the PM peak hour on multiple movements

Development Generated Travel Demand

- The proposed development is forecasted produce 81 two-way people trips during the AM peak hour and 81 two-way people trips during the PM peak hour
- Of the forecasted people trips, 32 two-way trips will be vehicle trips during the AM peak hour and 33 two-way trips will be vehicle trips during the PM peak hour based on a 41% auto modal share target
- Of the forecasted trips, 40% are anticipated to travel north, 10% to travel east, and 25% to each the east and west

Background Conditions

- The background developments were explicitly included in the background conditions, along with constrained background growth rates of 2% or less per annum along the mainline volumes of specific links within the study area
- The study area intersections at the study area intersections are forecasted to operate similarly to the existing conditions at the 2029 future background horizon

Development Design

- The auto parking is proposed within a surface lot and underground parking level and bike parking is proposed within a secure room on the main floor, within the underground parking level, and in a surface rack
- Pedestrian connections will be made from the building entrances to the sidewalk on Merivale Road and proposes a mid-block crossing from Kerry Crescent to Merivale Road
- Access is proposed via a right-in/right-out access on Merivale Road and a connection to an existing access on Capilano Drive, bike access to the storage room on the main floor is by the main entrance via a hard surface connection or an auxiliary entrance

- Garbage collection is assumed to occur on site and emergency services are assumed to service the site from the two public rights-of-way

Parking

- The site proposes the provision of 161 tenant vehicle parking spaces, 41 visitor vehicle parking spaces, and 203 bicycle parking spaces
- The proposed parking rates are meeting minimum rates identified as being required within the site plan

Boundary Street Design

- Both boundary streets will not meet pedestrian LOS targets, and Merivale Road will not meet bicycle LOS targets
- Pedestrian LOS targets cannot be met on Merivale Road, pedestrian facilities on Kerry Crescent are considered to be context-appropriate, and bicycle LOS may not be able to be met given the limited existing right of way

Access Intersections Design

- The development proposes consolidating two existing right-in/right-out access on Merivale Road, and connecting to the existing full0movement access on Capilano Drive
- All accesses are assumed to be stop controlled on the minor approaches
- The access intersections are forecasted to operate well at both future horizons
- No specific recommendations or design elements are required outside of typical site design

TDM

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

NTM

- Volumes on Capilano Drive do not exceed collector road classification thresholds in the future total conditions

Transit

- The site is anticipated to generate 37 AM and 28 PM peak hour two-way transit trips
- To meet forecasted transit use, a maximum service increase of the substitution of a higher-capacity bus per peak hour and direction on the route #80 is forecasted to be required
- No specific transit priority measures were considered as part of this development, and a maximum increase in delay of 1.1 seconds is forecasted for any transit movements from the addition of site traffic

Network Intersection Design

- Generally, the network intersections will operate similarly to the background conditions
- The MMLOS targets will not be met for the pedestrian and cycling LOS at all network intersections, transit LOS at all but the intersection of Merivale Road at Withrow Avenue/Capilano Drive, truck LOS at the

intersection of Merivale Road at Baseline Road, and auto LOS at the intersections of Merivale Road at Baseline Road and Merivale Road at Meadowlands Drive

- Improved cycling facilities, including left-turn configurations out of mixed flow and separated facilities could meet the LOS targets but due to the nature of arterials roadways, the pedestrian and transit LOS cannot be met
- It will be incumbent on the Baseline BRT project's design team to meet the City's desired balance of MMLOS trade-offs

17 Conclusion

It is recommended that, from a transportation perspective, the proposed development applications 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

CGH TRANSPORTATION

13 Markham Avenue
Ottawa ON K2G 3Z1

City of Ottawa 2017 TIA Guidelines
Step 1 - Screening Form

Date: 30-Sep-20
Project Number: 2020-47
Project Reference: Katasa 1509 Merivale

1.1 Description of Proposed Development	
Municipal Address	1509 Merivale Road
Description of Location	Existing Retail Plaza
Land Use Classification	Arterial Mainstreet (AM10)
Development Size	156 apartment units
Accesses	Relocate existing RIRO on Merivale Rd, existing rear lane access to Capilano Dr
Phase of Development	Single Phase (adjacent future potential)
Buildout Year	2024
TIA Requirement	Full TIA Required

1.2 Trip Generation Trigger		
Land Use Type	Townhomes or apartments	
Development Size	156	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	
Is the development in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone?	Yes	Merivale Arterial Mainstreet Design Priority
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)?	Yes
Is the proposed driveway within auxiliary lanes of an intersection?	Yes
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
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.**

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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

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Appendix B

Turning Movement Counts

CGH TRANSPORTATION

Transportation Services - Traffic Services

W.O. 35707

Turning Movement Count - 15 Minute Summary Report

BASELINE RD @ MERIVALE RD

Survey Date: Tuesday, February 09, 2016

Total Observed U-Turns

Northbound: 0 Southbound: 3

Eastbound: 0 Westbound: 0

		MERIVALE RD									BASELINE 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	55	30	**85**	51	69	38	**158**	**243**	28	182	1	**211**	13	126	49	**188**	**399**	**642**
07:15	07:30	0	90	39	**129**	51	65	54	**170**	**299**	45	244	1	**290**	16	186	51	**253**	**543**	**842**
07:30	07:45	0	123	39	**162**	62	70	62	**194**	**356**	46	249	0	**295**	24	215	79	**318**	**613**	**969**
07:45	08:00	0	90	42	**132**	78	77	69	**224**	**356**	40	262	5	**307**	20	242	99	**361**	**668**	**1024**
08:00	08:15	0	144	65	**209**	78	83	83	**244**	**453**	48	251	1	**300**	31	192	91	**314**	**614**	**1067**
08:15	08:30	0	131	55	**186**	91	83	73	**248**	**434**	55	291	2	**348**	27	245	84	**356**	**704**	**1138**
08:30	08:45	0	167	48	**215**	70	77	66	**213**	**428**	62	214	3	**279**	34	217	110	**361**	**640**	**1068**
08:45	09:00	0	125	44	**169**	74	83	62	**219**	**388**	57	251	0	**308**	24	243	90	**357**	**665**	**1053**
09:00	09:15	0	91	35	**126**	56	83	52	**191**	**317**	68	219	4	**291**	43	167	81	**291**	**582**	**899**
09:15	09:30	0	59	43	**102**	45	72	53	**170**	**272**	57	223	3	**283**	40	222	98	**360**	**643**	**915**
09:30	09:45	0	64	44	**108**	56	59	52	**167**	**275**	55	253	2	**310**	59	175	81	**315**	**625**	**900**
09:45	10:00	0	63	44	**107**	59	89	66	**214**	**321**	44	181	7	**232**	35	145	44	**224**	**456**	**777**
11:30	11:45	0	73	45	**118**	54	96	61	**212**	**330**	52	126	5	**183**	54	171	53	**278**	**461**	**791**
11:45	12:00	0	67	46	**113**	48	104	66	**218**	**331**	62	143	6	**211**	52	167	53	**272**	**483**	**814**
12:00	12:15	0	71	47	**118**	63	112	73	**248**	**366**	48	171	7	**226**	44	168	62	**274**	**500**	**866**
12:15	12:30	0	77	49	**126**	52	114	63	**229**	**355**	63	156	2	**221**	53	127	55	**235**	**456**	**811**
12:30	12:45	1	103	50	**154**	60	81	51	**192**	**346**	64	139	4	**207**	40	174	57	**271**	**478**	**824**
12:45	13:00	0	89	52	**141**	57	107	57	**222**	**363**	62	164	9	**235**	52	149	44	**245**	**480**	**843**
13:00	13:15	0	84	54	**138**	64	92	48	**204**	**342**	45	121	3	**169**	40	147	63	**250**	**419**	**761**
13:15	13:30	0	67	60	**127**	54	99	52	**205**	**332**	48	148	1	**197**	41	146	55	**242**	**439**	**771**
15:00	15:15	0	107	44	**151**	75	118	57	**250**	**401**	60	168	5	**233**	52	244	46	**342**	**575**	**976**
15:15	15:30	0	87	41	**128**	68	130	57	**255**	**383**	48	178	7	**233**	58	307	55	**420**	**653**	**1036**
15:30	15:45	0	105	45	**150**	95	147	81	**323**	**473**	49	198	5	**252**	58	289	59	**406**	**658**	**1131**
15:45	16:00	1	99	59	**159**	77	133	80	**290**	**449**	66	185	5	**256**	66	296	62	**424**	**680**	**1129**
16:00	16:15	0	90	48	**138**	98	143	82	**323**	**461**	58	216	5	**279**	69	299	56	**424**	**703**	**1164**
16:15	16:30	0	108	61	**169**	81	144	95	**320**	**489**	54	249	2	**305**	54	302	52	**408**	**713**	**1202**
16:30	16:45	0	98	45	**143**	106	139	97	**342**	**485**	64	246	4	**314**	59	270	42	**371**	**685**	**1170**
16:45	17:00	0	91	40	**131**	80	169	82	**331**	**462**	61	238	3	**302**	63	290	56	**409**	**711**	**1173**
17:00	17:15	0	128	65	**193**	89	169	104	**362**	**555**	64	239	3	**306**	75	284	54	**413**	**719**	**1274**
17:15	17:30	0	122	48	**170**	86	151	79	**316**	**486**	61	216	4	**281**	64	287	67	**418**	**699**	**1185**
17:30	17:45	0	104	45	**149**	66	129	71	**266**	**415**	80	217	2	**299**	75	260	65	**400**	**699**	**1114**
17:45	18:00	0	85	34	**119**	85	119	77	**281**	**400**	64	209	7	**280**	59	219	53	**331**	**611**	**1011**
TOTAL:		2	3057	1506	**4565**	2229	3406	2163	**7801**	**12366**	1778	6547	118	**8443**	1494	6971	2066	**10531**	**18974**	**31340**

Note: U-Turns are included in Totals.

Comment:

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order 35707

BASELINE RD @ MERIVALE RD

Count Date: Tuesday, February 09, 2016 **Start Time:** 07:00

		MERIVALE RD			BASELINE RD			
Time Period		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	08:00	2	1	**3**	1	0	**1**	**4**
08:00	09:00	0	0	**0**	1	0	**1**	**1**
09:00	10:00	0	0	**0**	0	0	**0**	**0**
11:30	12:30	0	0	**0**	0	0	**0**	**0**
12:30	13:30	0	0	**0**	0	0	**0**	**0**
15:00	16:00	0	0	**0**	0	0	**0**	**0**
16:00	17:00	0	0	**0**	0	0	**0**	**0**
17:00	18:00	0	0	**0**	1	0	**1**	**1**
Total	.....	2	1	**3**	3	0	**3**	**6**

Comment:

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

Transportation Services - Traffic Services

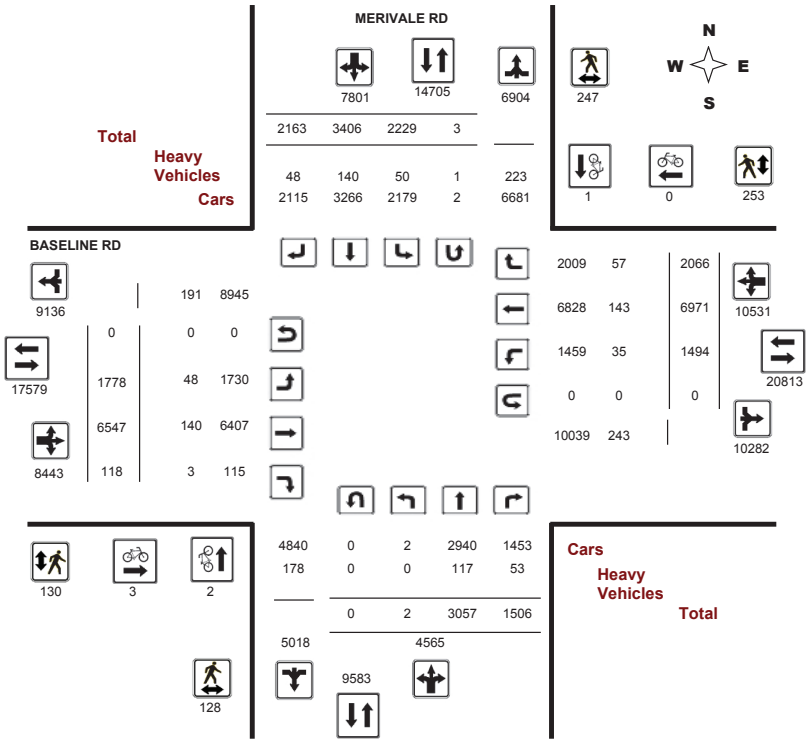
Turning Movement Count - Full Study Diagram

BASELINE RD @ MERIVALE RD

Survey Date: Tuesday, February 09, 2016

WO#: 35707

Device: Miovision



Comments

Transportation Services - Traffic Services

W.O. 35707

Turning Movement Count - Heavy Vehicle Report

BASELINE RD @ MERIVALE RD

Survey Date: Tuesday, February 09, 2016

		MERIVALE RD									BASELINE RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	08:00	0	18	8	**26**	6	17	5	**28**	**54**	8	12	1	**21**	3	21	17	**41**	**62**	**116**
08:00	09:00	0	21	6	**27**	9	18	11	**38**	**65**	6	23	1	**30**	7	27	9	**43**	**73**	**138**
09:00	10:00	0	21	3	**24**	8	20	6	**34**	**58**	11	33	1	**45**	6	22	12	**40**	**85**	**143**
11:30	12:30	0	17	15	**32**	3	19	10	**32**	**64**	4	9	0	**13**	7	13	8	**28**	**41**	**105**
12:30	13:30	0	11	7	**18**	13	18	5	**37**	**55**	7	13	0	**20**	9	17	5	**31**	**51**	**106**
15:00	16:00	0	12	7	**19**	2	21	6	**29**	**48**	6	18	0	**24**	0	22	4	**26**	**50**	**98**
16:00	17:00	0	8	5	**13**	6	16	3	**25**	**38**	4	17	0	**21**	1	10	1	**12**	**33**	**71**
17:00	18:00	0	9	2	**11**	3	11	2	**16**	**27**	2	15	0	**17**	2	11	1	**14**	**31**	**58**
Sub Total		0	117	53	**170**	50	140	48	**239**	**409**	48	140	3	**191**	35	143	57	**235**	**426**	**835**
U-Turns (Heavy Vehicles)					**0**				**1**	**1**				**0**				**0**	**0**	**1**
Total		0	117	53	**0**	50	140	48	**240**	**410**	48	140	3	**191**	35	143	57	**235**	**426**	**836**

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

Transportation Services - Traffic Services

Work Order 35707

Turning Movement Count - Pedestrian Volume Report

BASELINE RD @ MERIVALE RD

Count Date: Tuesday, February 09, 2016 **Start Time:** 07:00

Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	1	2	3	2	4	6	9
07:15 07:30	6	2	8	5	6	11	19
07:30 07:45	1	14	15	2	12	14	29
07:45 08:00	5	10	15	6	11	17	32
07:00 08:00	13	28	41	15	33	48	89
08:00 08:15	3	11	14	4	13	17	31
08:15 08:30	5	12	17	3	12	15	32
08:30 08:45	5	3	8	8	7	15	23
08:45 09:00	7	7	14	8	7	15	29
08:00 09:00	20	33	53	23	39	62	115
09:00 09:15	2	1	3	4	2	6	9
09:15 09:30	3	8	11	2	5	7	18
09:30 09:45	3	8	11	2	9	11	22
09:45 10:00	6	3	9	6	6	12	21
09:00 10:00	14	20	34	14	22	36	70
11:30 11:45	3	1	4	2	3	5	9
11:45 12:00	1	3	4	2	4	6	10
12:00 12:15	13	8	21	9	15	24	45
12:15 12:30	0	3	3	0	2	2	5
11:30 12:30	17	15	32	13	24	37	69
12:30 12:45	1	6	7	5	8	13	20
12:45 13:00	6	10	16	3	10	13	29
13:00 13:15	6	3	9	3	6	9	18
13:15 13:30	1	6	7	4	9	13	20
12:30 13:30	14	25	39	15	33	48	87
15:00 15:15	0	7	7	2	5	7	14
15:15 15:30	1	7	8	1	12	13	21
15:30 15:45	6	16	22	8	17	25	47
15:45 16:00	4	14	18	5	11	16	34
15:00 16:00	11	44	55	16	45	61	116
16:00 16:15	4	9	13	5	7	12	25
16:15 16:30	9	13	22	7	7	14	36
16:30 16:45	6	17	23	4	8	12	35
16:45 17:00	3	7	10	3	5	8	18
16:00 17:00	22	46	68	19	27	46	114
17:00 17:15	6	9	15	6	10	16	31
17:15 17:30	3	11	14	4	7	11	25
17:30 17:45	2	12	14	2	7	9	23
17:45 18:00	6	4	10	3	6	9	19
17:00 18:00	17	36	53	15	30	45	98
Total	128	247	375	130	253	383	758

Comment:

Transportation Services - Traffic Services

Work Order 35707

Turning Movement Count - Full Study Summary Report

BASELINE RD @ MERIVALE RD

Survey Date: Tuesday, February 09, 2016

Total Observed U-Turns

Northbound: 0 Southbound: 3

Eastbound: 0 Westbound: 0

AADT Factor 1.00

Full Study

	MERIVALE RD									BASELINE RD									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	0	358	150	508	242	281	223	746	1254	159	937	7	1103	73	769	278	1120	2223	3477
08:00 09:00	0	567	212	779	313	326	284	923	1702	222	1007	6	1235	116	897	375	1388	2623	4325
09:00 10:00	0	277	166	443	216	303	223	742	1185	224	876	16	1116	177	709	304	1190	2306	3491
11:30 12:30	0	288	187	475	217	426	263	906	1381	225	596	20	841	203	633	223	1059	1900	3281
12:30 13:30	1	343	216	560	235	379	208	822	1382	219	572	17	808	173	616	219	1008	1816	3198
15:00 16:00	1	398	189	588	315	528	275	1118	1706	223	729	22	974	234	1136	222	1592	2566	4272
16:00 17:00	0	387	194	581	365	595	356	1316	1897	237	949	14	1200	245	1161	206	1612	2812	4709
17:00 18:00	0	439	192	631	326	568	331	1225	1856	269	881	16	1166	273	1050	239	1562	2728	4584
Sub Total	2	3057	1506	4565	2229	3406	2163	7798	12363	1778	6547	118	8443	1494	6971	2066	10531	18974	31337
U Turns				0				3	3				0				0	0	3
Total	2	3057	1506	4565	2229	3406	2163	7801	12366	1778	6547	118	8443	1494	6971	2066	10531	18974	31340
EQ 12Hr	3	4249	2093	6345	3098	4734	3007	10843	17188	2471	9100	164	11736	2077	9690	2872	14638	26374	43562
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													1.39						
AVG 12Hr	3	4249	2093	6345	3098	4734	3007	10843	17188	2471	9100	164	11736	2077	9690	2872	14638	26374	43562
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													1.00						
AVG 24Hr	4	5566	2742	8312	4059	6202	3939	14205	22517	3238	11921	215	15374	2720	12693	3762	19176	34550	57067
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.													1.31						

Comments:

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

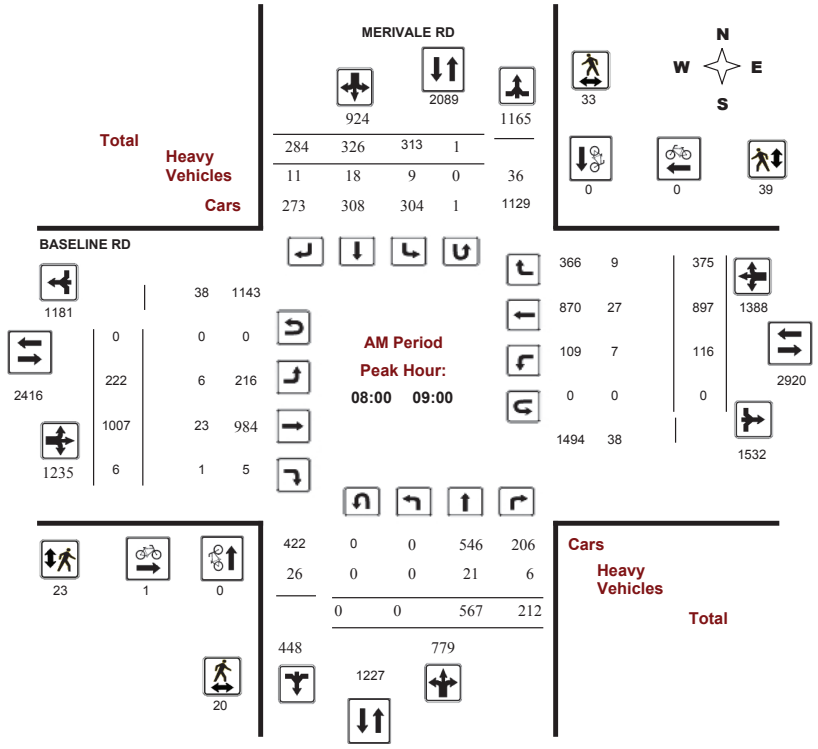
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

BASELINE RD @ MERIVALE RD

Survey Date: Tuesday, February 09, 2016 **WO No:** 35707

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



Comments

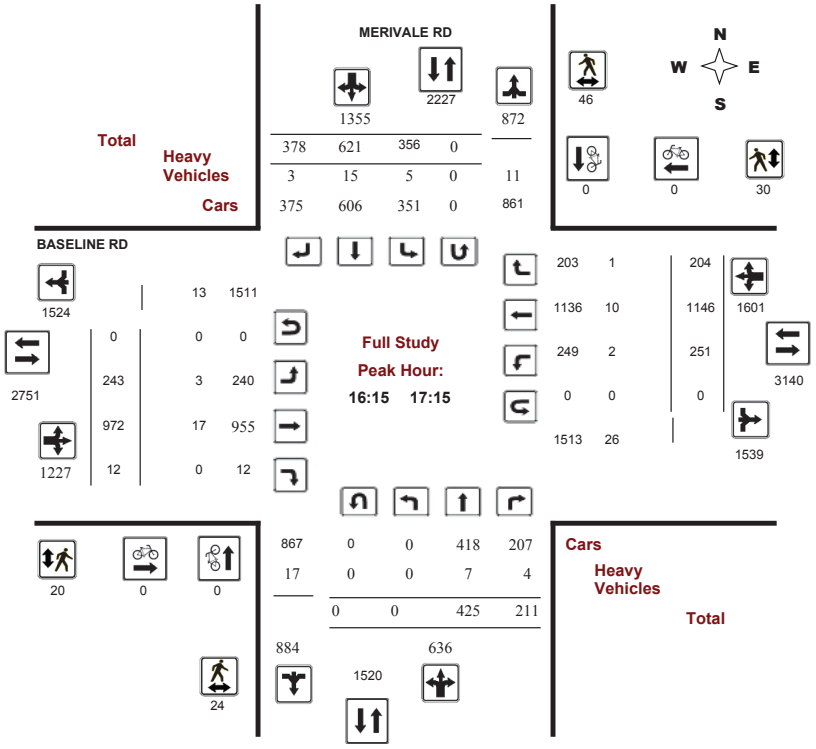
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

BASELINE RD @ MERIVALE RD

Survey Date: Tuesday, February 09, 2016 **WO No:** 35707

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



Comments

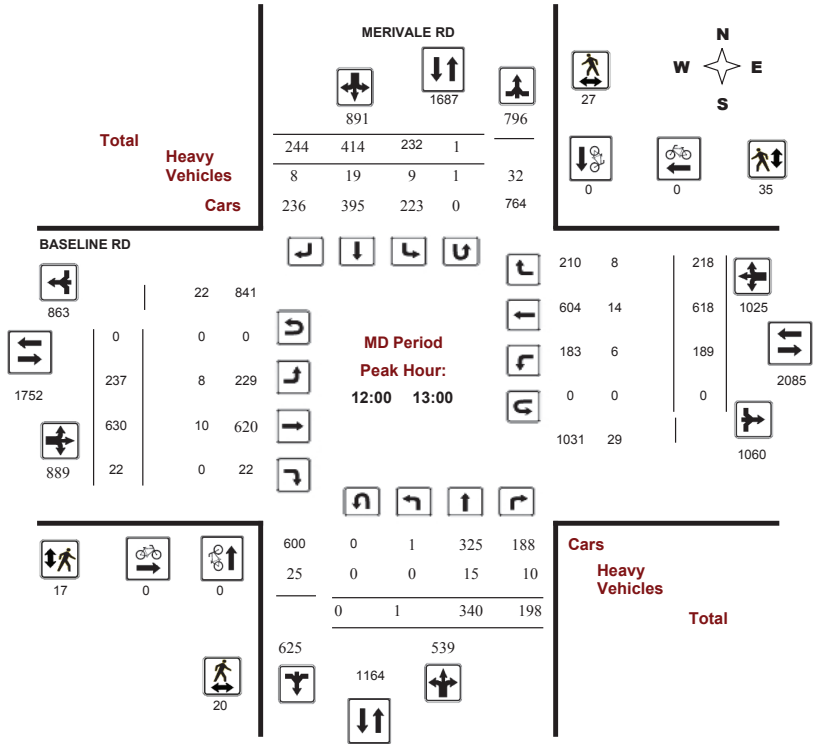
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

BASELINE RD @ MERIVALE RD

Survey Date: Tuesday, February 09, 2016 **WO No:** 35707

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



Comments

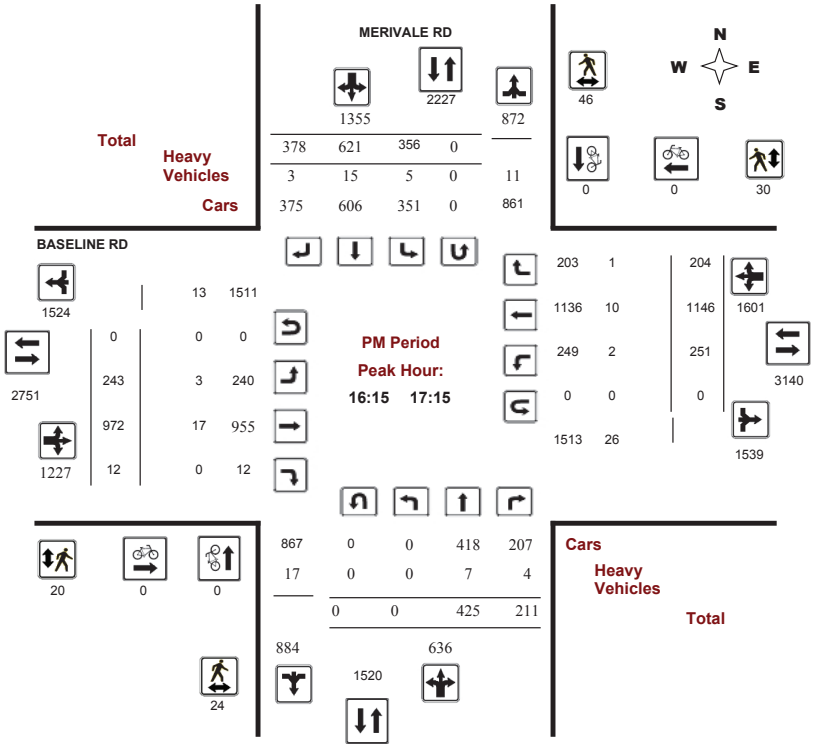
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

BASELINE RD @ MERIVALE RD

Survey Date: Tuesday, February 09, 2016 **WO No:** 35707

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



Comments

Transportation Services - Traffic Services

Work Order 35707

Turning Movement Count - 15 Min U-Turn Total Report

BASELINE RD @ MERIVALE RD

Survey Date: Tuesday, February 09, 2016

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

Transportation Services - Traffic Services

W.O. 822

Turning Movement Count - 15 Minute Summary Report

BASELINE RD @ MERIVALE RD

Survey Date: Saturday, August 20, 2011

Total Observed U-Turns

Northbound: 1 Southbound: 2

Eastbound: 0 Westbound: 0

		MERIVALE RD								BASELINE 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
11:00	11:15	0	268	40	**308**	36	84	51	**171**	**479**	71	276	0	**347**	63	84	43	**190**	**537**	**1016**
11:15	11:30	0	260	61	**321**	51	101	54	**206**	**527**	65	260	0	**325**	52	96	64	**212**	**537**	**1064**
11:30	11:45	0	299	44	**343**	44	94	61	**199**	**542**	69	313	1	**383**	77	67	43	**187**	**570**	**1112**
11:45	12:00	0	297	62	**359**	65	104	55	**225**	**584**	72	283	0	**355**	72	99	66	**237**	**592**	**1176**
12:00	12:15	0	312	52	**364**	48	109	41	**198**	**562**	80	323	0	**403**	69	83	50	**202**	**605**	**1167**
12:15	12:30	0	210	72	**282**	57	110	64	**231**	**513**	61	206	0	**267**	66	91	71	**228**	**495**	**1008**
12:30	12:45	0	201	67	**268**	54	90	55	**199**	**467**	69	205	0	**274**	69	79	70	**218**	**492**	**959**
12:45	13:00	0	199	60	**259**	61	119	67	**247**	**506**	78	197	0	**275**	68	95	60	**223**	**498**	**1004**
13:00	13:15	0	246	56	**302**	59	99	67	**225**	**527**	50	249	0	**299**	62	90	55	**207**	**506**	**1033**
13:15	13:30	0	203	61	**264**	59	87	50	**196**	**460**	73	194	0	**267**	54	86	66	**206**	**473**	**933**
13:30	13:45	0	225	63	**288**	54	99	61	**214**	**502**	74	235	0	**309**	71	101	60	**232**	**541**	**1043**
13:45	14:00	0	209	61	**270**	54	106	63	**223**	**493**	75	230	0	**305**	60	106	61	**227**	**532**	**1025**
14:00	14:15	0	237	57	**294**	65	103	60	**228**	**522**	53	257	0	**310**	53	109	54	**216**	**526**	**1048**
14:15	14:30	0	202	80	**282**	53	88	56	**197**	**479**	64	215	0	**279**	78	109	88	**275**	**554**	**1033**
14:30	14:45	0	252	61	**314**	41	76	54	**171**	**485**	75	263	1	**339**	65	81	61	**207**	**546**	**1031**
14:45	15:00	3	242	69	**314**	58	98	65	**222**	**536**	64	246	0	**310**	75	98	66	**239**	**549**	**1085**
15:00	15:15	0	266	57	**323**	50	102	68	**220**	**543**	76	264	0	**340**	84	59	53	**196**	**536**	**1079**
15:15	15:30	1	188	45	**234**	56	114	48	**218**	**452**	79	189	0	**268**	69	93	48	**210**	**478**	**930**
15:30	15:45	0	232	50	**282**	57	92	61	**210**	**492**	54	233	0	**287**	44	80	50	**174**	**461**	**953**
15:45	16:00	1	194	64	**259**	59	81	57	**197**	**456**	73	196	1	**270**	65	101	59	**225**	**495**	**951**
TOTAL:		5	4742	1182	**5930**	1081	1956	1158	**4197**	**10127**	1375	4834	3	**6212**	1316	1807	1188	**4311**	**10523**	**20650**

Note: U-Turns are included in Totals.

Comment:

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order 822

BASELINE RD @ MERIVALE RD

Count Date: Saturday, August 20, 2011 **Start Time:** 11:00

	MERIVALE RD			BASELINE RD			
Time Period	Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
11:00 12:00	9	6	**15**	3	6	**9**	**24**
12:00 13:00	7	1	**8**	0	6	**6**	**14**
13:00 14:00	4	0	**4**	0	4	**4**	**8**
14:00 15:00	4	0	**4**	0	3	**3**	**7**
15:00 16:00	4	1	**5**	0	1	**1**	**6**
Total	28	8	**36**	3	20	**23**	**59**

Comment:

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

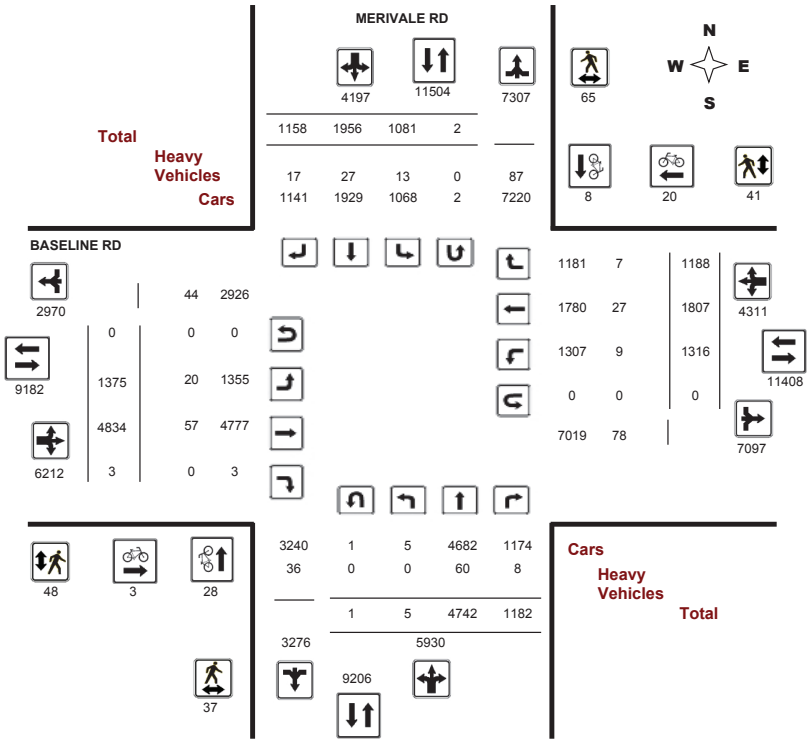
Transportation Services - Traffic Services

Turning Movement Count - Full Study Diagram

BASELINE RD @ MERIVALE RD

Survey Date: Saturday, August 20, 2011 **WO#:** 822

Device: Miovision



Comments

Transportation Services - Traffic Services

W.O. 822

Turning Movement Count - Heavy Vehicle Report

BASELINE RD @ MERIVALE RD

Survey Date: Saturday, August 20, 2011

		MERIVALE RD									BASELINE 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
11:00	12:00	0	11	2	**13**	1	8	2	**11**	**24**	3	9	0	**12**	3	10	2	**15**	**27**	**51**
12:00	13:00	0	13	2	**15**	4	4	1	**9**	**24**	3	12	0	**15**	1	2	2	**5**	**20**	**44**
13:00	14:00	0	14	0	**14**	1	3	7	**11**	**25**	6	14	0	**20**	1	5	0	**6**	**26**	**51**
14:00	15:00	0	14	2	**16**	3	5	2	**10**	**26**	5	14	0	**19**	3	6	2	**11**	**30**	**56**
15:00	16:00	0	8	2	**10**	4	7	5	**16**	**26**	3	8	0	**11**	1	4	1	**6**	**17**	**43**
Sub Total		0	60	8	**68**	13	27	17	**57**	**125**	20	57	0	**77**	9	27	7	**43**	**120**	**245**
U-Turns (Heavy Vehicles)					**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total		0	60	8	**0**	13	27	17	**57**	**125**	20	57	0	**77**	9	27	7	**43**	**120**	**245**

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

Transportation Services - Traffic Services

Work Order 822

Turning Movement Count - Pedestrian Volume Report

BASELINE RD @ MERIVALE RD

Count Date: Saturday, August 20, 2011 **Start Time:** 11:00

Time Period		NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
11:00	11:15	1	4	**5**	0	1	**1**	**6**
11:15	11:30	1	1	**2**	3	1	**4**	**6**
11:30	11:45	1	2	**3**	1	1	**2**	**5**
11:45	12:00	4	8	**12**	2	4	**6**	**18**
11:00	12:00	7	15	**22**	6	7	**13**	**35**
12:00	12:15	1	0	**1**	5	1	**6**	**7**
12:15	12:30	0	2	**2**	0	1	**1**	**3**
12:30	12:45	5	0	**5**	4	5	**9**	**14**
12:45	13:00	1	3	**4**	4	3	**7**	**11**
12:00	13:00	7	5	**12**	13	10	**23**	**35**
13:00	13:15	4	4	**8**	5	6	**11**	**19**
13:15	13:30	3	5	**8**	3	3	**6**	**14**
13:30	13:45	5	3	**8**	3	7	**10**	**18**
13:45	14:00	0	1	**1**	2	0	**2**	**3**
13:00	14:00	12	13	**25**	13	16	**29**	**54**
14:00	14:15	2	1	**3**	4	1	**5**	**8**
14:15	14:30	0	0	**0**	0	1	**1**	**1**
14:30	14:45	1	3	**4**	0	0	**0**	**4**
14:45	15:00	3	4	**7**	1	4	**5**	**12**
14:00	15:00	6	8	**14**	5	6	**11**	**25**
15:00	15:15	1	8	**9**	0	0	**0**	**9**
15:15	15:30	0	2	**2**	2	0	**2**	**4**
15:30	15:45	1	12	**13**	3	0	**3**	**16**
15:45	16:00	3	2	**5**	6	2	**8**	**13**
15:00	16:00	5	24	**29**	11	2	**13**	**42**
Total	.....	37	65	**102**	48	41	**89**	**191**

Comment:

Transportation Services - Traffic Services

Work Order 822

Turning Movement Count - Full Study Summary (No AADT) Report

BASELINE RD @ MERIVALE RD

Survey Date: Saturday, August 20, 2011

Total Observed U-Turns

Northbound: 1 Southbound: 2

Eastbound: 0 Westbound: 0

Full Study

	MERIVALE RD									BASELINE 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
11:00 12:00	0	1124	207	**1331**	196	383	221	**800**	**2131**	277	1132	1	**1410**	264	346	216	**826**	**2236**	**4367**
12:00 13:00	0	922	251	**1173**	220	428	227	**875**	**2048**	288	931	0	**1219**	272	348	251	**871**	**2090**	**4138**
13:00 14:00	0	883	241	**1124**	226	391	241	**858**	**1982**	272	908	0	**1180**	247	383	242	**872**	**2052**	**4034**
14:00 15:00	3	933	267	**1203**	217	365	235	**817**	**2020**	256	981	1	**1238**	271	397	269	**937**	**2175**	**4195**
15:00 16:00	2	880	216	**1098**	222	389	234	**845**	**1943**	282	882	1	**1165**	262	333	210	**805**	**1970**	**3913**
Sub Total	5	4742	1182	**5929**	1081	1956	1158	**4195**	**10124**	1375	4834	3	**6212**	1316	1807	1188	**4311**	**10523**	**20647**
U Turns				**1**				**2**	**3**				**0**				**0**	**0**	**3**
Total	5	4742	1182	**5930**	1081	1956	1158	**4197**	**10127**	1375	4834	3	**6212**	1316	1807	1188	**4311**	**10523**	**20650**

Comments:

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

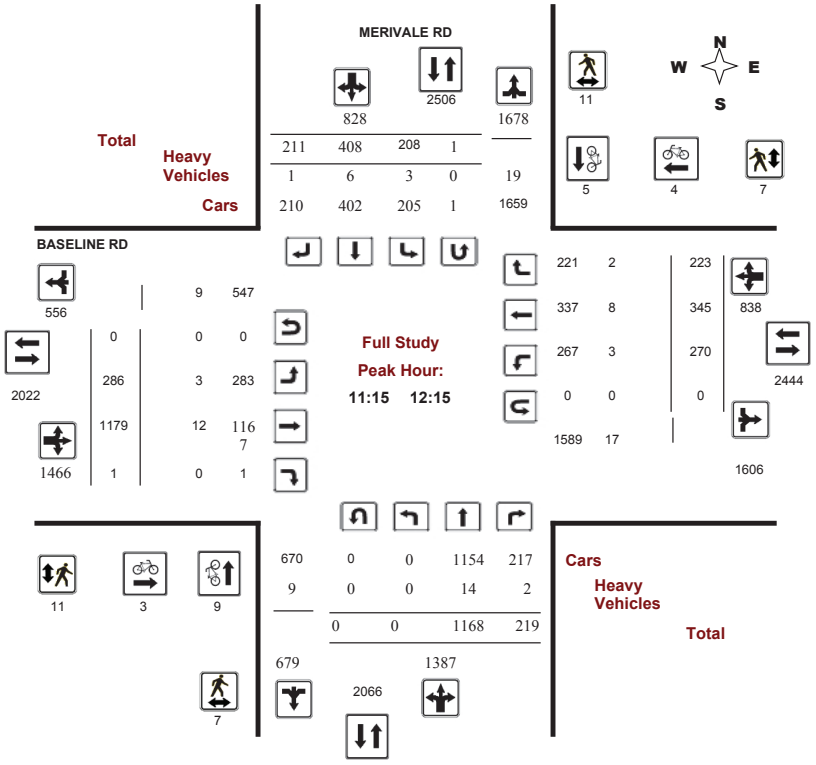
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

BASELINE RD @ MERIVALE RD

Survey Date: Saturday, August 20, 2011 **WO No:** 822

Start Time: 11:00 **Device:** Miovision



Transportation Services - Traffic Services

Work Order 822

Turning Movement Count - 15 Min U-Turn Total Report

BASELINE RD @ MERIVALE RD

Survey Date: Saturday, August 20, 2011

Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
11:00	11:15	0	0	0	0	0
11:15	11:30	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	1	0	0	1
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	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
13:30	13:45	0	0	0	0	0
13:45	14:00	0	0	0	0	0
14:00	14:15	0	0	0	0	0
14:15	14:30	0	0	0	0	0
14:30	14:45	1	0	0	0	1
14:45	15:00	0	1	0	0	1
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
Total		1	2	0	0	3

Transportation Services - Traffic Services

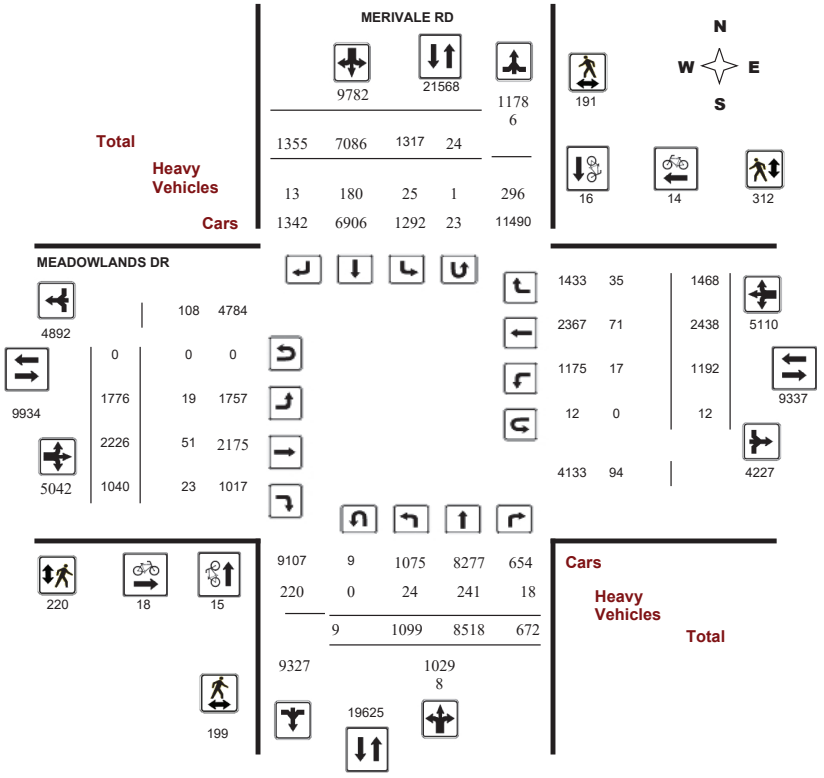
Turning Movement Count - Study Results

MEADOWLANDS DR @ MERIVALE RD

Survey Date: Thursday, November 01, 2018 **WO No:** 38079

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

Full Study Diagram



Transportation Services - Traffic Services

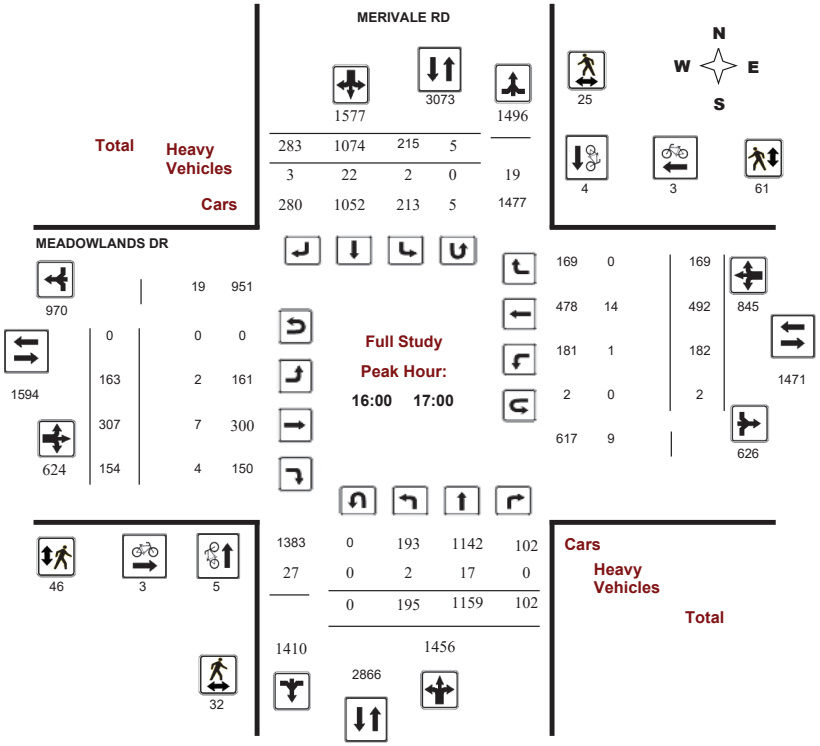
Turning Movement Count - Study Results

MEADOWLANDS DR @ MERIVALE RD

Survey Date: Thursday, November 01, 2018 **WO No:** 38079

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

Full Study Peak Hour Diagram



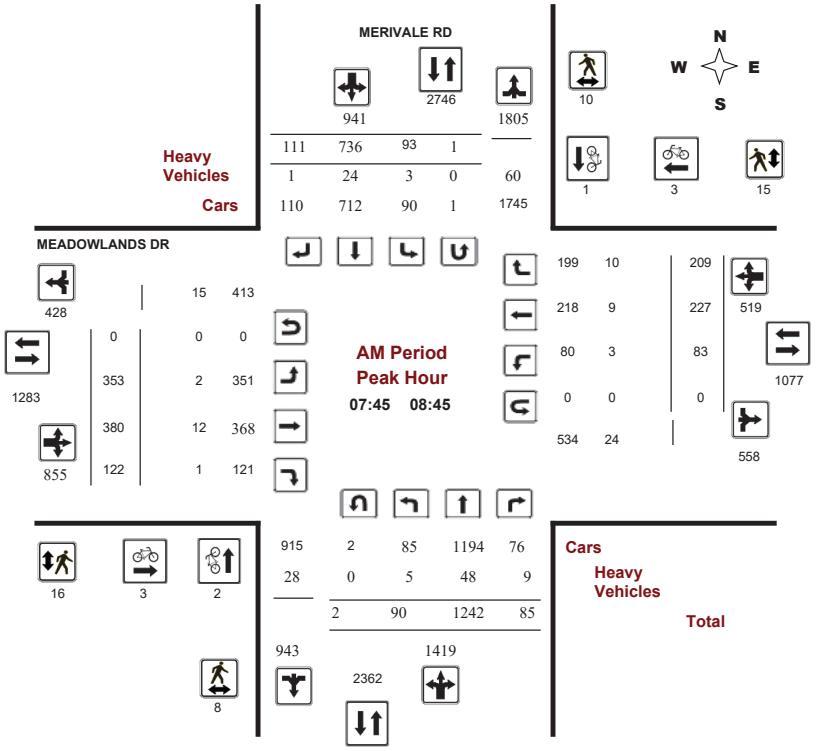
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MEADOWLANDS DR @ MERIVALE RD

Survey Date: Thursday, November 01, 2018 **WO No:** 38079

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



Comments

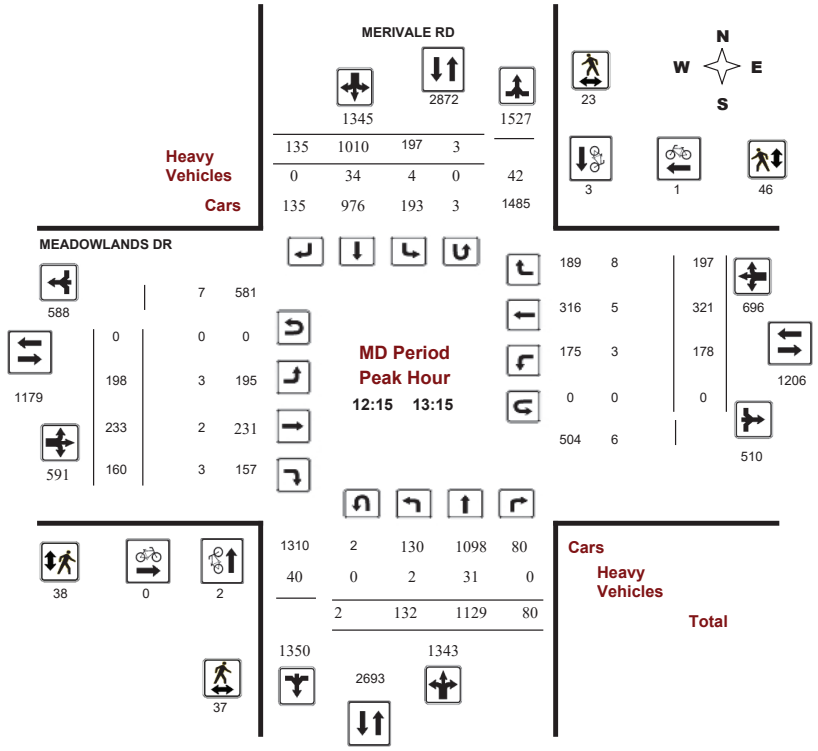
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MEADOWLANDS DR @ MERIVALE RD

Survey Date: Thursday, November 01, 2018 **WO No:** 38079

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



Comments

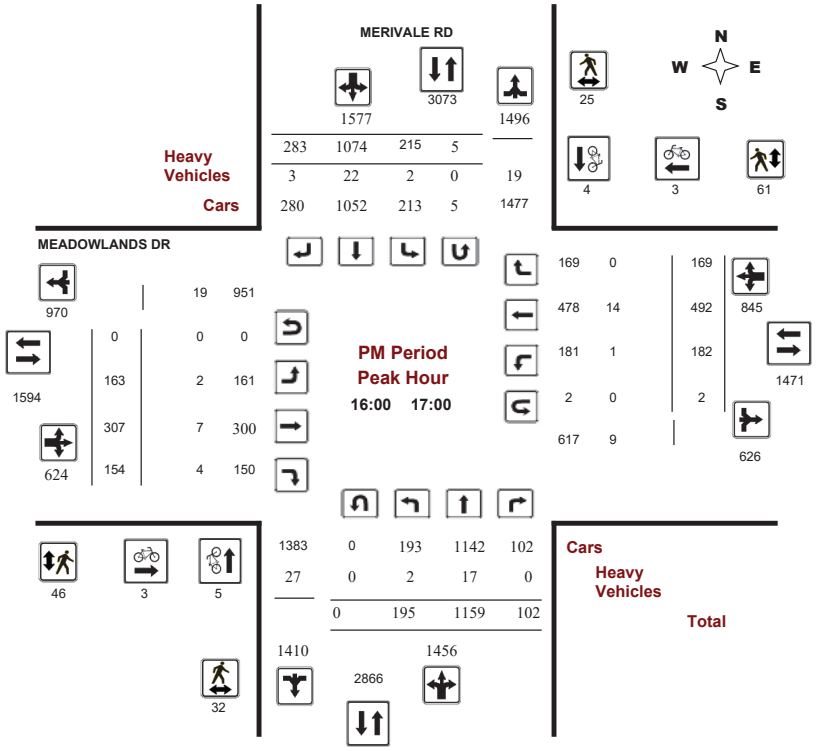
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MEADOWLANDS DR @ MERIVALE RD

Survey Date: Thursday, November 01, 2018 **WO No:** 38079

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



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MEADOWLANDS DR @ MERIVALE RD

Survey Date: Thursday, November 01, 2018 **WO No:** 38079

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

Full Study Summary (8 HR Standard)

Survey Date: Thursday, November 01, 2018

Total Observed U-Turns

Northbound: 9 Southbound: 24

Eastbound: 0 Westbound: 12

AADT Factor .90

	MERIVALE RD									MEADOWLANDS 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	70	953	70	**1093**	86	628	65	**779**	**1872**	247	217	89	**553**	98	165	170	**433**	**986**	**2858**
08:00 09:00	76	1189	77	**1342**	101	732	116	**949**	**2291**	364	398	117	**879**	96	245	207	**548**	**1427**	**3718**
09:00 10:00	104	862	67	**1033**	123	749	101	**973**	**2006**	235	256	148	**639**	120	194	184	**498**	**1137**	**3143**
11:30 12:30	120	1028	73	**1221**	204	1013	118	**1335**	**2556**	200	237	121	**558**	186	255	188	**629**	**1187**	**3743**
12:30 13:30	151	1144	93	**1388**	192	966	138	**1296**	**2684**	186	210	156	**552**	178	304	184	**666**	**1218**	**3902**
15:00 16:00	178	1116	83	**1377**	182	982	261	**1425**	**2802**	198	276	119	**593**	156	348	177	**681**	**1274**	**4076**
16:00 17:00	195	1159	102	**1456**	215	1074	283	**1572**	**3028**	163	307	154	**624**	182	492	169	**843**	**1467**	**4495**
17:00 18:00	205	1067	107	**1379**	214	942	273	**1429**	**2808**	183	325	136	**644**	176	435	189	**800**	**1444**	**4252**
Sub Total	1099	8518	672	**10289**	1317	7086	1355	**9758**	**20047**	1776	2226	1040	**5042**	1192	2438	1468	**5098**	**10140**	**30187**
U Turns	9			**9**	24			**24**	**33**	**0**			**0**	12			**12**	**12**	**45**
Total	1108	8518	672	**10298**	1341	7086	1355	**9782**	**20080**	1776	2226	1040	**5042**	1204	2438	1468	**5110**	**10152**	**30232**
EQ 12Hr	1540	11840	934	**14314**	1864	9850	1883	**13597**	**27911**	2469	3094	1446	**7009**	1674	3389	2041	**7104**	**14113**	**42024**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	1386	10656	841	**12883**	1678	8865	1695	**12238**	**25121**	2222	2785	1301	**6308**	1507	3050	1837	**6394**	**12702**	**37823**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**.90**					
AVG 24Hr	1816	13959	1102	**16877**	2198	11613	2220	**16031**	**32908**	2911	3648	1704	**8263**	1974	3996	2406	**8376**	**16639**	**49547**
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

MEADOWLANDS DR @ MERIVALE RD

Survey Date: Thursday, November 01, 2018 **WO No:** 38079

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

Full Study 15 Minute Increments

		MERIVALE RD									MEADOWLANDS 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	8	179	11	198	18	131	12	161	**359**	50	39	21	110	21	38	24	83	**193**	**552**
07:15	07:30	15	225	11	251	19	152	15	186	**437**	51	41	15	107	28	28	38	94	**201**	**638**
07:30	07:45	19	245	23	287	25	156	15	196	**483**	74	56	24	154	21	46	48	115	**269**	**752**
07:45	08:00	28	304	25	357	24	189	23	236	**593**	72	81	29	182	28	53	60	141	**323**	**916**
08:00	08:15	24	314	24	362	23	178	31	232	**594**	81	110	31	222	17	56	55	128	**350**	**944**
08:15	08:30	20	317	20	357	26	174	31	231	**588**	95	87	30	212	15	60	43	118	**330**	**918**
08:30	08:45	20	307	16	343	21	195	26	242	**585**	105	102	32	239	23	58	51	132	**371**	**956**
08:45	09:00	14	251	17	282	33	185	28	246	**528**	83	99	24	206	41	71	58	170	**376**	**904**
09:00	09:15	23	225	20	268	34	183	27	244	**512**	78	90	24	192	23	57	52	132	**324**	**836**
09:15	09:30	25	219	15	259	21	171	24	216	**475**	53	69	41	163	31	41	39	111	**274**	**749**
09:30	09:45	28	196	12	236	36	189	26	251	**487**	53	55	37	145	30	56	44	130	**275**	**762**
09:45	10:00	28	222	20	270	34	206	24	264	**534**	51	42	46	139	37	40	49	126	**265**	**799**
11:30	11:45	25	254	18	297	57	253	24	334	**631**	41	52	27	120	50	62	48	160	**280**	**911**
11:45	12:00	33	262	24	319	52	255	26	333	**652**	51	53	30	134	50	75	45	170	**304**	**956**
12:00	12:15	37	237	14	288	50	222	35	307	**595**	52	67	27	146	48	46	41	135	**281**	**876**
12:15	12:30	26	275	17	318	52	283	33	368	**686**	56	65	37	158	41	72	54	167	**325**	**1011**
12:30	12:45	42	280	17	339	52	243	30	325	**664**	49	48	45	142	43	88	42	173	**315**	**979**
12:45	13:00	34	296	21	351	56	231	39	326	**677**	45	49	32	126	51	82	49	182	**308**	**985**
13:00	13:15	32	278	25	335	40	253	33	326	**661**	48	71	46	165	43	79	52	174	**339**	**1000**
13:15	13:30	44	290	30	364	46	239	36	321	**685**	44	42	33	119	42	55	41	138	**257**	**942**
15:00	15:15	46	282	18	346	50	233	51	334	**680**	56	69	40	165	40	91	44	175	**340**	**1020**
15:15	15:30	50	271	19	340	51	256	68	375	**715**	41	69	17	127	49	90	43	182	**309**	**1024**
15:30	15:45	46	295	24	365	40	256	71	367	**732**	44	55	31	130	43	93	40	176	**306**	**1038**
15:45	16:00	36	268	22	326	44	237	71	352	**678**	57	83	31	171	27	74	50	151	**322**	**1000**
16:00	16:15	53	309	26	388	57	273	63	393	**781**	37	87	27	151	34	137	39	210	**361**	**1142**
16:15	16:30	42	277	24	343	56	287	72	415	**758**	43	80	36	159	46	129	52	227	**386**	**1144**
16:30	16:45	51	294	24	369	54	258	81	393	**762**	47	71	35	153	46	108	38	192	**345**	**1107**
16:45	17:00	49	279	28	356	53	256	67	376	**732**	36	69	56	161	58	118	40	216	**377**	**1109**
17:00	17:15	47	312	11	370	54	236	80	370	**740**	41	92	36	169	44	112	44	200	**369**	**1109**
17:15	17:30	52	263	28	343	49	252	63	364	**707**	50	94	28	172	46	104	47	197	**369**	**1076**
17:30	17:45	55	275	33	363	59	222	62	343	**706**	40	70	40	150	56	107	52	215	**365**	**1071**
17:45	18:00	56	217	35	308	55	232	68	355	**663**	52	69	32	153	32	112	46	190	**343**	**1006**
Total:		1108	8518	672	1029	1341	7086	1355	9782	**20080**	1776	2226	1040	5042	1204	2438	1468	5110	**20080**	**30,232**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MEADOWLANDS DR @ MERIVALE RD

Survey Date: Thursday, November 01, 2018 **WO No:** 38079

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

Full Study Cyclist Volume

Time Period		MERIVALE RD			MEADOWLANDS DR			
		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	**0**	1	0	**1**	**1**
07:15	07:30	0	1	**1**	2	1	**3**	**4**
07:30	07:45	1	2	**3**	1	0	**1**	**4**
07:45	08:00	1	0	**1**	0	1	**1**	**2**
08:00	08:15	1	0	**1**	1	1	**2**	**3**
08:15	08:30	0	1	**1**	1	0	**1**	**2**
08:30	08:45	0	0	**0**	1	1	**2**	**2**
08:45	09:00	0	0	**0**	2	0	**2**	**2**
09:00	09:15	0	0	**0**	0	0	**0**	**0**
09:15	09:30	0	0	**0**	1	0	**1**	**1**
09:30	09:45	1	1	**2**	3	0	**3**	**5**
09:45	10:00	0	0	**0**	0	0	**0**	**0**
11:30	11:45	0	1	**1**	0	0	**0**	**1**
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	1	**1**	0	0	**0**	**1**
12:30	12:45	0	0	**0**	0	1	**1**	**1**
12:45	13:00	1	1	**2**	0	0	**0**	**2**
13:00	13:15	1	1	**2**	0	0	**0**	**2**
13:15	13:30	0	0	**0**	0	0	**0**	**0**
15:00	15:15	0	0	**0**	0	1	**1**	**1**
15:15	15:30	3	0	**3**	0	2	**2**	**5**
15:30	15:45	0	0	**0**	1	0	**1**	**1**
15:45	16:00	0	0	**0**	0	2	**2**	**2**
16:00	16:15	1	2	**3**	2	0	**2**	**5**
16:15	16:30	2	0	**2**	0	2	**2**	**4**
16:30	16:45	1	0	**1**	1	1	**2**	**3**
16:45	17:00	1	2	**3**	0	0	**0**	**3**
17:00	17:15	0	1	**1**	1	0	**1**	**2**
17:15	17:30	0	0	**0**	0	0	**0**	**0**
17:30	17:45	0	1	**1**	0	0	**0**	**1**
17:45	18:00	1	1	**2**	0	1	**1**	**3**
Total		15	16	**31**	18	14	**32**	**63**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MEADOWLANDS DR @ MERIVALE RD

Survey Date: Thursday, November 01, 2018 **WO No:** 38079

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

Full Study Pedestrian Volume

Time Period		MERIVALE RD			MEADOWLANDS 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	3	2	**5**	3	4	**7**	**12**
07:15	07:30	3	1	**4**	1	2	**3**	**7**
07:30	07:45	4	3	**7**	3	8	**11**	**18**
07:45	08:00	1	3	**4**	4	6	**10**	**14**
08:00	08:15	2	2	**4**	4	2	**6**	**10**
08:15	08:30	2	4	**6**	2	4	**6**	**12**
08:30	08:45	3	1	**4**	6	3	**9**	**13**
08:45	09:00	5	7	**12**	4	11	**15**	**27**
09:00	09:15	5	5	**10**	6	5	**11**	**21**
09:15	09:30	2	3	**5**	1	4	**5**	**10**
09:30	09:45	5	3	**8**	7	6	**13**	**21**
09:45	10:00	1	5	**6**	3	4	**7**	**13**
11:30	11:45	7	4	**11**	9	6	**15**	**26**
11:45	12:00	6	10	**16**	5	17	**22**	**38**
12:00	12:15	6	11	**17**	7	13	**20**	**37**
12:15	12:30	11	12	**23**	9	8	**17**	**40**
12:30	12:45	5	3	**8**	5	14	**19**	**27**
12:45	13:00	16	5	**21**	13	13	**26**	**47**
13:00	13:15	5	3	**8**	11	11	**22**	**30**
13:15	13:30	4	13	**17**	3	9	**12**	**29**
15:00	15:15	11	6	**17**	7	12	**19**	**36**
15:15	15:30	11	9	**20**	4	12	**16**	**36**
15:30	15:45	11	6	**17**	9	8	**17**	**34**
15:45	16:00	11	10	**21**	4	14	**18**	**39**
16:00	16:15	8	8	**16**	13	12	**25**	**41**
16:15	16:30	7	11	**18**	14	22	**36**	**54**
16:30	16:45	7	4	**11**	11	17	**28**	**39**
16:45	17:00	10	2	**12**	8	10	**18**	**30**
17:00	17:15	6	10	**16**	16	18	**34**	**50**
17:15	17:30	12	8	**20**	13	12	**25**	**45**
17:30	17:45	5	11	**16**	9	17	**26**	**42**
17:45	18:00	4	6	**10**	6	8	**14**	**24**
Total	.....	199	191	**390**	220	312	**532**	**922**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MEADOWLANDS DR @ MERIVALE RD

Survey Date: Thursday, November 01, 2018 **WO No:** 38079

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

Full Study Heavy Vehicles

		MERIVALE RD									MEADOWLANDS 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	14	0	**14**	2	6	0	**8**	**22**	0	1	1	**2**	0	1	0	**1**	**3**	**25**
07:15	07:30	2	12	0	**14**	0	2	0	**2**	**16**	1	1	1	**3**	1	1	0	**2**	**5**	**21**
07:30	07:45	0	12	1	**13**	0	7	0	**7**	**20**	0	2	1	**3**	1	4	0	**5**	**8**	**28**
07:45	08:00	4	18	2	**24**	2	7	0	**9**	**33**	0	2	0	**2**	1	4	3	**8**	**10**	**43**
08:00	08:15	0	14	3	**17**	1	5	1	**7**	**24**	0	2	0	**2**	0	0	3	**3**	**5**	**29**
08:15	08:30	0	8	2	**10**	0	7	0	**7**	**17**	1	2	0	**3**	1	2	2	**5**	**8**	**25**
08:30	08:45	1	8	2	**11**	0	5	0	**5**	**16**	1	6	1	**8**	1	3	2	**6**	**14**	**30**
08:45	09:00	1	10	0	**11**	0	3	1	**4**	**15**	1	3	0	**4**	0	1	3	**4**	**8**	**23**
09:00	09:15	1	7	3	**11**	3	6	1	**10**	**21**	1	3	2	**6**	0	4	1	**5**	**11**	**33**
09:15	09:30	2	9	1	**12**	1	5	1	**7**	**19**	1	1	1	**3**	2	1	0	**3**	**6**	**25**
09:30	09:45	0	7	0	**7**	2	5	1	**8**	**15**	2	1	3	**6**	0	1	0	**1**	**7**	**22**
09:45	10:00	0	12	1	**13**	2	9	0	**11**	**24**	0	0	1	**1**	1	1	1	**3**	**4**	**28**
11:30	11:45	0	10	0	**10**	2	9	0	**11**	**21**	0	2	0	**2**	0	2	3	**5**	**7**	**28**
11:45	12:00	0	10	1	**11**	1	5	2	**8**	**19**	1	1	1	**3**	2	1	1	**4**	**7**	**26**
12:00	12:15	1	12	0	**13**	0	7	0	**7**	**20**	1	2	1	**4**	0	1	0	**1**	**5**	**25**
12:15	12:30	1	11	0	**12**	4	8	0	**12**	**24**	1	0	2	**3**	1	1	0	**2**	**5**	**29**
12:30	12:45	1	6	0	**7**	0	9	0	**9**	**16**	0	0	1	**1**	0	2	6	**8**	**9**	**25**
12:45	13:00	0	8	0	**8**	0	9	0	**9**	**17**	0	1	0	**1**	1	0	2	**3**	**4**	**21**
13:00	13:15	0	6	0	**6**	0	8	0	**8**	**14**	2	1	0	**3**	1	2	0	**3**	**6**	**20**
13:15	13:30	1	4	1	**6**	2	7	0	**9**	**15**	0	0	1	**1**	0	2	2	**4**	**5**	**20**
15:00	15:15	1	1	0	**2**	1	4	0	**5**	**7**	0	1	0	**1**	0	4	1	**5**	**6**	**13**
15:15	15:30	1	9	0	**10**	0	5	1	**6**	**16**	0	2	0	**2**	0	6	3	**9**	**11**	**27**
15:30	15:45	2	2	0	**4**	0	1	1	**2**	**6**	2	2	0	**4**	0	2	0	**2**	**6**	**12**
15:45	16:00	1	4	1	**6**	0	4	0	**4**	**10**	0	1	0	**1**	1	3	0	**4**	**5**	**15**
16:00	16:15	0	5	0	**5**	0	9	0	**9**	**14**	1	2	2	**5**	0	4	0	**4**	**9**	**23**
16:15	16:30	0	3	0	**3**	0	7	1	**8**	**11**	1	3	1	**5**	1	4	0	**5**	**10**	**21**
16:30	16:45	2	5	0	**7**	1	5	1	**7**	**14**	0	0	0	**0**	0	3	0	**3**	**3**	**17**
16:45	17:00	0	4	0	**4**	1	1	1	**3**	**7**	0	2	1	**3**	0	3	0	**3**	**6**	**13**
17:00	17:15	1	2	0	**3**	0	5	0	**5**	**8**	2	2	0	**4**	0	3	0	**3**	**7**	**15**
17:15	17:30	0	2	0	**2**	0	6	0	**6**	**8**	0	1	0	**1**	1	1	1	**3**	**4**	**12**
17:30	17:45	1	2	0	**3**	0	3	0	**3**	**6**	0	3	0	**3**	1	2	1	**4**	**7**	**13**
17:45	18:00	0	4	0	**4**	0	1	1	**2**	**6**	0	1	2	**3**	0	2	0	**2**	**5**	**11**
Total:	None	24	241	18	**283**	25	180	13	**218**	**501**	19	51	23	**93**	17	71	35	**123**	**216**	**718**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MEADOWLANDS DR @ MERIVALE RD

Survey Date: Thursday, November 01, 2018 **WO No:** 38079

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

Full Study 15 Minute U-Turn Total

		MERIVALE RD	MEADOWLANDS 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	1	0	0	**2**
08:15	08:30	0	0	0	0	**0**
08:30	08:45	1	0	0	0	**1**
08:45	09:00	0	1	0	0	**1**
09:00	09:15	0	2	0	0	**2**
09:15	09:30	0	0	0	0	**0**
09:30	09:45	0	0	0	0	**0**
09:45	10:00	0	0	0	1	**1**
11:30	11:45	0	0	0	1	**1**
11:45	12:00	0	3	0	0	**3**
12:00	12:15	0	2	0	2	**4**
12:15	12:30	1	2	0	0	**3**
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	1	0	1	**2**
15:00	15:15	0	2	0	2	**4**
15:15	15:30	0	0	0	1	**1**
15:30	15:45	0	0	0	0	**0**
15:45	16:00	0	1	0	0	**1**
16:00	16:15	0	2	0	1	**3**
16:15	16:30	0	1	0	0	**1**
16:30	16:45	0	1	0	0	**1**
16:45	17:00	0	1	0	1	**2**
17:00	17:15	0	0	0	1	**1**
17:15	17:30	2	2	0	1	**5**
17:30	17:45	2	1	0	0	**3**
17:45	18:00	1	0	0	0	**1**
Total		9	24	0	12	**45**

Transportation Services - Traffic Services

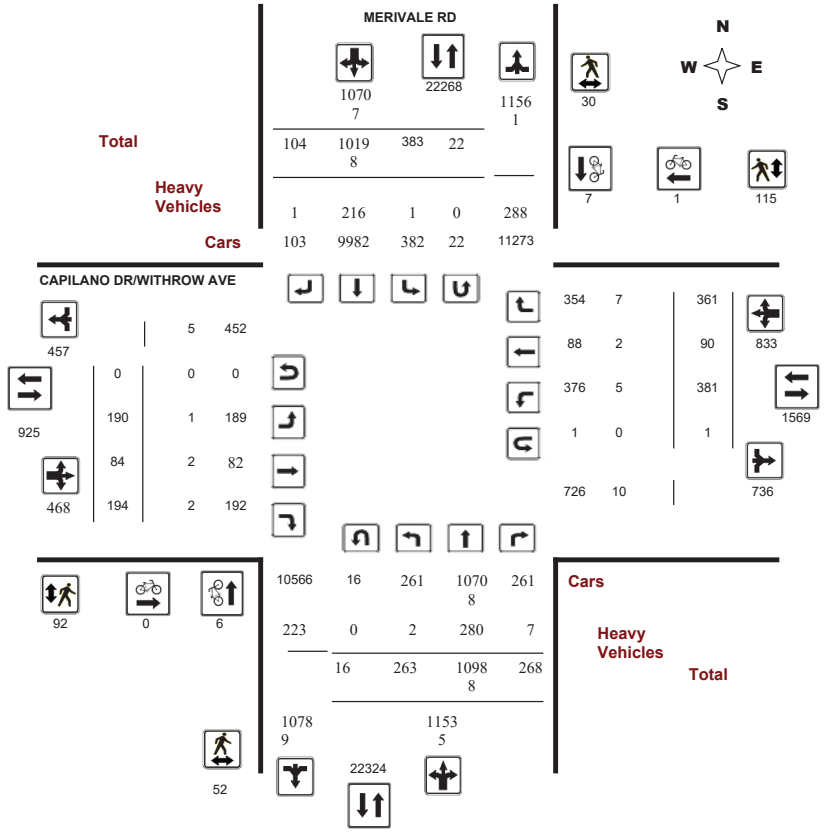
Turning Movement Count - Study Results

MERIVALE RD @ CAPILANO DR/WITHROW AVE

Survey Date: Wednesday, February 21, 2018 **WO No:** 37551

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

Full Study Diagram



Transportation Services - Traffic Services

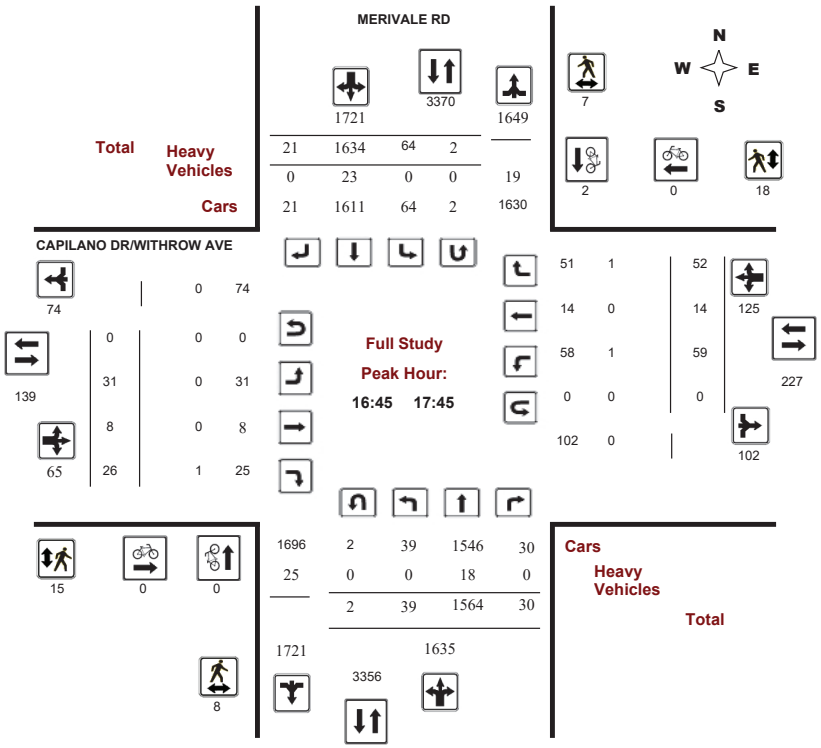
Turning Movement Count - Study Results

MERIVALE RD @ CAPILANO DR/WITHROW AVE

Survey Date: Wednesday, February 21, 2018 **WO No:** 37551

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

Full Study Peak Hour Diagram



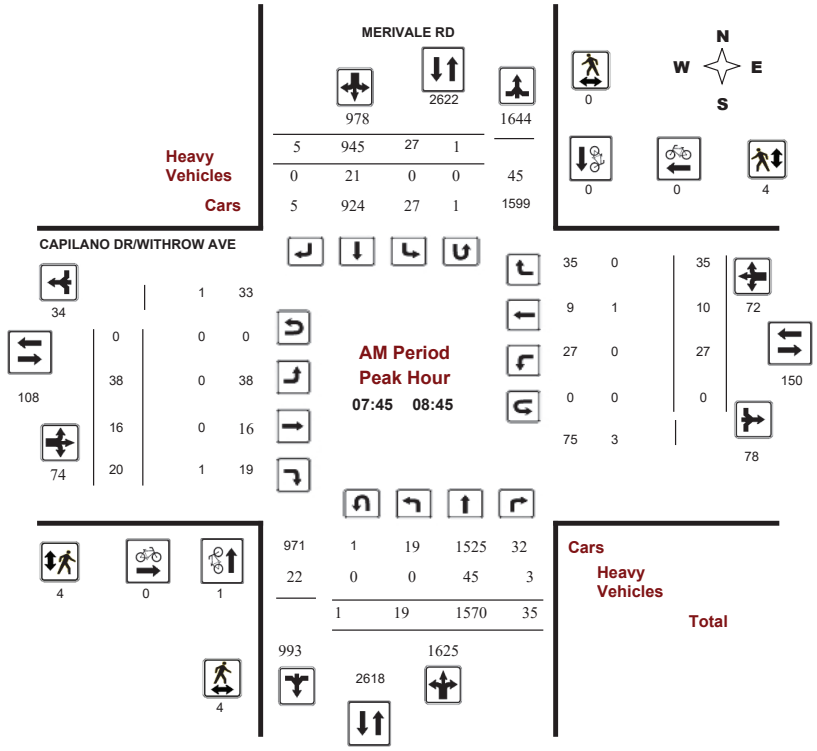
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MERIVALE RD @ CAPILANO DR/WITHROW AVE

Survey Date: Wednesday, February 21, 2018 **WO No:** 37551

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



Comments

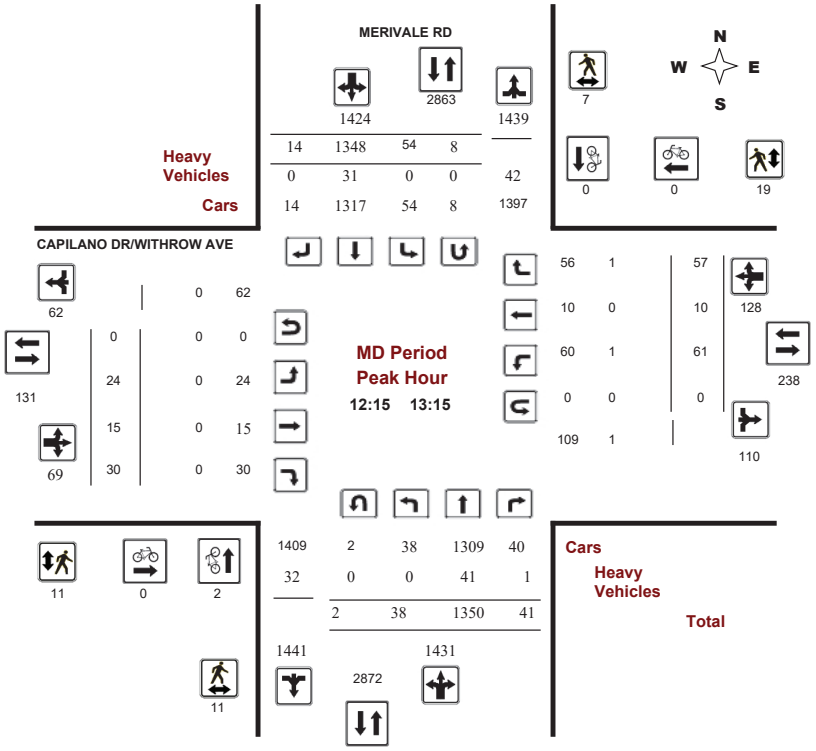
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MERIVALE RD @ CAPILANO DR/WITHROW AVE

Survey Date: Wednesday, February 21, 2018 **WO No:** 37551

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



Comments

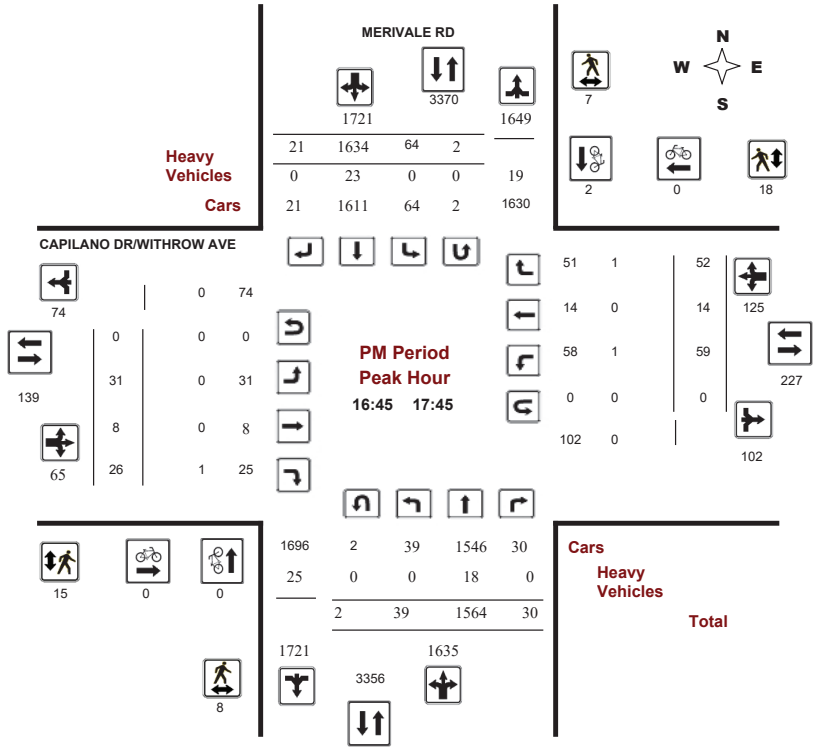
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MERIVALE RD @ CAPILANO DR/WITHROW AVE

Survey Date: Wednesday, February 21, 2018 **WO No:** 37551

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



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MERIVALE RD @ CAPILANO DR/WITHROW AVE

Survey Date: Wednesday, February 21, 2018 **WO No:** 37551

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

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, February 21, 2018

Total Observed U-Turns

Northbound: 16 Southbound: 22

Eastbound: 0 Westbound: 1

AADT Factor 1.00

	MERIVALE RD								CAPILANO DR/WITHROW 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	12	1278	23	**1313**	17	807	4	**828**	**2141**	24	4	20	**48**	20	1	25	**46**	**94**	**2235**
08:00 09:00	22	1525	29	**1576**	32	976	4	**1012**	**2588**	33	18	18	**69**	21	15	32	**68**	**137**	**2725**
09:00 10:00	16	1084	24	**1124**	44	1113	13	**1170**	**2294**	17	8	27	**52**	37	7	44	**88**	**140**	**2434**
11:30 12:30	48	1324	36	**1408**	60	1384	12	**1456**	**2864**	16	15	33	**64**	67	4	37	**108**	**172**	**3036**
12:30 13:30	37	1336	37	**1410**	45	1281	17	**1343**	**2753**	23	12	26	**61**	56	14	64	**134**	**195**	**2948**
15:00 16:00	41	1448	42	**1531**	62	1474	14	**1550**	**3081**	22	8	19	**49**	64	16	54	**134**	**183**	**3264**
16:00 17:00	45	1480	44	**1569**	55	1591	24	**1670**	**3239**	27	12	26	**65**	60	17	56	**133**	**198**	**3437**
17:00 18:00	42	1513	33	**1588**	68	1572	16	**1656**	**3244**	28	7	25	**60**	56	16	49	**121**	**181**	**3425**
Sub Total	263	10988	268	**11519**	383	10198	104	**10685**	**22204**	190	84	194	**468**	381	90	361	**832**	**1300**	**23504**
U Turns				**16**				**22**	**38**				**0**				**1**	**1**	**39**
Total	263	10988	268	**11535**	383	10198	104	**10707**	**22242**	190	84	194	**468**	381	90	361	**833**	**1301**	**23543**
EQ 12Hr	366	15273	373	**16034**	532	14175	145	**14883**	**30916**	264	117	270	**651**	530	125	502	**1158**	**1808**	**32725**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	345	14394	351	**15111**	502	13359	136	**14026**	**30916**	249	110	254	**613**	499	118	473	**1091**	**1808**	**32725**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1**					
AVG 24Hr	451	18857	460	**19795**	657	17501	178	**18374**	**38169**	326	144	333	**803**	654	154	620	**1430**	**2233**	**40402**
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

MERIVALE RD @ CAPILANO DR/WITHROW AVE

Survey Date: Wednesday, February 21, 2018 **WO No:** 37551

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

Full Study 15 Minute Increments

		MERIVALE RD									CAPILANO DR/WITHROW 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
12:30	12:45	9	327	12	348	9	326	4	342	18	9	6	8	23	17	5	9	31	18	744
12:45	13:00	9	324	11	344	16	326	5	348	19	7	3	7	17	10	3	15	28	19	737
13:00	13:15	9	350	7	368	13	329	1	346	21	6	2	6	14	12	1	25	38	21	766
13:15	13:30	10	335	7	352	7	300	7	314	18	1	1	5	7	17	5	15	37	18	710
15:00	15:15	10	380	12	403	16	376	1	393	16	4	3	5	12	15	3	21	39	16	847
15:15	15:30	14	377	6	398	12	355	4	372	15	6	1	7	14	17	5	15	37	15	821
15:30	15:45	9	366	13	389	19	386	5	412	9	7	1	1	9	14	2	7	23	9	833
15:45	16:00	8	325	11	344	15	357	4	376	15	5	3	6	14	18	6	11	35	15	769
16:00	16:15	15	337	14	367	15	391	5	413	15	8	1	7	16	14	5	12	31	15	827
16:15	16:30	12	400	10	423	8	400	10	418	12	4	6	6	16	15	5	13	33	12	890
16:30	16:45	9	372	10	391	20	383	3	407	10	7	3	10	20	12	3	20	35	10	853
16:45	17:00	9	371	10	391	12	417	6	435	7	8	2	3	13	19	4	11	34	7	873
17:00	17:15	7	395	6	408	20	407	8	436	12	6	2	7	15	12	3	17	32	12	891
17:15	17:30	11	399	7	418	19	433	5	457	8	10	1	10	21	12	4	13	29	8	925
17:30	17:45	12	399	7	418	13	377	2	393	14	7	3	6	16	16	3	11	30	14	857
17:45	18:00	12	320	13	345	16	355	1	373	10	5	1	2	8	16	6	8	30	10	756
07:00	07:15	2	258	4	264	3	168	0	171	21	1	0	3	4	3	0	4	7	21	446
07:15	07:30	2	288	4	294	2	198	2	203	22	3	0	5	8	2	0	4	6	22	511
07:30	07:45	4	338	5	347	7	209	1	217	19	8	1	5	14	5	1	7	13	19	591
07:45	08:00	4	394	10	408	5	232	1	238	14	12	3	7	22	10	0	10	20	14	688
08:00	08:15	6	393	10	410	6	220	1	227	14	11	7	6	24	4	2	9	15	14	676
08:15	08:30	6	412	6	424	8	252	2	263	20	10	3	4	17	10	4	2	16	20	720
08:30	08:45	3	371	9	383	8	241	1	250	21	5	3	3	11	3	4	14	21	21	665
08:45	09:00	7	349	4	360	10	263	0	273	14	7	5	5	17	4	5	7	16	14	666
09:00	09:15	3	278	4	288	16	255	4	275	26	5	4	9	18	10	3	6	20	26	601
09:15	09:30	5	280	8	294	10	277	2	289	24	1	1	6	8	7	3	12	22	24	613
09:30	09:45	5	259	5	269	9	283	1	293	16	8	2	5	15	11	0	14	25	16	602
09:45	10:00	3	267	7	277	9	298	6	314	16	3	1	7	11	9	1	12	22	16	624
11:30	11:45	10	353	6	369	14	326	1	342	11	7	3	9	19	13	3	11	27	11	757
11:45	12:00	15	318	14	349	18	334	2	354	21	4	6	9	19	18	0	12	30	21	752
12:00	12:15	12	304	5	321	12	357	5	375	14	3	2	6	11	14	0	6	20	14	727
12:15	12:30	11	349	11	371	16	367	4	388	15	2	4	9	15	22	1	8	31	15	805
Total:		263	1098	268	1153	383	10198	104	10707	507	190	84	194	468	381	90	361	833	507	23,543

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MERIVALE RD @ CAPILANO DR/WITHROW AVE

Survey Date: Wednesday, February 21, 2018 **WO No:** 37551

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

Full Study Cyclist Volume

		MERIVALE RD			CAPILANO DR/WITHROW AVE			
Time Period		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
12:30	12:45	1	0	1	0	0	0	1
12:45	13:00	1	0	1	0	0	0	1
13:00	13:15	0	0	0	0	0	0	0
13:15	13:30	0	0	0	0	0	0	0
15:00	15:15	0	0	0	0	0	0	0
15:15	15:30	0	0	0	0	0	0	0
15:30	15:45	1	0	1	0	0	0	1
15:45	16:00	0	1	1	0	0	0	1
16:00	16:15	0	2	2	0	0	0	2
16:15	16:30	0	0	0	0	0	0	0
16:30	16:45	1	1	2	0	1	1	3
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	1	1	0	0	0	1
17:45	18:00	0	0	0	0	0	0	0
07:00	07:15	1	0	1	0	0	0	1
07:15	07:30	0	0	0	0	0	0	0
07:30	07:45	0	0	0	0	0	0	0
07:45	08:00	0	0	0	0	0	0	0
08:00	08:15	0	0	0	0	0	0	0
08:15	08:30	1	0	1	0	0	0	1
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	1	1	0	0	0	1
12:15	12:30	0	0	0	0	0	0	0
Total		6	7	13	0	1	1	14

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MERIVALE RD @ CAPILANO DR/WITHROW AVE

Survey Date: Wednesday, February 21, 2018 **WO No:** 37551

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

Full Study Pedestrian Volume

		MERIVALE RD			CAPILANO DR/WITHROW AVE			
Time Period		NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
12:30	12:45	1	0	**1**	0	9	**9**	**10**
12:45	13:00	3	4	**7**	5	3	**8**	**15**
13:00	13:15	1	2	**3**	1	4	**5**	**8**
13:15	13:30	0	1	**1**	4	4	**8**	**9**
15:00	15:15	0	3	**3**	9	5	**14**	**17**
15:15	15:30	2	0	**2**	4	4	**8**	**10**
15:30	15:45	1	1	**2**	4	6	**10**	**12**
15:45	16:00	1	2	**3**	1	4	**5**	**8**
16:00	16:15	7	3	**10**	5	13	**18**	**28**
16:15	16:30	4	3	**7**	4	10	**14**	**21**
16:30	16:45	3	0	**3**	3	2	**5**	**8**
16:45	17:00	2	2	**4**	6	6	**12**	**16**
17:00	17:15	2	3	**5**	2	6	**8**	**13**
17:15	17:30	1	2	**3**	4	5	**9**	**12**
17:30	17:45	3	0	**3**	3	1	**4**	**7**
17:45	18:00	1	1	**2**	0	3	**3**	**5**
07:00	07:15	0	0	**0**	2	2	**4**	**4**
07:15	07:30	0	0	**0**	0	2	**2**	**2**
07:30	07:45	2	0	**2**	2	3	**5**	**7**
07:45	08:00	0	0	**0**	2	1	**3**	**3**
08:00	08:15	1	0	**1**	0	0	**0**	**1**
08:15	08:30	2	0	**2**	2	2	**4**	**6**
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	3	**3**	**3**
09:15	09:30	1	0	**1**	1	6	**7**	**8**
09:30	09:45	1	0	**1**	3	0	**3**	**4**
09:45	10:00	4	0	**4**	4	1	**5**	**9**
11:30	11:45	1	0	**1**	3	2	**5**	**6**
11:45	12:00	1	2	**3**	9	2	**11**	**14**
12:00	12:15	0	0	**0**	4	2	**6**	**6**
12:15	12:30	6	1	**7**	5	3	**8**	**15**
Total	.....	52	30	**82**	92	115	**207**	**289**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MERIVALE RD @ CAPILANO DR/WITHROW AVE

Survey Date: Wednesday, February 21, 2018 **WO No:** 37551

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

Full Study Heavy Vehicles

		MERIVALE RD									CAPILANO DR/WITHROW 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
12:30	12:45	0	12	1	**13**	0	5	0	**5**	**18**	0	0	0	**0**	0	0	1	**1**	**1**	**19**
12:45	13:00	0	11	0	**11**	0	8	0	**8**	**19**	0	0	0	**0**	1	0	0	**1**	**1**	**20**
13:00	13:15	0	12	0	**12**	0	9	0	**9**	**21**	0	0	0	**0**	0	0	0	**0**	**0**	**21**
13:15	13:30	0	10	0	**10**	0	8	0	**8**	**18**	0	0	0	**0**	0	0	0	**0**	**0**	**18**
15:00	15:15	0	9	0	**9**	1	6	0	**7**	**16**	0	0	0	**0**	0	0	0	**0**	**0**	**16**
15:15	15:30	0	13	0	**13**	0	2	0	**2**	**15**	0	0	0	**0**	0	1	0	**1**	**1**	**16**
15:30	15:45	0	5	0	**5**	0	4	0	**4**	**9**	0	0	0	**0**	0	0	1	**1**	**1**	**10**
15:45	16:00	0	8	1	**9**	0	6	0	**6**	**15**	0	0	0	**0**	0	0	0	**0**	**0**	**15**
16:00	16:15	1	7	0	**8**	0	7	0	**7**	**15**	0	0	0	**0**	0	0	0	**0**	**0**	**15**
16:15	16:30	0	3	0	**3**	0	9	0	**9**	**12**	0	0	0	**0**	0	0	1	**1**	**1**	**13**
16:30	16:45	0	5	0	**5**	0	5	0	**5**	**10**	0	0	0	**0**	0	0	0	**0**	**0**	**10**
16:45	17:00	0	3	0	**3**	0	4	0	**4**	**7**	0	0	1	**1**	1	0	0	**1**	**2**	**9**
17:00	17:15	0	6	0	**6**	0	6	0	**6**	**12**	0	0	0	**0**	0	0	1	**1**	**1**	**13**
17:15	17:30	0	1	0	**1**	0	7	0	**7**	**8**	0	0	0	**0**	0	0	0	**0**	**0**	**8**
17:30	17:45	0	8	0	**8**	0	6	0	**6**	**14**	0	0	0	**0**	0	0	0	**0**	**0**	**14**
17:45	18:00	0	7	0	**7**	0	3	0	**3**	**10**	0	0	0	**0**	0	0	0	**0**	**0**	**10**
07:00	07:15	0	14	0	**14**	0	7	0	**7**	**21**	0	0	0	**0**	0	0	0	**0**	**0**	**21**
07:15	07:30	0	11	1	**12**	0	9	1	**10**	**22**	0	0	0	**0**	1	0	0	**1**	**1**	**23**
07:30	07:45	0	11	0	**11**	0	8	0	**8**	**19**	0	1	0	**1**	0	0	0	**0**	**1**	**20**
07:45	08:00	0	10	1	**11**	0	3	0	**3**	**14**	0	0	0	**0**	0	0	0	**0**	**0**	**14**
08:00	08:15	0	8	1	**9**	0	5	0	**5**	**14**	0	0	0	**0**	0	0	0	**0**	**0**	**14**
08:15	08:30	0	13	0	**13**	0	7	0	**7**	**20**	0	0	0	**0**	0	0	0	**0**	**0**	**20**
08:30	08:45	0	14	1	**15**	0	6	0	**6**	**21**	0	0	1	**1**	0	1	0	**1**	**2**	**23**
08:45	09:00	0	9	0	**9**	0	5	0	**5**	**14**	0	0	0	**0**	0	0	0	**0**	**0**	**14**
09:00	09:15	0	15	0	**15**	0	11	0	**11**	**26**	0	0	0	**0**	0	0	0	**0**	**0**	**26**
09:15	09:30	0	12	1	**13**	0	11	0	**11**	**24**	0	0	0	**0**	2	0	0	**2**	**2**	**26**
09:30	09:45	1	9	0	**10**	0	6	0	**6**	**16**	0	0	0	**0**	0	0	2	**2**	**2**	**18**
09:45	10:00	0	5	0	**5**	0	11	0	**11**	**16**	0	0	0	**0**	0	0	0	**0**	**0**	**16**
11:30	11:45	0	9	0	**9**	0	2	0	**2**	**11**	1	0	0	**1**	0	0	0	**0**	**1**	**12**
11:45	12:00	0	9	0	**9**	0	12	0	**12**	**21**	0	1	0	**1**	0	0	0	**0**	**1**	**22**
12:00	12:15	0	5	0	**5**	0	9	0	**9**	**14**	0	0	0	**0**	0	0	1	**1**	**1**	**15**
12:15	12:30	0	6	0	**6**	0	9	0	**9**	**15**	0	0	0	**0**	0	0	0	**0**	**0**	**15**
Total:	None	2	280	7	**289**	1	216	1	**218**	**507**	1	2	2	**5**	5	2	7	**14**	**19**	**526**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MERIVALE RD @ CAPILANO DR/WITHROW AVE

Survey Date: Wednesday, February 21, 2018 **WO No:** 37551

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

Full Study 15 Minute U-Turn Total

Time Period		MERIVALE RD Northbound U-Turn Total	MERIVALE RD Southbound U-Turn Total	CAPILANO DR/WITHROW AVE Eastbound U-Turn Total	CAPILANO DR/WITHROW AVE Westbound U-Turn Total	Total
12:30	12:45	0	3	0	0	3
12:45	13:00	0	1	0	0	1
13:00	13:15	2	3	0	0	5
13:15	13:30	0	0	0	0	0
15:00	15:15	1	0	0	0	1
15:15	15:30	1	1	0	0	2
15:30	15:45	1	2	0	0	3
15:45	16:00	0	0	0	0	0
16:00	16:15	1	2	0	0	3
16:15	16:30	1	0	0	0	1
16:30	16:45	0	1	0	0	1
16:45	17:00	1	0	0	0	1
17:00	17:15	0	1	0	0	1
17:15	17:30	1	0	0	0	1
17:30	17:45	0	1	0	0	1
17:45	18:00	0	1	0	0	1
07:00	07:15	0	0	0	0	0
07:15	07:30	0	1	0	0	1
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	1	0	0	1
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	3	0	0	1	4
09:15	09:30	1	0	0	0	1
09:30	09:45	0	0	0	0	0
09:45	10:00	0	1	0	0	1
11:30	11:45	0	1	0	0	1
11:45	12:00	2	0	0	0	2
12:00	12:15	0	1	0	0	1
12:15	12:30	0	1	0	0	1
Total		16	22	0	1	39

Transportation Services - Traffic Services

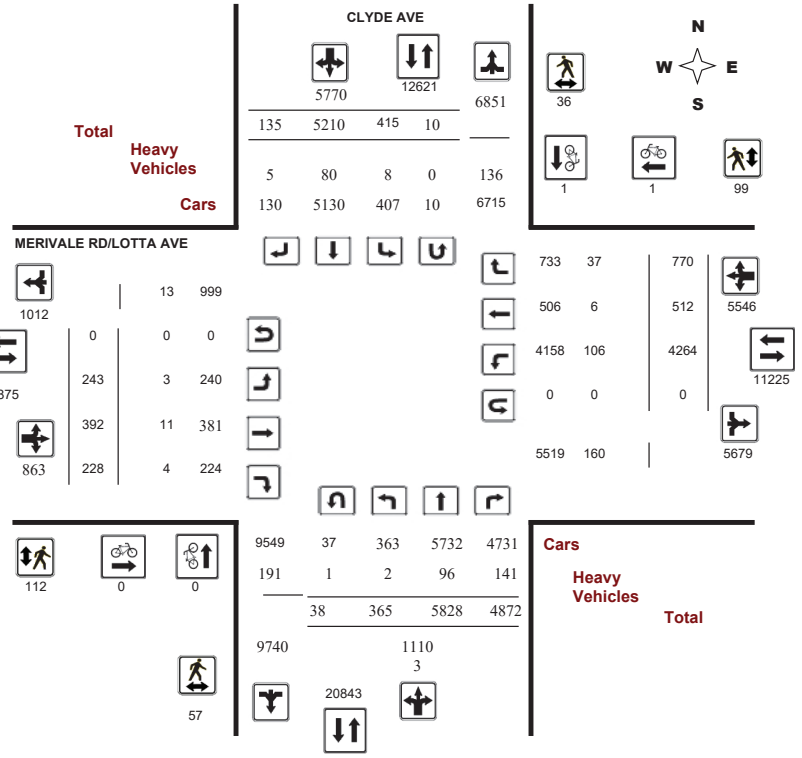
Turning Movement Count - Study Results

MERIVALE RD/LOTTA AVE @ CLYDE AVE

Survey Date: Monday, February 10, 2020 **WO No:** 39436

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

Full Study Diagram



Transportation Services - Traffic Services

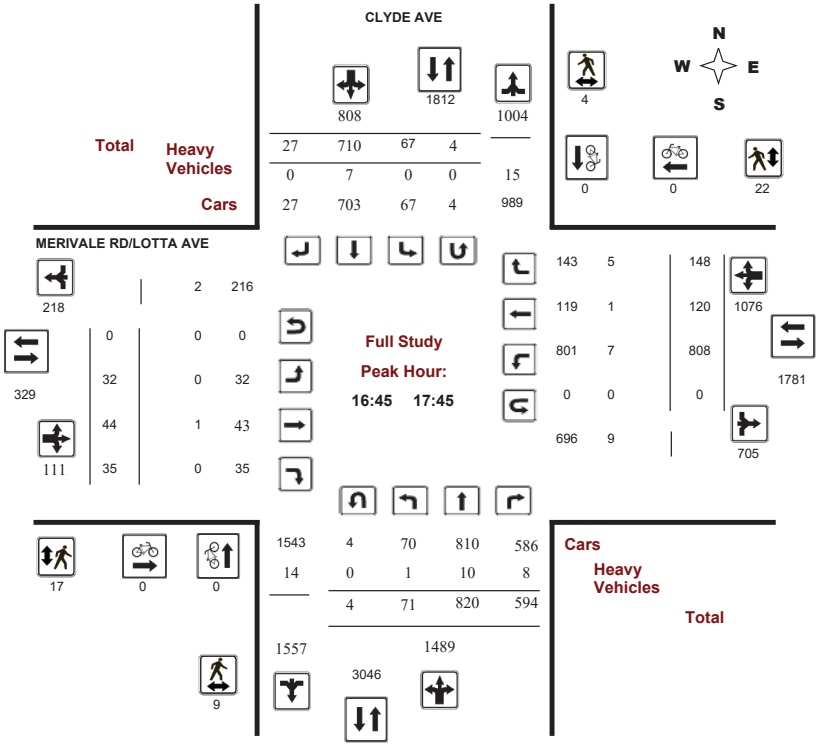
Turning Movement Count - Study Results

MERIVALE RD/LOTTA AVE @ CLYDE AVE

Survey Date: Monday, February 10, 2020 **WO No:** 39436

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

Full Study Peak Hour Diagram



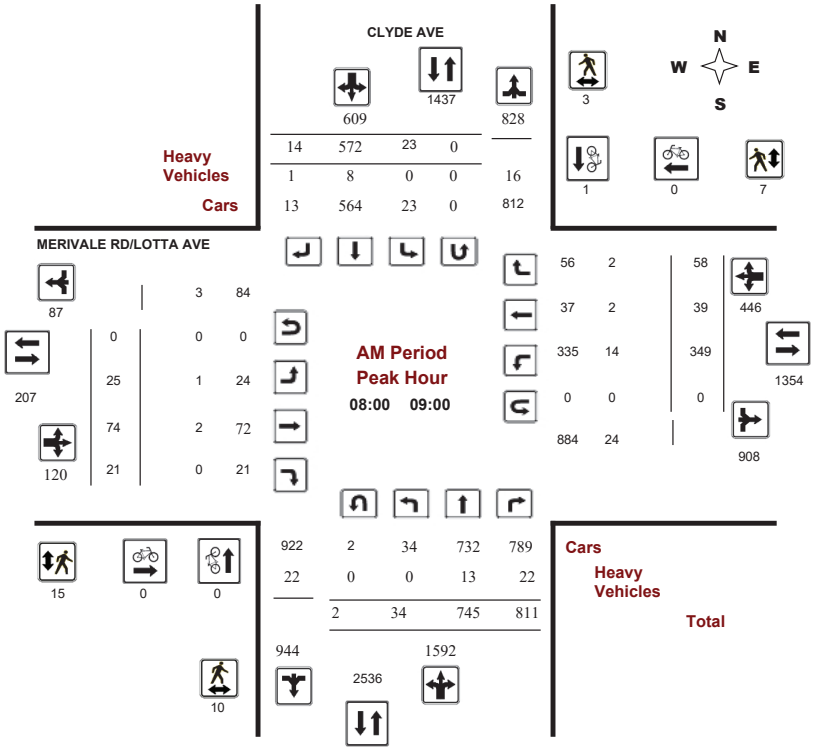
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MERIVALE RD/LOTTA AVE @ CLYDE AVE

Survey Date: Monday, February 10, 2020 **WO No:** 39436

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



Comments

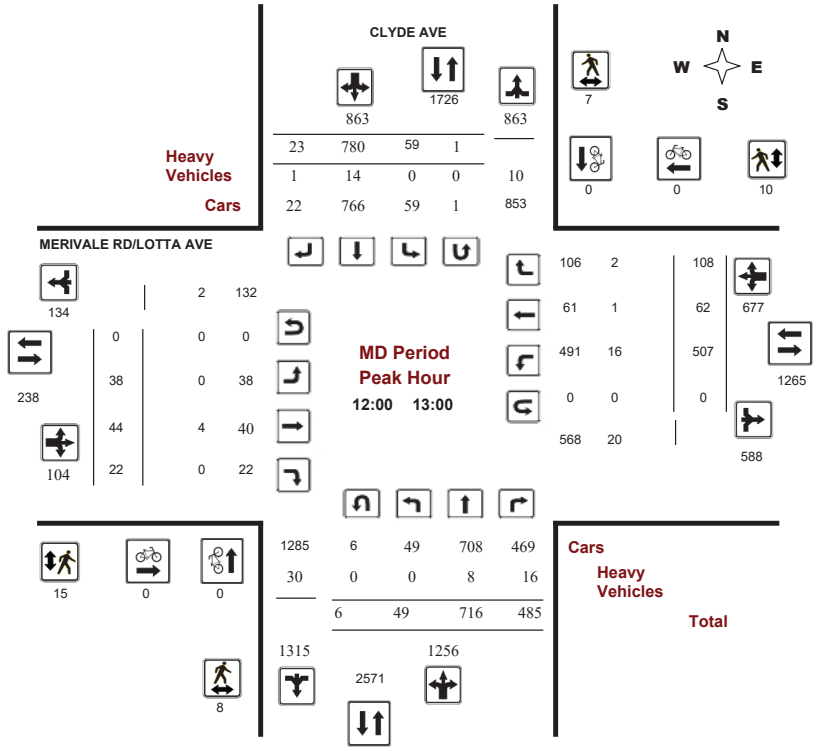
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MERIVALE RD/LOTTA AVE @ CLYDE AVE

Survey Date: Monday, February 10, 2020 **WO No:** 39436

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



Comments

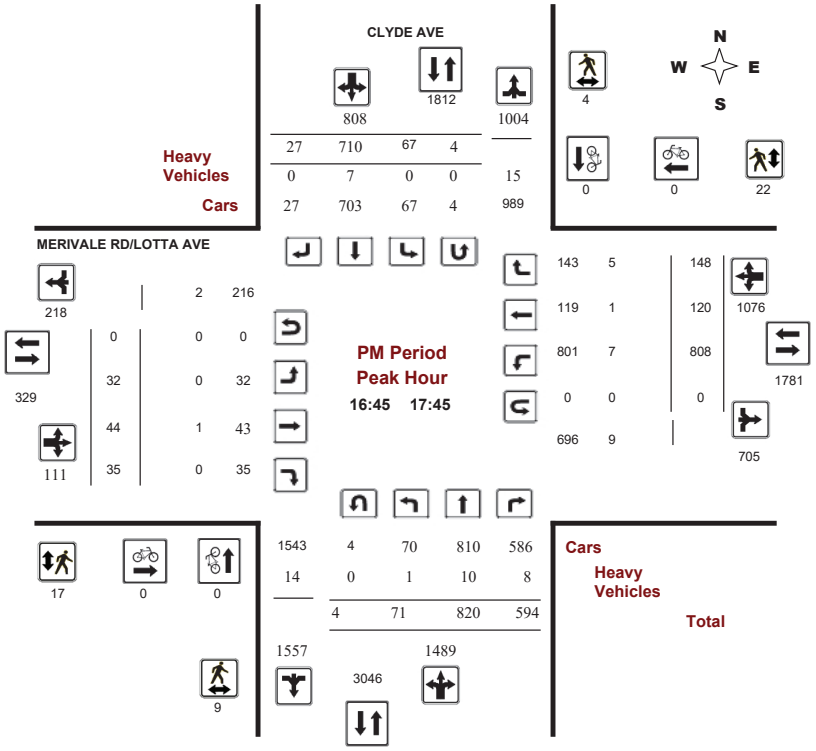
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MERIVALE RD/LOTTA AVE @ CLYDE AVE

Survey Date: Monday, February 10, 2020 **WO No:** 39436

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



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MERIVALE RD/LOTTA AVE @ CLYDE AVE

Survey Date: Monday, February 10, 2020 **WO No:** 39436

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

Full Study Summary (8 HR Standard)

Survey Date: Monday, February 10, 2020

Total Observed U-Turns

Northbound: 38 Southbound: 10

Eastbound: 0 Westbound: 0

AADT Factor 1.00

	CLYDE AVE									MERIVALE RD/LOTTA 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	17	618	708	**1343**	23	429	8	**460**	**1803**	18	40	19	**77**	265	11	36	**312**	**389**	**2192**
08:00 09:00	34	745	811	**1590**	23	572	14	**609**	**2199**	25	74	21	**120**	349	39	58	**446**	**566**	**2765**
09:00 10:00	37	709	654	**1400**	46	548	20	**614**	**2014**	25	40	31	**96**	353	36	58	**447**	**543**	**2557**
11:30 12:30	48	665	467	**1180**	58	771	35	**864**	**2044**	37	41	38	**116**	504	50	88	**642**	**758**	**2802**
12:30 13:30	48	744	492	**1284**	64	755	10	**829**	**2113**	30	45	21	**96**	481	49	118	**648**	**744**	**2857**
15:00 16:00	52	790	584	**1426**	63	657	11	**731**	**2157**	38	51	29	**118**	711	105	115	**931**	**1049**	**3206**
16:00 17:00	59	738	593	**1390**	66	741	13	**820**	**2210**	34	50	40	**124**	855	109	139	**1103**	**1227**	**3437**
17:00 18:00	70	819	563	**1452**	72	737	24	**833**	**2285**	36	51	29	**116**	746	113	158	**1017**	**1133**	**3418**
Sub Total	365	5828	4872	**11065**	415	5210	135	**5760**	**16825**	243	392	228	**863**	4264	512	770	**5546**	**6409**	**23234**
U Turns				**38**				**10**	**48**				**0**				**0**	**0**	**48**
Total	365	5828	4872	**11103**	415	5210	135	**5770**	**16873**	243	392	228	**863**	4264	512	770	**5546**	**6409**	**23282**
EQ 12Hr	507	8101	6772	**15433**	577	7242	188	**8020**	**23453**	338	545	317	**1200**	5927	712	1070	**7709**	**8909**	**32362**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	478	7635	6382	**14545**	544	6825	177	**7559**	**23453**	318	514	299	**1131**	5586	671	1009	**7265**	**8909**	**32362**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1**					
AVG 24Hr	626	10001	8361	**19054**	712	8941	232	**9902**	**28956**	417	673	391	**1481**	7317	879	1321	**9517**	**10998**	**39954**
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

MERIVALE RD/LOTTA AVE @ CLYDE AVE

Survey Date: Monday, February 10, 2020 **WO No:** 39436

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

Full Study 15 Minute Increments

		CLYDE AVE									MERIVALE RD/LOTTA 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	4	115	125	244	8	100	2	110	11	2	5	0	7	55	3	8	66	11	427
07:15	07:30	6	151	185	342	5	83	2	91	14	6	10	3	19	63	1	12	76	14	528
07:30	07:45	2	169	204	376	1	115	0	116	7	4	11	7	22	53	6	8	67	7	581
07:45	08:00	5	183	194	382	9	131	4	144	17	6	14	9	29	94	1	8	103	17	658
08:00	08:15	5	201	177	383	7	137	3	147	10	4	17	6	27	69	13	13	95	10	652
08:15	08:30	8	183	218	410	4	134	3	141	9	4	23	3	30	81	6	16	103	9	684
08:30	08:45	10	171	209	391	4	146	2	152	10	10	17	6	33	114	10	13	137	10	713
08:45	09:00	11	190	207	408	8	155	6	169	15	7	17	6	30	85	10	16	111	15	718
09:00	09:15	7	196	167	371	12	128	2	142	12	3	11	12	26	86	12	10	108	12	647
09:15	09:30	8	181	186	375	12	136	4	152	15	7	13	6	26	85	3	13	101	15	654
09:30	09:45	14	172	166	353	7	136	4	147	17	3	7	7	17	93	6	14	113	17	630
09:45	10:00	8	160	135	303	15	148	10	173	15	12	9	6	27	89	15	21	125	15	628
11:30	11:45	16	147	117	281	14	186	10	211	17	10	15	12	37	111	7	21	139	17	668
11:45	12:00	9	164	110	286	15	203	6	225	12	4	9	12	25	127	12	20	159	12	695
12:00	12:15	11	165	123	300	12	197	8	217	14	11	10	4	25	155	17	26	198	14	740
12:15	12:30	12	189	117	320	17	185	11	213	7	12	7	10	29	111	14	21	146	7	708
12:30	12:45	12	194	107	315	15	207	1	224	10	5	13	3	21	120	19	27	166	10	726
12:45	13:00	14	168	138	321	15	191	3	209	8	10	14	5	29	121	12	34	167	8	726
13:00	13:15	12	186	124	325	14	171	2	187	11	8	10	8	26	124	8	31	163	11	701
13:15	13:30	10	196	123	329	20	186	4	210	16	7	8	5	20	116	10	26	152	16	711
15:00	15:15	14	193	159	370	14	181	2	197	12	13	9	5	27	148	21	30	199	12	793
15:15	15:30	14	199	133	347	17	166	4	188	6	10	15	9	34	196	22	19	237	6	806
15:30	15:45	10	215	169	395	18	157	2	177	8	8	14	11	33	194	27	28	249	8	854
15:45	16:00	14	183	123	322	14	153	3	170	12	7	13	4	24	173	35	38	246	12	762
16:00	16:15	16	180	142	338	16	202	1	220	7	13	14	6	33	202	29	37	268	7	859
16:15	16:30	13	200	148	363	12	175	2	189	7	7	13	10	30	226	23	31	280	7	862
16:30	16:45	14	155	141	314	23	206	3	232	5	9	17	15	41	204	26	38	268	5	855
16:45	17:00	16	203	162	381	15	158	7	182	7	5	6	9	20	223	31	33	287	7	870
17:00	17:15	21	223	138	384	17	170	6	193	7	9	8	9	26	197	29	40	266	7	869
17:15	17:30	14	198	146	358	18	183	8	210	7	9	11	6	26	200	40	38	278	7	872
17:30	17:45	20	196	148	366	17	199	6	223	5	9	19	11	39	188	20	37	245	5	873
17:45	18:00	15	202	131	350	20	185	4	209	3	9	13	3	25	161	24	43	228	3	812
Total:		365	5828	4872	1110	415	5210	135	5770	333	243	392	228	863	4264	512	770	5546	333	23,282

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MERIVALE RD/LOTTA AVE @ CLYDE AVE

Survey Date: Monday, February 10, 2020 **WO No:** 39436

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

Full Study Cyclist Volume

Time Period		CLYDE AVE			MERIVALE RD/LOTTA AVE			Grand Total
		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	
07:00	07:15	0	0	0	0	0	0	0
07:15	07:30	0	0	0	0	0	0	0
07:30	07:45	0	0	0	0	0	0	0
07:45	08:00	0	0	0	0	0	0	0
08:00	08:15	0	0	0	0	0	0	0
08:15	08:30	0	0	0	0	0	0	0
08:30	08:45	0	1	1	0	0	0	1
08:45	09:00	0	0	0	0	0	0	0
09:00	09:15	0	0	0	0	0	0	0
09:15	09:30	0	0	0	0	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	1	1	1
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	1	1	0	1	1	2

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MERIVALE RD/LOTTA AVE @ CLYDE AVE

Survey Date: Monday, February 10, 2020 **WO No:** 39436

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

Full Study Pedestrian Volume

Time Period		CLYDE AVE			MERIVALE RD/LOTTA AVE			Grand Total
		NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	
07:00	07:15	0	0	**0**	2	0	**2**	**2**
07:15	07:30	1	0	**1**	3	0	**3**	**4**
07:30	07:45	1	0	**1**	1	3	**4**	**5**
07:45	08:00	3	0	**3**	3	0	**3**	**6**
08:00	08:15	3	1	**4**	3	3	**6**	**10**
08:15	08:30	5	1	**6**	4	1	**5**	**11**
08:30	08:45	1	1	**2**	5	0	**5**	**7**
08:45	09:00	1	0	**1**	3	3	**6**	**7**
09:00	09:15	0	1	**1**	2	1	**3**	**4**
09:15	09:30	0	1	**1**	6	1	**7**	**8**
09:30	09:45	1	0	**1**	3	1	**4**	**5**
09:45	10:00	1	1	**2**	1	4	**5**	**7**
11:30	11:45	2	2	**4**	2	8	**10**	**14**
11:45	12:00	0	1	**1**	2	0	**2**	**3**
12:00	12:15	0	3	**3**	4	2	**6**	**9**
12:15	12:30	1	1	**2**	6	3	**9**	**11**
12:30	12:45	3	1	**4**	3	1	**4**	**8**
12:45	13:00	4	2	**6**	2	4	**6**	**12**
13:00	13:15	1	2	**3**	5	10	**15**	**18**
13:15	13:30	4	1	**5**	4	7	**11**	**16**
15:00	15:15	1	0	**1**	6	0	**6**	**7**
15:15	15:30	4	1	**5**	4	4	**8**	**13**
15:30	15:45	2	3	**5**	4	3	**7**	**12**
15:45	16:00	1	1	**2**	3	3	**6**	**8**
16:00	16:15	2	5	**7**	5	5	**10**	**17**
16:15	16:30	3	2	**5**	3	4	**7**	**12**
16:30	16:45	1	1	**2**	4	4	**8**	**10**
16:45	17:00	3	1	**4**	6	4	**10**	**14**
17:00	17:15	4	1	**5**	7	4	**11**	**16**
17:15	17:30	1	1	**2**	0	12	**12**	**14**
17:30	17:45	1	1	**2**	4	2	**6**	**8**
17:45	18:00	2	0	**2**	2	2	**4**	**6**
Total	.....	57	36	**93**	112	99	**211**	**304**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MERIVALE RD/LOTTA AVE @ CLYDE AVE

Survey Date: Monday, February 10, 2020 **WO No:** 39436

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

Full Study Heavy Vehicles

CLYDE AVE **MERIVALE RD/LOTTA AVE**

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	5	**8**	1	2	0	**3**	**11**	0	0	0	**0**	1	0	1	**2**	**2**	**13**
07:15	07:30	0	5	6	**11**	1	2	0	**3**	**14**	0	0	1	**1**	4	0	0	**4**	**5**	**19**
07:30	07:45	0	2	4	**6**	0	1	0	**1**	**7**	0	0	0	**0**	3	0	1	**4**	**4**	**11**
07:45	08:00	0	4	10	**14**	0	1	2	**3**	**17**	0	0	0	**0**	4	0	1	**5**	**5**	**22**
08:00	08:15	0	3	3	**6**	0	3	1	**4**	**10**	1	1	0	**2**	2	0	1	**3**	**5**	**15**
08:15	08:30	0	1	7	**8**	0	1	0	**1**	**9**	0	0	0	**0**	2	0	0	**2**	**2**	**11**
08:30	08:45	0	4	4	**8**	0	2	0	**2**	**10**	0	0	0	**0**	4	0	1	**5**	**5**	**15**
08:45	09:00	0	5	8	**13**	0	2	0	**2**	**15**	0	1	0	**1**	6	2	0	**8**	**9**	**24**
09:00	09:15	0	3	7	**10**	0	2	0	**2**	**12**	0	1	0	**1**	2	0	1	**3**	**4**	**16**
09:15	09:30	0	5	7	**12**	1	2	0	**3**	**15**	0	2	0	**2**	5	0	1	**6**	**8**	**23**
09:30	09:45	0	5	7	**13**	0	3	1	**4**	**17**	1	0	1	**2**	2	0	1	**3**	**5**	**22**
09:45	10:00	0	7	5	**12**	2	1	0	**3**	**15**	0	0	1	**1**	4	0	1	**5**	**6**	**21**
11:30	11:45	0	6	8	**14**	0	3	0	**3**	**17**	0	0	1	**1**	3	0	3	**6**	**7**	**24**
11:45	12:00	1	2	2	**5**	0	7	0	**7**	**12**	0	0	0	**0**	6	0	1	**7**	**7**	**19**
12:00	12:15	0	1	8	**9**	0	4	1	**5**	**14**	0	0	0	**0**	3	0	1	**4**	**4**	**18**
12:15	12:30	0	2	3	**5**	0	2	0	**2**	**7**	0	2	0	**2**	3	1	0	**4**	**6**	**13**
12:30	12:45	0	2	3	**5**	0	5	0	**5**	**10**	0	1	0	**1**	4	0	1	**5**	**6**	**16**
12:45	13:00	0	3	2	**5**	0	3	0	**3**	**8**	0	1	0	**1**	6	0	0	**6**	**7**	**15**
13:00	13:15	0	5	3	**8**	0	3	0	**3**	**11**	0	0	0	**0**	4	0	4	**8**	**8**	**19**
13:15	13:30	0	4	8	**12**	0	4	0	**4**	**16**	0	0	0	**0**	1	1	1	**3**	**3**	**19**
15:00	15:15	0	1	4	**5**	0	7	0	**7**	**12**	0	0	0	**0**	7	0	1	**8**	**8**	**20**
15:15	15:30	0	2	1	**3**	0	3	0	**3**	**6**	0	0	0	**0**	0	0	1	**1**	**1**	**7**
15:30	15:45	0	1	3	**4**	2	2	0	**4**	**8**	0	0	0	**0**	6	1	1	**8**	**8**	**16**
15:45	16:00	0	6	4	**10**	0	2	0	**2**	**12**	1	0	0	**1**	4	0	2	**6**	**7**	**19**
16:00	16:15	0	0	3	**3**	1	3	0	**4**	**7**	0	0	0	**0**	5	0	2	**7**	**7**	**14**
16:15	16:30	0	3	3	**6**	0	1	0	**1**	**7**	0	0	0	**0**	2	0	3	**5**	**5**	**12**
16:30	16:45	0	0	4	**4**	0	1	0	**1**	**5**	0	1	0	**1**	3	0	0	**3**	**4**	**9**
16:45	17:00	0	3	2	**5**	0	2	0	**2**	**7**	0	0	0	**0**	2	0	2	**4**	**4**	**11**
17:00	17:15	0	3	2	**5**	0	2	0	**2**	**7**	0	0	0	**0**	1	0	1	**2**	**2**	**9**
17:15	17:30	1	2	3	**6**	0	1	0	**1**	**7**	0	0	0	**0**	3	0	1	**4**	**4**	**11**
17:30	17:45	0	2	1	**3**	0	2	0	**2**	**5**	0	1	0	**1**	1	1	1	**3**	**4**	**9**
17:45	18:00	0	1	1	**2**	0	1	0	**1**	**3**	0	0	0	**0**	3	0	2	**5**	**5**	**8**
Total:	None	2	96	141	**240**	8	80	5	**93**	**333**	3	11	4	**18**	106	6	37	**149**	**167**	**500**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MERIVALE RD/LOTTA AVE @ CLYDE AVE

Survey Date: Monday, February 10, 2020 **WO No:** 39436

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

Full Study 15 Minute U-Turn Total

CLYDE AVE **MERIVALE RD/LOTTA 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	1	0	0	1
07:30	07:45	1	0	0	0	1
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	0	1
08:30	08:45	1	0	0	0	1
08:45	09:00	0	0	0	0	0
09:00	09:15	1	0	0	0	1
09:15	09:30	0	0	0	0	0
09:30	09:45	1	0	0	0	1
09:45	10:00	0	0	0	0	0
11:30	11:45	1	1	0	0	2
11:45	12:00	3	1	0	0	4
12:00	12:15	1	0	0	0	1
12:15	12:30	2	0	0	0	2
12:30	12:45	2	1	0	0	3
12:45	13:00	1	0	0	0	1
13:00	13:15	3	0	0	0	3
13:15	13:30	0	0	0	0	0
15:00	15:15	4	0	0	0	4
15:15	15:30	1	1	0	0	2
15:30	15:45	1	0	0	0	1
15:45	16:00	2	0	0	0	2
16:00	16:15	0	1	0	0	1
16:15	16:30	2	0	0	0	2
16:30	16:45	4	0	0	0	4
16:45	17:00	0	2	0	0	2
17:00	17:15	2	0	0	0	2
17:15	17:30	0	1	0	0	1
17:30	17:45	2	1	0	0	3
17:45	18:00	2	0	0	0	2
Total		38	10	0	0	48

Appendix C

Synchro Intersection Worksheets – Existing Conditions

CGH TRANSPORTATION

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	222	1007	6	116	897	375	0	640	239	314	326	284
Future Volume (vph)	222	1007	6	116	897	375	0	640	239	314	326	284
Satd. Flow (prot)	1642	3309	0	1595	3283	1483	0	3252	1469	3185	3191	1455
Flt Permitted	0.950			0.950						0.950		
Satd. Flow (perm)	1627	3309	0	1588	3283	1415	0	3252	1379	3086	3191	1395
Satd. Flow (RTOR)		1				213			96			316
Lane Group Flow (vph)	247	1126	0	129	997	417	0	711	266	349	362	316
Turn Type	Prot	NA		Prot	NA	Perm		NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6			4	1	3	8	
Permitted Phases						6			4			8
Detector Phase	5	2		1	6	6		4	1	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0		10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	12.1	41.1		12.1	41.1	41.1		34.6	12.1	11.5	34.6	34.6
Total Split (s)	24.0	43.0		24.0	43.0	43.0		35.0	24.0	18.0	53.0	53.0
Total Split (%)	20.0%	35.8%		20.0%	35.8%	35.8%		29.2%	20.0%	15.0%	44.2%	44.2%
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.4	3.4		3.4	3.4	3.4		2.9	3.4	2.8	2.9	2.9
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.1	7.1		7.1	7.1	7.1		6.6	7.1	6.5	6.6	6.6
Lead/Lag	Lead	Lag		Lead	Lag	Lag		Lag	Lead	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes		Yes	Yes	Yes		
Recall Mode	None	C-Max		None	C-Max	C-Max		None	None	None	None	None
Act Effct Green (s)	17.3	39.2		14.1	35.9	35.9		28.0	41.5	11.5	46.0	46.0
Actuated g/C Ratio	0.14	0.33		0.12	0.30	0.30		0.23	0.35	0.10	0.38	0.38
v/c Ratio	1.04	1.04		0.69	1.02	0.73		0.94	0.48	1.14	0.30	0.43
Control Delay	120.0	79.0		69.6	74.5	26.3		66.2	18.6	144.5	26.5	4.7
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	120.0	79.0		69.6	74.5	26.3		66.2	18.6	144.5	26.5	4.7
LOS	F	E		E	E	C		E	B	F	C	A
Approach Delay		86.3			61.0			53.3			59.9	
Approach LOS		F			E			D			E	
Queue Length 50th (m)	~64.4	~155.7		29.4	~127.0	43.8		86.5	26.7	~49.5	30.6	0.0
Queue Length 95th (m)	#114.8	#204.8		49.0	#170.6	83.2		#121.5	46.9	#78.9	42.4	17.4
Internal Link Dist (m)		323.1			324.6			263.9			243.9	
Turn Bay Length (m)	115.0			200.0		40.0			115.0	105.0		50.0
Base Capacity (vph)	237	1080		224	982	572		769	582	305	1233	733
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	0
Reduced v/c Ratio	1.04	1.04		0.58	1.02	0.73		0.92	0.46	1.14	0.29	0.43

Intersection Summary

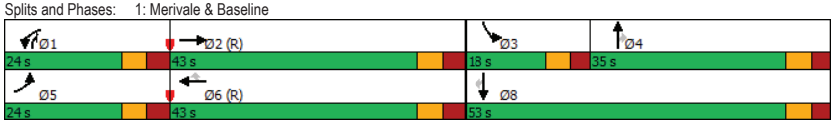
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 45 (38%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.14
Intersection Signal Delay: 66.3 — Intersection LOS: E
Intersection Capacity Utilization 95.6% — 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: Merivale & Baseline



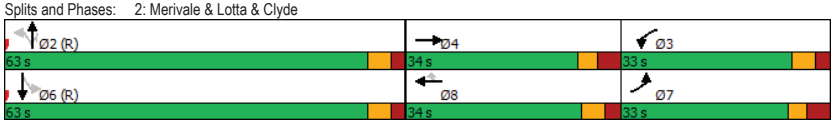
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	74	22	359	39	58	36	767	834	23	591	14
Future Volume (vph)	25	74	22	359	39	58	36	767	834	23	591	14
Satd. Flow (prot)	1626	1663	0	3154	1695	1469	1658	3316	1469	1658	3294	0
Flt Permitted	0.950			0.950			0.350			0.270		
Satd. Flow (perm)	1619	1663	0	3115	1695	1445	603	3316	1435	470	3294	0
Satd. Flow (RTOR)		10				82			832		2	
Lane Group Flow (vph)	28	106	0	399	43	64	40	852	927	26	673	0
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases						8	2		2	6		
Detector Phase	7	4		3	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	11.8	33.8		11.2	33.2	33.2	30.0	30.0	30.0	30.0	30.0	
Total Split (s)	33.0	34.0		33.0	34.0	34.0	63.0	63.0	63.0	63.0	63.0	
Total Split (%)	25.4%	26.2%		25.4%	26.2%	26.2%	48.5%	48.5%	48.5%	48.5%	48.5%	
Yellow Time (s)	3.0	3.0		3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	3.8	3.8		2.5	2.5	2.5	2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.2	6.2	6.2	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lag	Lead		Lag	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Recall Mode	None	None		None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)	18.5	15.1		21.6	23.4	23.4	74.3	74.3	74.3	74.3	74.3	
Actuated g/C Ratio	0.14	0.12		0.17	0.18	0.18	0.57	0.57	0.57	0.57	0.57	
v/c Ratio	0.12	0.52		0.76	0.14	0.20	0.12	0.45	0.79	0.10	0.36	
Control Delay	44.6	56.7		61.3	49.7	6.7	7.6	9.4	13.5	18.0	17.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	3.1	0.0	0.0	
Total Delay	44.6	56.7		61.3	49.7	6.7	7.6	9.4	16.6	18.0	17.3	
LOS	D	E		E	D	A	A	A	B	B	B	
Approach Delay		54.1			53.4			13.0			17.3	
Approach LOS		D			D			B			B	
Queue Length 50th (m)	6.0	23.9		50.8	10.6	0.0	2.0	37.3	152.1	2.8	44.4	
Queue Length 95th (m)	14.3	37.9		65.0	19.5	8.0	m2.4	38.2	283.1	10.3	79.5	
Internal Link Dist (m)		153.9			65.4			272.8			356.1	
Turn Bay Length (m)	35.0						30.0			40.0		
Base Capacity (vph)	336	355		651	399	403	344	1894	1176	268	1882	
Starvation Cap Reductn	0	0		0	0	0	0	0	157	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.08	0.30		0.61	0.11	0.16	0.12	0.45	0.91	0.10	0.36	

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 9 (7%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79
Intersection Signal Delay: 22.2 — Intersection LOS: C
Intersection Capacity Utilization 91.6% — ICU Level of Service F
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Merivale & Lotta & Clyde



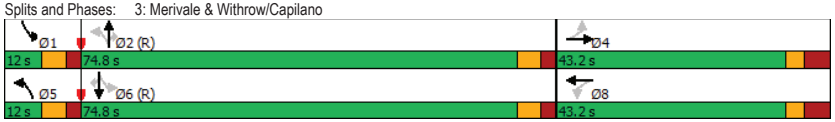
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	16	20	27	10	35	20	1570	35	28	945	5
Future Volume (vph)	38	16	20	27	10	35	20	1570	35	28	945	5
Satd. Flow (prot)	1658	1561	0	1658	1515	0	1658	3283	1388	1658	3316	1483
Flt Permitted	0.724			0.731			0.244			0.089		
Satd. Flow (perm)	1263	1561	0	1270	1515	0	425	3283	1346	155	3316	1440
Satd. Flow (RTOR)		22			39				86			86
Lane Group Flow (vph)	42	40	0	30	50	0	22	1744	39	31	1050	6
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	43.2	43.2		43.2	43.2		11.1	33.1	33.1	11.1	33.1	33.1
Total Split (s)	43.2	43.2		43.2	43.2		12.0	74.8	74.8	12.0	74.8	74.8
Total Split (%)	33.2%	33.2%		33.2%	33.2%		9.2%	57.5%	57.5%	9.2%	57.5%	57.5%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	4.2	4.2		4.2	4.2		2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.2	7.2		7.2	7.2		6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	15.5	15.5		15.5	15.5		100.9	98.6	98.6	101.0	98.7	98.7
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.78	0.76	0.76	0.78	0.76	0.76
v/c Ratio	0.28	0.20		0.20	0.23		0.06	0.70	0.04	0.16	0.42	0.01
Control Delay	53.2	27.5		50.5	20.2		6.0	15.2	0.1	4.8	4.0	0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.2	27.5		50.5	20.2		6.0	15.2	0.1	4.8	4.0	0.0
LOS	D	C		D	C		A	B	A	A	A	A
Approach Delay		40.7			31.6			14.8			4.0	
Approach LOS		D			C			B			A	
Queue Length 50th (m)	10.5	4.4		7.4	2.7		0.8	121.2	0.0	0.7	20.9	0.0
Queue Length 95th (m)	17.6	12.4		13.6	11.8		5.4	#287.8	0.0	m2.7	27.8	m0.0
Internal Link Dist (m)		360.6			176.8			203.0			272.8	
Turn Bay Length (m)	20.0			25.0			20.0		10.0	30.0		
Base Capacity (vph)	349	448		351	447		386	2490	1041	189	2516	1113
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	19	0		0	23		0	15	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.09		0.09	0.12		0.06	0.70	0.04	0.16	0.42	0.01

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 116 (89%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70
Intersection Signal Delay: 12.1 — Intersection LOS: B
Intersection Capacity Utilization 68.4% — 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: Merivale & Withrow/Capilano



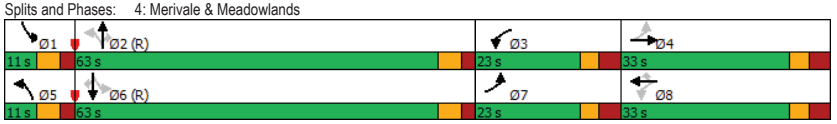
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	330	380	122	83	227	195	92	1159	85	96	752	113
Future Volume (vph)	330	380	122	83	227	195	92	1159	85	96	752	113
Satd. Flow (prot)	1658	3148	0	1626	3252	1441	1610	3252	1363	1642	3283	1483
Flt Permitted	0.414			0.276			0.252			0.081		
Satd. Flow (perm)	714	3148	0	470	3252	1396	425	3252	1321	140	3283	1436
Satd. Flow (RTOR)		30				130			134			134
Lane Group Flow (vph)	367	558	0	92	252	217	102	1288	94	107	836	126
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.5	30.5		11.5	30.5	30.5	11.0	38.0	38.0	11.0	38.0	38.0
Total Split (s)	23.0	33.0		23.0	33.0	33.0	11.0	63.0	63.0	11.0	63.0	63.0
Total Split (%)	17.7%	25.4%		17.7%	25.4%	25.4%	8.5%	48.5%	48.5%	8.5%	48.5%	48.5%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.5	3.5		3.5	3.5	3.5	2.3	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	6.5	6.5	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	42.3	26.5		31.1	20.6	20.6	66.7	59.7	59.7	69.2	60.9	60.9
Actuated g/C Ratio	0.33	0.20		0.24	0.16	0.16	0.51	0.46	0.46	0.53	0.47	0.47
v/c Ratio	1.04	0.84		0.45	0.49	0.66	0.36	0.86	0.14	0.63	0.54	0.17
Control Delay	97.8	58.9		36.6	52.2	29.7	19.0	39.5	1.5	36.6	27.1	3.6
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	97.8	58.9		36.6	52.2	29.7	19.0	39.5	1.5	36.6	27.1	3.6
LOS	F	E		D	D	C	B	D	A	D	C	A
Approach Delay		74.4			41.0			35.7			25.3	
Approach LOS		E			D			D			C	
Queue Length 50th (m)	~80.9	68.5		16.4	31.1	20.3	11.8	158.7	0.0	12.4	82.8	0.0
Queue Length 95th (m)	#113.8	88.3		27.5	42.4	45.8	22.5	#195.4	3.8	#44.7	103.6	10.0
Internal Link Dist (m)		444.5			230.0			176.3			262.1	
Turn Bay Length (m)	100.0			120.0		100.0	85.0		90.0	135.0		165.0
Base Capacity (vph)	352	698		280	662	388	281	1492	678	170	1538	744
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	1.04	0.80		0.33	0.38	0.56	0.36	0.86	0.14	0.63	0.54	0.17

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 115 (88%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.04
Intersection Signal Delay: 42.5 — Intersection LOS: D
Intersection Capacity Utilization 91.2% — ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Merivale & Meadowlands



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	243	972	12	303	1146	204	0	475	236	356	749	378
Future Volume (vph)	243	972	12	303	1146	204	0	475	236	356	749	378
Satd. Flow (prot)	1658	3308	0	1658	3316	1483	0	3316	1483	3216	3316	1483
Flt Permitted	0.950			0.950						0.950		
Satd. Flow (perm)	1590	3308	0	1649	3316	1412	0	3316	1380	3066	3316	1415
Satd. Flow (RTOR)		1				134			83			282
Lane Group Flow (vph)	270	1093	0	337	1273	227	0	528	262	396	832	420
Turn Type	Prot	NA		Prot	NA	Perm		NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6			4	1	3	8	
Permitted Phases						6			4			8
Detector Phase	5	2		1	6	6		4	1	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0		10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	12.1	41.1		12.1	41.1	41.1		34.6	12.1	11.5	34.6	34.6
Total Split (s)	25.0	60.0		25.0	60.0	60.0		35.0	25.0	20.0	55.0	55.0
Total Split (%)	17.9%	42.9%		17.9%	42.9%	42.9%		25.0%	17.9%	14.3%	39.3%	39.3%
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.4	3.4		3.4	3.4	3.4		2.9	3.4	2.8	2.9	2.9
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.1	7.1		7.1	7.1	7.1		6.6	7.1	6.5	6.6	6.6
Lead/Lag	Lead	Lag		Lead	Lag	Lag		Lag	Lead	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes		Yes	Yes	Yes		
Recall Mode	None	C-Max		None	C-Max	C-Max		None	None	None	None	None
Act Effct Green (s)	20.1	52.9		20.1	52.9	52.9		26.2	45.8	13.5	46.2	46.2
Actuated g/C Ratio	0.14	0.38		0.14	0.38	0.38		0.19	0.33	0.10	0.33	0.33
v/c Ratio	1.14	0.87		1.42	1.02	0.37		0.85	0.50	1.28	0.76	0.64
Control Delay	152.5	49.5		253.6	72.6	14.3		68.7	25.7	196.3	47.0	16.9
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	152.5	49.5		253.6	72.6	14.3		68.7	25.7	196.3	47.0	16.9
LOS	F	D		F	E	B		E	C	F	D	B
Approach Delay		69.9			98.6			54.5			75.2	
Approach LOS		E			F			D			E	
Queue Length 50th (m)	~92.9	147.0		~131.3	~195.4	17.1		74.0	35.9	~71.3	106.1	30.6
Queue Length 95th (m)	#149.4	176.8		#192.4	#238.1	38.5		94.5	60.4	#103.9	129.7	66.7
Internal Link Dist (m)		323.1			324.6			263.9			243.9	
Turn Bay Length (m)	115.0			200.0		40.0			115.0	105.0		50.0
Base Capacity (vph)	237	1250		237	1252	616		672	522	310	1146	673
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	0
Reduced v/c Ratio	1.14	0.87		1.42	1.02	0.37		0.79	0.50	1.28	0.73	0.62

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 19 (14%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.42

Intersection Signal Delay: 78.6	Intersection LOS: E
Intersection Capacity Utilization 101.9%	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: Merivale & Baseline

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	44	39	885	120	148	82	900	652	67	779	27
Future Volume (vph)	32	44	39	885	120	148	82	900	652	67	779	27
Satd. Flow (prot)	1658	1604	0	3216	1745	1469	1658	3316	1483	1658	3292	0
Flt Permitted	0.950			0.950			0.115			0.122		
Satd. Flow (perm)	1650	1604	0	3179	1745	1443	201	3316	1414	213	3292	0
Satd. Flow (RTOR)		31				164			568		3	
Lane Group Flow (vph)	36	92	0	983	133	164	91	1000	724	74	896	0
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		
Detector Phase	7	4		3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.8	33.8		11.2	33.2	33.2	11.0	30.0	30.0	11.0	30.0	
Total Split (s)	44.0	34.0		44.0	34.0	34.0	12.0	40.0	40.0	12.0	40.0	
Total Split (%)	33.8%	26.2%		33.8%	26.2%	26.2%	9.2%	30.8%	30.8%	9.2%	30.8%	
Yellow Time (s)	3.0	3.0		3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	3.8	3.8		2.5	2.5	2.5	2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.2	6.2	6.2	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lag	Lead		Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Act Effct Green (s)	27.7	14.0		47.2	38.7	38.7	45.5	38.6	38.6	43.1	35.5	
Actuated g/C Ratio	0.21	0.11		0.36	0.30	0.30	0.35	0.30	0.30	0.33	0.27	
v/c Ratio	0.10	0.46		0.84	0.26	0.30	0.56	1.02	0.88	0.48	1.00	
Control Delay	34.8	42.1		46.1	44.0	8.1	42.8	67.1	22.1	38.5	76.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	34.8	42.1		46.1	44.0	8.1	42.8	67.1	22.1	38.5	76.0	
LOS	C	D		D	D	A	D	E	C	D	E	
Approach Delay		40.1			41.0			47.9			73.1	
Approach LOS		D			D			D			E	
Queue Length 50th (m)	6.3	15.2		116.8	33.1	0.0	8.3	~147.3	107.1	11.7	120.1	
Queue Length 95th (m)	15.1	28.4		#180.7	48.9	18.3	m17.7	#196.8	#128.2	#24.0	#170.8	
Internal Link Dist (m)		153.9			65.4			272.8			356.1	
Turn Bay Length (m)	35.0						30.0			40.0		
Base Capacity (vph)	511	360		1168	583	591	163	985	819	154	900	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.07	0.26		0.84	0.23	0.28	0.56	1.02	0.88	0.48	1.00	

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 98 (75%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated

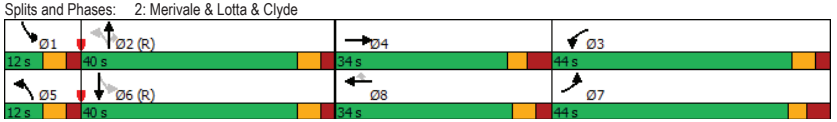
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 51.4 — Intersection LOS: D
Intersection Capacity Utilization 78.9% — ICU Level of Service D
Analysis Period (min) 15

~ 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: 2: Merivale & Lotta & Clyde



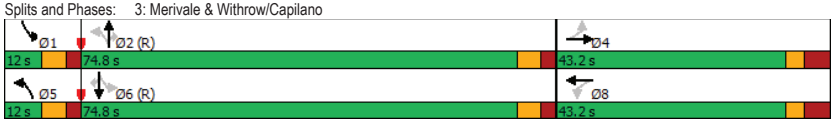
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	8	26	59	14	52	41	1564	30	64	1634	21
Future Volume (vph)	31	8	26	59	14	52	41	1564	30	64	1634	21
Satd. Flow (prot)	1658	1500	0	1658	1516	0	1658	3316	1483	1658	3316	1483
Flt Permitted	0.709			0.732			0.059			0.071		
Satd. Flow (perm)	1229	1500	0	1267	1516	0	103	3316	1391	124	3316	1399
Satd. Flow (RTOR)		29			58				86			86
Lane Group Flow (vph)	34	38	0	66	74	0	46	1738	33	71	1816	23
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	43.2	43.2		43.2	43.2		11.1	33.1	33.1	11.1	33.1	33.1
Total Split (s)	43.2	43.2		43.2	43.2		12.0	74.8	74.8	12.0	74.8	74.8
Total Split (%)	33.2%	33.2%		33.2%	33.2%		9.2%	57.5%	57.5%	9.2%	57.5%	57.5%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	4.2	4.2		4.2	4.2		2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.2	7.2		7.2	7.2		6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	20.8	20.8		20.8	20.8		90.8	86.1	86.1	91.2	86.2	86.2
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.70	0.66	0.66	0.70	0.66	0.66
v/c Ratio	0.17	0.14		0.33	0.25		0.33	0.79	0.03	0.45	0.83	0.02
Control Delay	43.5	17.5		48.5	15.4		14.2	22.7	0.1	19.3	15.8	0.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.5	17.5		48.5	15.4		14.2	22.7	0.1	19.3	15.8	0.1
LOS	D	B		D	B		B	C	A	B	B	A
Approach Delay		29.8			31.0			22.0			15.7	
Approach LOS		C			C			C			B	
Queue Length 50th (m)	8.3	2.1		16.5	3.8		1.9	130.6	0.0	1.5	153.6	0.0
Queue Length 95th (m)	15.0	10.2		25.1	14.7		9.3	#283.6	0.0	m2.8	m#281.6	m0.0
Internal Link Dist (m)		360.6			176.8			203.0			272.8	
Turn Bay Length (m)	20.0			25.0			20.0		10.0	30.0		
Base Capacity (vph)	340	436		350	461		143	2195	950	158	2199	956
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.09		0.19	0.16		0.32	0.79	0.03	0.45	0.83	0.02

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 76 (58%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83
Intersection Signal Delay: 19.4 — Intersection LOS: B
Intersection Capacity Utilization 81.5% — 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: 3: Merivale & Withrow/Capilano

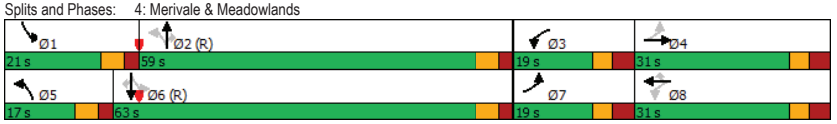


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	176	307	154	184	492	183	195	1252	102	234	1142	301
Future Volume (vph)	176	307	154	184	492	183	195	1252	102	234	1142	301
Satd. Flow (prot)	1658	3070	0	1658	3283	1483	1658	3316	1483	1658	3316	1483
Flt Permitted	0.191			0.227			0.082			0.070		
Satd. Flow (perm)	329	3070	0	389	3283	1402	143	3316	1354	122	3316	1381
Satd. Flow (RTOR)		60				187			134			314
Lane Group Flow (vph)	196	512	0	204	547	203	217	1391	113	260	1269	334
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.5	30.5		11.5	30.5	30.5	11.0	38.0	38.0	11.0	38.0	38.0
Total Split (s)	19.0	31.0		19.0	31.0	31.0	17.0	59.0	59.0	21.0	63.0	63.0
Total Split (%)	14.6%	23.8%		14.6%	23.8%	23.8%	13.1%	45.4%	45.4%	16.2%	48.5%	48.5%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.5	3.5		3.5	3.5	3.5	2.3	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	6.5	6.5	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	36.4	23.9		36.4	23.9	23.9	64.6	53.0	53.0	72.6	57.0	57.0
Actuated g/C Ratio	0.28	0.18		0.28	0.18	0.18	0.50	0.41	0.41	0.56	0.44	0.44
v/c Ratio	0.89	0.83		0.89	0.91	0.50	1.06	1.03	0.18	1.04	0.87	0.43
Control Delay	74.0	57.8		71.8	71.7	12.6	112.2	70.4	3.1	103.0	41.2	4.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.0	57.8		71.8	71.7	12.6	112.2	70.4	3.1	103.0	41.2	4.9
LOS	E	E		E	E	B	F	E	A	F	D	A
Approach Delay		62.3			59.1			71.2			43.3	
Approach LOS		E			E			E			D	
Queue Length 50th (m)	37.8	59.4		39.6	72.5	3.4	~46.8	~200.3	0.0	~58.7	153.0	2.9
Queue Length 95th (m)	#75.5	#81.8		#74.8	#102.1	25.1	#97.6	#242.8	8.0	#112.7	184.7	21.1
Internal Link Dist (m)		444.5			230.0			176.3			262.1	
Turn Bay Length (m)	100.0			120.0		100.0	85.0		90.0	135.0		165.0
Base Capacity (vph)	220	627		230	618	415	205	1351	631	251	1453	781
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	0.89	0.82		0.89	0.89	0.49	1.06	1.03	0.18	1.04	0.87	0.43

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 61 (47%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 135
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.06
Intersection Signal Delay: 57.9 — Intersection LOS: E
Intersection Capacity Utilization 100.1% — 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: 4: Merivale & Meadowlands



Appendix D

Collision Data

CGH TRANSPORTATION

Accident Date	Accident Year		Accident Time	Location	Environment Condition	Light		Traffic Control	Classification Of Accident	Initial Impact Type	Road Surface Condition
2014-11-27		2014	8:26	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	01 - Fatal injury	05 - Turning movement	01 - Dry
2014-10-04		2014	11:59	MERIVALE RD/LOTTA AVE @ CLYDE AVE	02 - Rain	01 - Daylight		01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	02 - Wet
2014-02-13		2014	8:00	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2014-01-17		2014	12:20	MERIVALE RD/LOTTA AVE @ CLYDE AVE	02 - Rain	01 - Daylight		01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2014-03-22		2014	12:32	MERIVALE RD/LOTTA AVE @ CLYDE AVE	03 - Snow	01 - Daylight		01 - Traffic signal	03 - P.D. only	05 - Turning movement	03 - Loose snow
2014-02-18		2014	8:07	MERIVALE RD/LOTTA AVE @ CLYDE AVE	03 - Snow	01 - Daylight		01 - Traffic signal	03 - P.D. only	03 - Rear end	03 - Loose snow
2014-05-20		2014	19:20	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2014-04-24		2014	19:15	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	05 - Dusk		01 - Traffic signal	03 - P.D. only	02 - Angle	01 - Dry
2014-07-06		2014	12:58	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	03 - P.D. only	02 - Angle	01 - Dry
2014-08-12		2014	12:16	MERIVALE RD/LOTTA AVE @ CLYDE AVE	02 - Rain	01 - Daylight		01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2014-08-22		2014	8:38	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	03 - P.D. only	02 - Angle	01 - Dry
2014-10-25		2014	14:56	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2014-12-15		2014	14:15	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2014-12-10		2014	17:55	MERIVALE RD/LOTTA AVE @ CLYDE AVE	03 - Snow	07 - Dark		01 - Traffic signal	03 - P.D. only	03 - Rear end	03 - Loose snow
2014-09-05		2014	16:00	MERIVALE RD/LOTTA AVE @ CLYDE AVE	02 - Rain	01 - Daylight		01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2014-12-24		2014	12:00	MERIVALE RD/LOTTA AVE @ CLYDE AVE	02 - Rain	01 - Daylight		01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2014-05-26		2014	7:28	MERIVALE RD/LOTTA AVE @ CLYDE AVE	02 - Rain	01 - Daylight		01 - Traffic signal	03 - P.D. only	07 - SMV other	02 - Wet
2015-01-21		2015	14:47	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry
2015-04-30		2015	9:45	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry
2015-08-19		2015	18:12	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry
2015-07-19		2015	13:39	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	02 - Non-fatal injury	05 - Turning movement	01 - Dry
2015-01-23		2015	17:13	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	05 - Dusk		01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2015-05-05		2015	19:01	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2015-04-30		2015	12:59	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2015-01-09		2015	8:00	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	03 - P.D. only	05 - Turning movement	04 - Slush
2015-01-23		2015	16:58	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	05 - Dusk		01 - Traffic signal	03 - P.D. only	02 - Angle	01 - Dry
2015-05-05		2015	12:50	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2015-11-01		2015	11:36	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2015-01-15		2015	15:30	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	03 - P.D. only	05 - Turning movement	04 - Slush
2015-08-18		2015	17:26	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2015-02-01		2015	21:15	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	07 - Dark		01 - Traffic signal	03 - P.D. only	07 - SMV other	05 - Packed snow
2015-02-13		2015	14:29	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2015-07-11		2015	16:01	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2015-07-31		2015	12:25	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2015-06-29		2015	18:06	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2015-10-21		2015	18:34	MERIVALE RD/LOTTA AVE @ CLYDE AVE	02 - Rain	07 - Dark		01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2015-11-09		2015	18:55	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	07 - Dark		01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2015-10-16		2015	9:07	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2015-10-28		2015	21:24	MERIVALE RD/LOTTA AVE @ CLYDE AVE	02 - Rain	07 - Dark		01 - Traffic signal	03 - P.D. only	07 - SMV other	02 - Wet
2015-10-19		2015	17:07	MERIVALE RD/LOTTA AVE @ CLYDE AVE	02 - Rain	01 - Daylight		01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2016-02-13		2016	15:08	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	02 - Non-fatal injury	05 - Turning movement	02 - Wet
2016-05-24		2016	17:59	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry
2016-11-18		2016	10:58	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	02 - Non-fatal injury	02 - Angle	01 - Dry
2016-07-29		2016	17:29	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2016-02-18		2016	11:44	MERIVALE RD/LOTTA AVE @ CLYDE AVE	03 - Snow	01 - Daylight		01 - Traffic signal	03 - P.D. only	03 - Rear end	03 - Loose snow
2016-01-18		2016	12:37	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	03 - P.D. only	05 - Turning movement	02 - Wet
2016-08-22		2016	16:44	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2016-06-30		2016	15:31	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	03 - P.D. only	99 - Other	01 - Dry
2016-07-13		2016	15:39	MERIVALE RD/LOTTA AVE @ CLYDE AVE	02 - Rain	01 - Daylight		01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2016-09-27		2016	12:12	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2016-09-17		2016	15:50	MERIVALE RD/LOTTA AVE @ CLYDE AVE	02 - Rain	01 - Daylight		01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2016-10-21		2016	16:07	MERIVALE RD/LOTTA AVE @ CLYDE AVE	02 - Rain	01 - Daylight		01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2016-12-19		2016	13:39	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	03 - P.D. only	03 - Rear end	05 - Packed snow
2016-12-08		2016	21:52	MERIVALE RD/LOTTA AVE @ CLYDE AVE	03 - Snow	07 - Dark		01 - Traffic signal	03 - P.D. only	07 - SMV other	06 - Ice
2016-12-21		2016	16:19	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	05 - Dusk		01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2016-11-30		2016	15:15	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2016-11-24		2016	11:00	MERIVALE RD/LOTTA AVE @ CLYDE AVE	03 - Snow	01 - Daylight		01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2017-06-18		2017	10:46	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight		01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry

2017-06-26	2017	12:16	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2017-05-31	2017	13:35	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry
2017-08-28	2017	12:43	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2017-07-11	2017	16:28	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	07 - SMV other	01 - Dry
2017-06-30	2017	15:38	MERIVALE RD/LOTTA AVE @ CLYDE AVE	02 - Rain	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2017-07-14	2017	17:00	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2017-08-22	2017	19:22	MERIVALE RD/LOTTA AVE @ CLYDE AVE	02 - Rain	01 - Daylight	01 - Traffic signal	03 - P.D. only	02 - Angle	02 - Wet
2017-08-01	2017	14:58	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2017-08-21	2017	12:21	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2017-10-07	2017	17:00	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2017-09-24	2017	15:30	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2017-09-11	2017	15:13	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2017-12-06	2017	15:20	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2017-11-16	2017	15:01	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	02 - Angle	01 - Dry
2017-12-06	2017	10:43	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2017-02-18	2017	15:55	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2017-01-31	2017	8:44	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2017-01-07	2017	0:36	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	07 - Dark	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2017-02-15	2017	21:00	MERIVALE RD/LOTTA AVE @ CLYDE AVE	03 - Snow	07 - Dark	01 - Traffic signal	03 - P.D. only	05 - Turning movement	03 - Loose snow
2017-02-06	2017	19:15	MERIVALE RD/LOTTA AVE @ CLYDE AVE	03 - Snow	07 - Dark	01 - Traffic signal	03 - P.D. only	03 - Rear end	03 - Loose snow
2017-04-21	2017	21:43	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	07 - Dark	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2017-12-26	2017	12:24	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	04 - Slush
2017-12-27	2017	11:03	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	05 - Turning movement	01 - Dry
2017-12-26	2017	13:39	MERIVALE RD/LOTTA AVE @ CLYDE AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2018-01-05	2018	17:25	MERIVALE RD/LOTTA AVE @ CLYDE AVE (0001112)	01 - Clear	05 - Dusk	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2018-01-22	2018	13:02	MERIVALE RD/LOTTA AVE @ CLYDE AVE (0001112)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2018-02-08	2018	13:06	MERIVALE RD/LOTTA AVE @ CLYDE AVE (0001112)	03 - Snow	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	03 - Loose snow
2018-02-18	2018	18:00	MERIVALE RD/LOTTA AVE @ CLYDE AVE (0001112)	01 - Clear	05 - Dusk	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2018-03-21	2018	21:09	MERIVALE RD/LOTTA AVE @ CLYDE AVE (0001112)	01 - Clear	07 - Dark	01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2018-04-07	2018	16:58	MERIVALE RD/LOTTA AVE @ CLYDE AVE (0001112)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2018-05-01	2018	9:14	MERIVALE RD/LOTTA AVE @ CLYDE AVE (0001112)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2018-05-18	2018	16:44	MERIVALE RD/LOTTA AVE @ CLYDE AVE (0001112)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2018-06-23	2018	16:49	MERIVALE RD/LOTTA AVE @ CLYDE AVE (0001112)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2018-06-28	2018	19:47	MERIVALE RD/LOTTA AVE @ CLYDE AVE (0001112)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	02 - Angle	01 - Dry
2018-07-12	2018	17:51	MERIVALE RD/LOTTA AVE @ CLYDE AVE (0001112)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2018-07-14	2018	13:32	MERIVALE RD/LOTTA AVE @ CLYDE AVE (0001112)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2018-07-23	2018	18:33	MERIVALE RD/LOTTA AVE @ CLYDE AVE (0001112)	02 - Rain	01 - Daylight	01 - Traffic signal	03 - P.D. only	02 - Angle	02 - Wet
2018-08-28	2018	22:33	MERIVALE RD/LOTTA AVE @ CLYDE AVE (0001112)	01 - Clear	07 - Dark	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2018-09-04	2018	15:55	MERIVALE RD/LOTTA AVE @ CLYDE AVE (0001112)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2018-10-18	2018	11:48	MERIVALE RD/LOTTA AVE @ CLYDE AVE (0001112)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	99 - Other	01 - Dry
2018-10-20	2018	11:30	MERIVALE RD/LOTTA AVE @ CLYDE AVE (0001112)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2018-10-26	2018	14:30	MERIVALE RD/LOTTA AVE @ CLYDE AVE (0001112)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2018-10-30	2018	17:07	MERIVALE RD/LOTTA AVE @ CLYDE AVE (0001112)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2018-11-05	2018	14:52	MERIVALE RD/LOTTA AVE @ CLYDE AVE (0001112)	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry
2018-11-16	2018	9:01	MERIVALE RD/LOTTA AVE @ CLYDE AVE (0001112)	03 - Snow	01 - Daylight	01 - Traffic signal	03 - P.D. only	05 - Turning movement	03 - Loose snow
2018-11-24	2018	10:34	MERIVALE RD/LOTTA AVE @ CLYDE AVE (0001112)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2018-12-07	2018	17:19	MERIVALE RD/LOTTA AVE @ CLYDE AVE (0001112)	01 - Clear	07 - Dark	01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2018-12-11	2018	12:04	MERIVALE RD/LOTTA AVE @ CLYDE AVE (0001112)	03 - Snow	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	04 - Slush
2018-12-21	2018	19:30	MERIVALE RD/LOTTA AVE @ CLYDE AVE (0001112)	02 - Rain	07 - Dark	01 - Traffic signal	03 - P.D. only	05 - Turning movement	02 - Wet
2018-12-21	2018	20:35	MERIVALE RD/LOTTA AVE @ CLYDE AVE (0001112)	02 - Rain	07 - Dark	01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2014-03-12	2014	14:17	MERIVALE RD @ CAPILANO DR/WITHROW AVE	03 - Snow	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	03 - Loose snow
2014-05-12	2014	10:28	MERIVALE RD @ CAPILANO DR/WITHROW AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2014-06-27	2014	18:17	MERIVALE RD @ CAPILANO DR/WITHROW AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2014-08-25	2014	12:25	MERIVALE RD @ CAPILANO DR/WITHROW AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2014-12-13	2014	11:47	MERIVALE RD @ CAPILANO DR/WITHROW AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2014-12-23	2014	14:50	MERIVALE RD @ CAPILANO DR/WITHROW AVE	02 - Rain	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2015-03-15	2015	16:48	MERIVALE RD @ CAPILANO DR/WITHROW AVE	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry
2015-05-19	2015	18:09	MERIVALE RD @ CAPILANO DR/WITHROW AVE	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry
2015-06-11	2015	14:41	MERIVALE RD @ CAPILANO DR/WITHROW AVE	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry

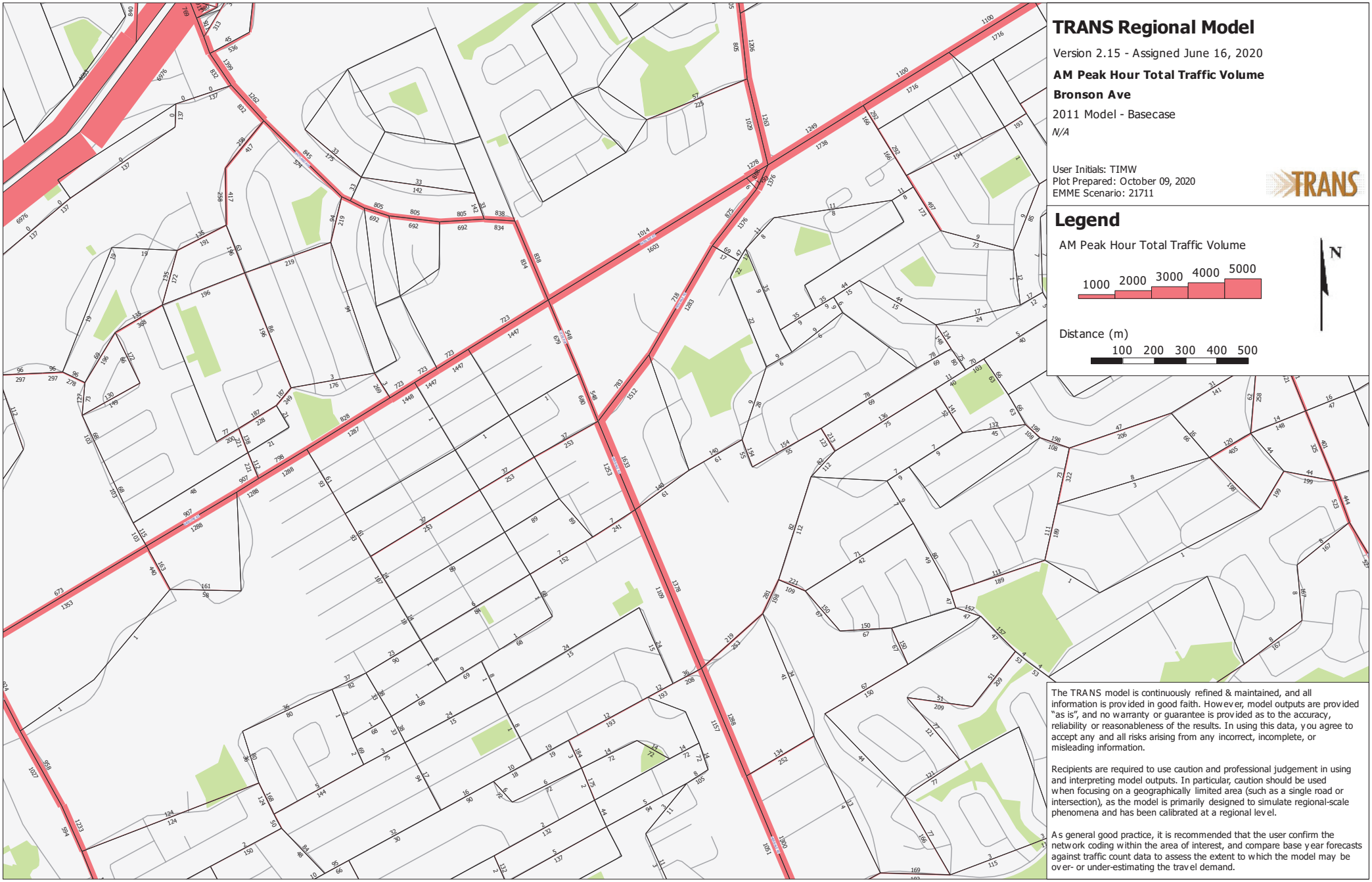
2015-03-21	2015	16:19	MERIVALE RD @ CAPILANO DR/WITHROW AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	02 - Angle	02 - Wet
2015-02-04	2015	16:14	MERIVALE RD @ CAPILANO DR/WITHROW AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	07 - SMV other	03 - Loose snow
2015-04-22	2015	16:35	MERIVALE RD @ CAPILANO DR/WITHROW AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2015-02-04	2015	19:30	MERIVALE RD @ CAPILANO DR/WITHROW AVE	03 - Snow	07 - Dark	01 - Traffic signal	03 - P.D. only	03 - Rear end	04 - Slush
2015-02-18	2015	19:00	MERIVALE RD @ CAPILANO DR/WITHROW AVE	01 - Clear	07 - Dark	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2015-02-26	2015	16:35	MERIVALE RD @ CAPILANO DR/WITHROW AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2015-09-07	2015	20:09	MERIVALE RD @ CAPILANO DR/WITHROW AVE	02 - Rain	07 - Dark	01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2015-09-07	2015	21:09	MERIVALE RD @ CAPILANO DR/WITHROW AVE	02 - Rain	07 - Dark	01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2015-06-16	2015	9:00	MERIVALE RD @ CAPILANO DR/WITHROW AVE	02 - Rain	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	02 - Wet
2015-04-22	2015	14:39	MERIVALE RD @ CAPILANO DR/WITHROW AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2015-08-11	2015	15:13	MERIVALE RD @ CAPILANO DR/WITHROW AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2015-05-08	2015	19:55	MERIVALE RD @ CAPILANO DR/WITHROW AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2015-06-27	2015	12:50	MERIVALE RD @ CAPILANO DR/WITHROW AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2015-09-25	2015	14:30	MERIVALE RD @ CAPILANO DR/WITHROW AVE	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2015-09-01	2015	20:21	MERIVALE RD @ CAPILANO DR/WITHROW AVE	01 - Clear	07 - Dark	01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2017-04-27	2017	23:03	MERIVALE RD @ CAPILANO DR/WITHROW AVE	01 - Clear	07 - Dark	01 - Traffic signal	02 - Non-fatal injury	02 - Angle	01 - Dry
2017-09-03	2017	14:53	MERIVALE RD @ CAPILANO DR/WITHROW AVE	02 - Rain	01 - Daylight	01 - Traffic signal	03 - P.D. only	02 - Angle	02 - Wet
2017-10-07	2017	11:53	MERIVALE RD @ CAPILANO DR/WITHROW AVE	02 - Rain	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2017-01-30	2017	18:20	MERIVALE RD @ CAPILANO DR/WITHROW AVE	01 - Clear	07 - Dark	01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2017-04-11	2017	10:11	MERIVALE RD @ CAPILANO DR/WITHROW AVE	02 - Rain	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	02 - Angle	02 - Wet
2017-12-21	2017	12:04	MERIVALE RD @ CAPILANO DR/WITHROW AVE	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	07 - SMV other	01 - Dry
2017-12-30	2017	9:29	MERIVALE RD @ CAPILANO DR/WITHROW AVE	03 - Snow	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	05 - Packed snow
2018-02-02	2018	12:24	MERIVALE RD @ CAPILANO DR/WITHROW AVE (0009820)	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	05 - Turning movement	01 - Dry
2018-03-06	2018	17:30	MERIVALE RD @ CAPILANO DR/WITHROW AVE (0009820)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2018-04-06	2018	17:37	MERIVALE RD @ CAPILANO DR/WITHROW AVE (0009820)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2018-06-06	2018	15:43	MERIVALE RD @ CAPILANO DR/WITHROW AVE (0009820)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2018-06-08	2018	12:38	MERIVALE RD @ CAPILANO DR/WITHROW AVE (0009820)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2018-06-15	2018	11:37	MERIVALE RD @ CAPILANO DR/WITHROW AVE (0009820)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2018-09-02	2018	14:32	MERIVALE RD @ CAPILANO DR/WITHROW AVE (0009820)	02 - Rain	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2014-09-09	2014	6:55	CLYDE AVE btwn BASELINE RD & CLYDE AVE	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	99 - Other	01 - Dry
2014-04-30	2014	13:35	CLYDE AVE btwn CLYDE AVE & STARWOOD RD	02 - Rain	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	02 - Wet
2014-09-15	2014	22:14	CLYDE AVE btwn CLYDE AVE & STARWOOD RD	02 - Rain	07 - Dark	10 - No control	03 - P.D. only	04 - Sideswipe	02 - Wet
2014-11-07	2014	8:55	CLYDE AVE btwn CLYDE AVE & STARWOOD RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	01 - Dry
2014-09-18	2014	9:00	CLYDE AVE btwn CLYDE AVE & STARWOOD RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	01 - Dry
2015-08-07	2015	17:50	CLYDE AVE btwn CLYDE AVE & STARWOOD RD	01 - Clear	01 - Daylight	10 - No control	02 - Non-fatal injury	02 - Angle	01 - Dry
2015-01-09	2015	8:20	CLYDE AVE btwn CLYDE AVE & STARWOOD RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	05 - Turning movement	04 - Slush
2015-01-30	2015	9:55	CLYDE AVE btwn CLYDE AVE & STARWOOD RD	03 - Snow	01 - Daylight	10 - No control	03 - P.D. only	07 - SMV other	03 - Loose snow
2015-02-27	2015	12:43	CLYDE AVE btwn CLYDE AVE & STARWOOD RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	01 - Dry
2015-04-15	2015	11:31	CLYDE AVE btwn CLYDE AVE & STARWOOD RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	01 - Dry
2015-06-01	2015	15:18	CLYDE AVE btwn CLYDE AVE & STARWOOD RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	05 - Turning movement	01 - Dry
2015-03-31	2015	14:50	CLYDE AVE btwn CLYDE AVE & STARWOOD RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	99 - Other	01 - Dry
2015-01-16	2015	12:10	CLYDE AVE btwn CLYDE AVE & STARWOOD RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	02 - Wet
2015-07-31	2015	16:00	CLYDE AVE btwn CLYDE AVE & STARWOOD RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	05 - Turning movement	01 - Dry
2016-02-09	2016	9:05	CLYDE AVE btwn BASELINE RD & CLYDE AVE	03 - Snow	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	03 - Loose snow
2016-06-04	2016	19:26	CLYDE AVE btwn BASELINE RD & CLYDE AVE	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	01 - Dry
2017-07-26	2017	18:37	CLYDE AVE btwn CLYDE AVE & STARWOOD RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	04 - Sideswipe	01 - Dry
2017-11-08	2017	21:30	CLYDE AVE btwn CLYDE AVE & STARWOOD RD	01 - Clear	07 - Dark	10 - No control	03 - P.D. only	04 - Sideswipe	01 - Dry
2017-11-13	2017	13:40	CLYDE AVE btwn CLYDE AVE & STARWOOD RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	04 - Sideswipe	01 - Dry
2017-03-25	2017	14:06	CLYDE AVE btwn CLYDE AVE & STARWOOD RD	01 - Clear	01 - Daylight	10 - No control	02 - Non-fatal injury	02 - Angle	01 - Dry
2018-01-02	2018	11:32	CLYDE AVE btwn CLYDE AVE & STARWOOD RD (__3ZA2TX)	03 - Snow	01 - Daylight	10 - No control	03 - P.D. only	05 - Turning movement	03 - Loose snow
2018-01-04	2018	13:11	CLYDE AVE btwn CLYDE AVE & STARWOOD RD (__3ZA2TX)	03 - Snow	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	04 - Slush
2018-03-26	2018	9:01	CLYDE AVE btwn CLYDE AVE & STARWOOD RD (__3ZA2TX)	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	04 - Sideswipe	01 - Dry
2014-11-16	2015	17:56	MERIVALE RD btwn CLYDE AVE & RITA AVE	02 - Rain	07 - Dark	10 - No control	03 - P.D. only	05 - Turning movement	02 - Wet
2015-01-16	2015	12:22	MERIVALE RD btwn CLYDE AVE & RITA AVE	01 - Clear	01 - Daylight	10 - No control	02 - Non-fatal injury	03 - Rear end	02 - Wet
2015-08-28	2015	14:21	MERIVALE RD btwn CLYDE AVE & RITA AVE	01 - Clear	01 - Daylight	10 - No control	02 - Non-fatal injury	03 - Rear end	01 - Dry
2015-06-19	2015	15:17	MERIVALE RD btwn CLYDE AVE & RITA AVE	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	01 - Dry
2015-06-24	2015	18:58	MERIVALE RD btwn CLYDE AVE & RITA AVE	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	01 - Dry
2016-09-01	2016	18:03	MERIVALE RD btwn CLYDE AVE & RITA AVE	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	01 - Dry
2016-02-12	2016	16:36	MERIVALE RD btwn CLYDE AVE & RITA AVE	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	01 - Dry

2016-12-21	2016	19:51	MERIVALE RD btwn CLYDE AVE & RITA AVE	01 - Clear	07 - Dark	10 - No control	03 - P.D. only	03 - Rear end	02 - Wet
2017-07-07	2017	16:30	MERIVALE RD btwn CLYDE AVE & RITA AVE	02 - Rain	01 - Daylight	10 - No control	03 - P.D. only	04 - Sideswipe	02 - Wet
2017-09-08	2017	11:45	MERIVALE RD btwn CLYDE AVE & RITA AVE	02 - Rain	01 - Daylight	10 - No control	02 - Non-fatal injury	03 - Rear end	02 - Wet
2017-09-07	2017	14:02	MERIVALE RD btwn CLYDE AVE & RITA AVE	02 - Rain	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	02 - Wet
2017-04-04	2017	13:46	MERIVALE RD btwn CLYDE AVE & RITA AVE	02 - Rain	01 - Daylight	10 - No control	03 - P.D. only	05 - Turning movement	02 - Wet
2017-03-03	2017	14:30	MERIVALE RD btwn CLYDE AVE & RITA AVE	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	04 - Sideswipe	01 - Dry
2018-03-12	2018	12:59	MERIVALE RD btwn CLYDE AVE & RITA AVE (__3ZA4H7)	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	01 - Dry
2018-03-13	2018	13:15	MERIVALE RD btwn CLYDE AVE & RITA AVE (__3ZA4H7)	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	03 - Loose snow
2018-05-05	2018	12:36	MERIVALE RD btwn CLYDE AVE & RITA AVE (__3ZA4H7)	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	01 - Dry
2018-05-30	2018	15:20	MERIVALE RD btwn CLYDE AVE & RITA AVE (__3ZA4H7)	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	01 - Dry
2018-07-30	2018	11:52	MERIVALE RD btwn CLYDE AVE & RITA AVE (__3ZA4H7)	01 - Clear	01 - Daylight	10 - No control	02 - Non-fatal injury	03 - Rear end	01 - Dry
2018-10-10	2018	12:15	MERIVALE RD btwn CLYDE AVE & RITA AVE (__3ZA4H7)	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	01 - Dry
2018-11-21	2018	13:55	MERIVALE RD btwn CLYDE AVE & RITA AVE (__3ZA4H7)	02 - Rain	01 - Daylight	10 - No control	03 - P.D. only	04 - Sideswipe	02 - Wet
2018-12-31	2018	19:36	MERIVALE RD btwn CLYDE AVE & RITA AVE (__3ZA4H7)	01 - Clear	07 - Dark	10 - No control	02 - Non-fatal injury	03 - Rear end	02 - Wet
2014-06-09	2014	7:19	MERIVALE RD btwn WITHROW AVE & ROSSLAND AVE	01 - Clear	01 - Daylight	10 - No control	02 - Non-fatal injury	02 - Angle	01 - Dry
2014-01-04	2014	14:40	MERIVALE RD btwn WITHROW AVE & RITA AVE	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	02 - Wet
2014-01-31	2014	15:33	MERIVALE RD btwn WITHROW AVE & RITA AVE	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	04 - Sideswipe	02 - Wet
2014-04-22	2014	11:10	MERIVALE RD btwn WITHROW AVE & RITA AVE	02 - Rain	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	02 - Wet
2014-09-02	2014	11:48	MERIVALE RD btwn WITHROW AVE & RITA AVE	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	01 - Dry
2014-10-13	2014	18:15	MERIVALE RD btwn WITHROW AVE & ROSSLAND AVE	01 - Clear	07 - Dark	10 - No control	03 - P.D. only	04 - Sideswipe	01 - Dry
2015-10-30	2015	13:45	MERIVALE RD btwn WITHROW AVE & ROSSLAND AVE	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	04 - Sideswipe	01 - Dry
2015-02-20	2015	12:15	MERIVALE RD btwn WITHROW AVE & ROSSLAND AVE	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	01 - Dry
2015-04-10	2015	16:24	MERIVALE RD btwn WITHROW AVE & RITA AVE	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	01 - Dry
2015-02-19	2015	11:06	MERIVALE RD btwn WITHROW AVE & ROSSLAND AVE	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	02 - Wet
2016-06-01	2016	14:00	MERIVALE RD btwn WITHROW AVE & ROSSLAND AVE	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	04 - Sideswipe	01 - Dry
2016-06-18	2016	19:26	MERIVALE RD btwn WITHROW AVE & ROSSLAND AVE	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	01 - Dry
2017-09-08	2017	15:04	MERIVALE RD btwn WITHROW AVE & ROSSLAND AVE	01 - Clear	01 - Daylight	10 - No control	02 - Non-fatal injury	02 - Angle	01 - Dry
2018-02-02	2018	10:13	MERIVALE RD btwn WITHROW AVE & ROSSLAND AVE (__3ZA4H5)	01 - Clear	01 - Daylight	10 - No control	02 - Non-fatal injury	03 - Rear end	01 - Dry
2018-11-14	2018	20:01	MERIVALE RD btwn WITHROW AVE & ROSSLAND AVE (__3ZA4H5)	01 - Clear	07 - Dark	10 - No control	03 - P.D. only	03 - Rear end	01 - Dry
2018-11-24	2018	13:07	MERIVALE RD btwn WITHROW AVE & RITA AVE (__3ZBOCB)	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	01 - Dry
2017-01-14	2017	16:40	MERIVALE RD btwn MERIVALE RD & MERIVALE RD	01 - Clear	05 - Dusk	10 - No control	03 - P.D. only	03 - Rear end	01 - Dry
2017-03-01	2017	17:57	MERIVALE RD btwn MERIVALE RD & MERIVALE RD	02 - Rain	05 - Dusk	10 - No control	02 - Non-fatal injury	05 - Turning movement	02 - Wet
2014-02-01	2014	15:57	MERIVALE RD btwn CLYDE AVE & GILBEY DR	03 - Snow	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	03 - Loose snow
2014-12-20	2014	12:27	MERIVALE RD btwn CLYDE AVE & GILBEY DR	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	01 - Dry
2015-08-15	2015	20:12	MERIVALE RD btwn CLYDE AVE & GILBEY DR	01 - Clear	05 - Dusk	10 - No control	03 - P.D. only	04 - Sideswipe	01 - Dry
2015-06-18	2015	16:11	MERIVALE RD btwn CLYDE AVE & GILBEY DR	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	05 - Turning movement	01 - Dry
2015-11-13	2015	12:24	MERIVALE RD btwn CLYDE AVE & GILBEY DR	02 - Rain	01 - Daylight	10 - No control	03 - P.D. only	05 - Turning movement	02 - Wet
2015-12-21	2015	18:46	MERIVALE RD btwn CLYDE AVE & GILBEY DR	02 - Rain	07 - Dark	10 - No control	03 - P.D. only	07 - SMV other	02 - Wet
2016-02-15	2016	12:48	MERIVALE RD btwn CLYDE AVE & GILBEY DR	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	05 - Turning movement	01 - Dry
2016-05-19	2016	15:16	MERIVALE RD btwn CLYDE AVE & GILBEY DR	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	01 - Dry
2017-03-17	2017	20:04	MERIVALE RD btwn CLYDE AVE & GILBEY DR	01 - Clear	07 - Dark	10 - No control	03 - P.D. only	05 - Turning movement	01 - Dry
2017-03-30	2017	13:54	MERIVALE RD btwn CLYDE AVE & GILBEY DR	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	05 - Turning movement	01 - Dry
2017-04-11	2017	14:46	MERIVALE RD btwn CLYDE AVE & GILBEY DR	01 - Clear	01 - Daylight	10 - No control	02 - Non-fatal injury	03 - Rear end	01 - Dry
2018-01-02	2018	14:01	MERIVALE RD btwn CLYDE AVE & GILBEY DR (__3ZA4HD)	03 - Snow	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	06 - Ice
2018-05-27	2018	15:15	MERIVALE RD btwn CLYDE AVE & GILBEY DR (__3ZA4HD)	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	05 - Turning movement	01 - Dry
2018-06-14	2018	18:59	MERIVALE RD btwn CLYDE AVE & GILBEY DR (__3ZA4HD)	02 - Rain	01 - Daylight	10 - No control	03 - P.D. only	05 - Turning movement	02 - Wet
2018-11-12	2018	12:30	MERIVALE RD btwn CLYDE AVE & GILBEY DR (__3ZA4HD)	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	01 - Dry
2018-11-19	2018	18:54	MERIVALE RD btwn CLYDE AVE & GILBEY DR (__3ZA4HD)	03 - Snow	07 - Dark	10 - No control	03 - P.D. only	03 - Rear end	03 - Loose snow
2017-11-24	2017	14:27	LOTTA AVE btwn ST. HELEN'S PL & CLYDE AVE	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	04 - Sideswipe	01 - Dry
2014-07-16	2014	8:35	WITHROW AVE btwn ST. HELEN'S PL & MERIVALE RD	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	01 - Dry
2015-03-23	2015	18:06	WITHROW AVE btwn ST. HELEN'S PL & MERIVALE RD	01 - Clear	05 - Dusk	10 - No control	03 - P.D. only	02 - Angle	01 - Dry
2014-07-26	2014	11:27	CAPILANO DR btwn WITHROW AVE & KERRY CRES	01 - Clear	01 - Daylight	10 - No control	02 - Non-fatal injury	02 - Angle	01 - Dry
2014-11-07	2014	18:28	CAPILANO DR btwn WITHROW AVE & KERRY CRES	01 - Clear	07 - Dark	10 - No control	02 - Non-fatal injury	02 - Angle	01 - Dry
2014-07-23	2014	11:04	CAPILANO DR btwn WITHROW AVE & KERRY CRES	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	02 - Angle	01 - Dry
2015-05-30	2015	17:59	CAPILANO DR btwn WITHROW AVE & KERRY CRES	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	05 - Turning movement	01 - Dry
2016-04-08	2016	16:45	CAPILANO DR btwn WITHROW AVE & KERRY CRES	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	01 - Dry

Appendix E

TRANS Model Plots

CGH TRANSPORTATION



TRANS Regional Model

Version 2.15 - Assigned June 16, 2020

AM Peak Hour Total Traffic Volume

Bronson Ave

2011 Model - Basecase

N/A

User Initials: TIMW
Plot Prepared: October 09, 2020
EMME Scenario: 21711

TRANS

Legend

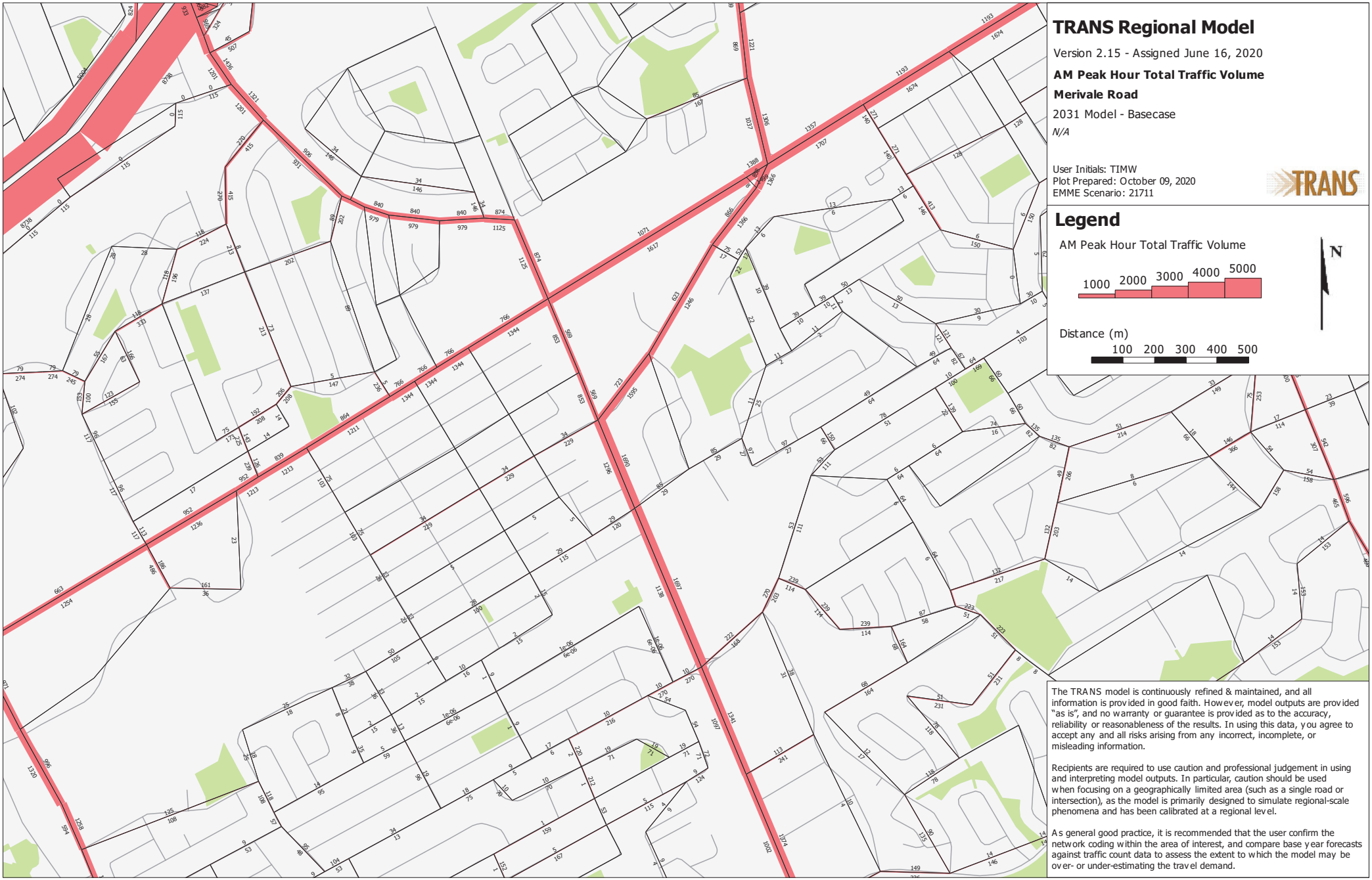
AM Peak Hour Total Traffic Volume

1000 2000 3000 4000 5000

Distance (m)

100 200 300 400 500

N



TRANS Regional Model

Version 2.15 - Assigned June 16, 2020

AM Peak Hour Total Traffic Volume

Merivale Road

2031 Model - Basecase

N/A

User Initials: TIMW
Plot Prepared: October 09, 2020
EMME Scenario: 21711

TRANS

Legend

AM Peak Hour Total Traffic Volume

1000 2000 3000 4000 5000

N

Distance (m)

100 200 300 400 500

The TRANS model is continuously refined & maintained, and all information is provided in good faith. However, model outputs are provided "as is", and no warranty or guarantee is provided as to the accuracy, reliability or reasonableness of the results. In using this data, you agree to accept any and all risks arising from any incorrect, incomplete, or misleading information.

Recipients are required to use caution and professional judgement in using and interpreting model outputs. In particular, caution should be used when focusing on a geographically limited area (such as a single road or intersection), as the model is primarily designed to simulate regional-scale phenomena and has been calibrated at a regional level.

As general good practice, it is recommended that the user confirm the network coding within the area of interest, and compare base year forecasts against traffic count data to assess the extent to which the model may be over- or under-estimating the travel demand.

Appendix F

Background Development Volumes

CGH TRANSPORTATION

Furthermore, the inbound and outbound traffic volumes at site accesses reflect the actual traffic volumes that were anticipated to be generated by the proposed development in Table 9 and Table 11.

Figure 9: Phase 1 Site-Generated Traffic Volumes

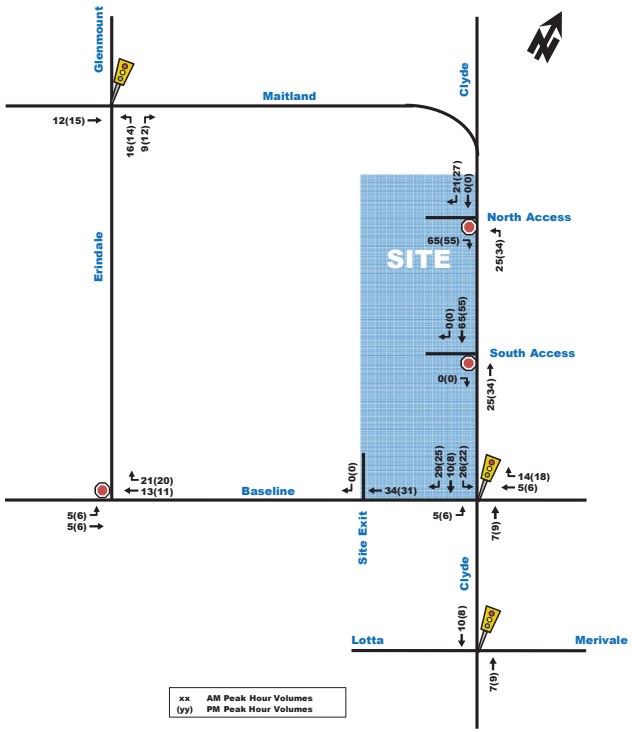


Figure 10: Phase 2 Total Site-Generated Traffic Volumes

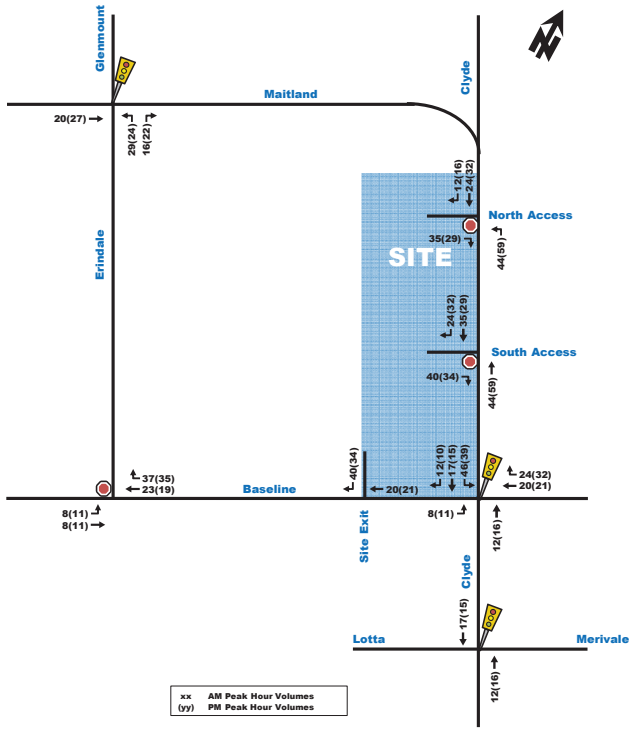


Figure 10 - Site Generated Traffic Volumes – Without Baseline BRT

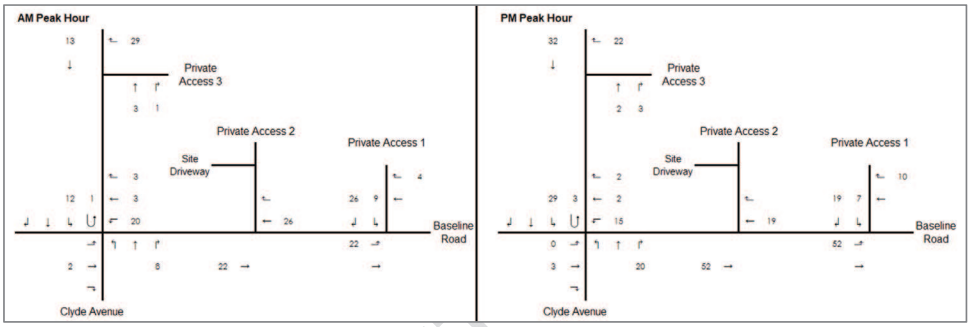
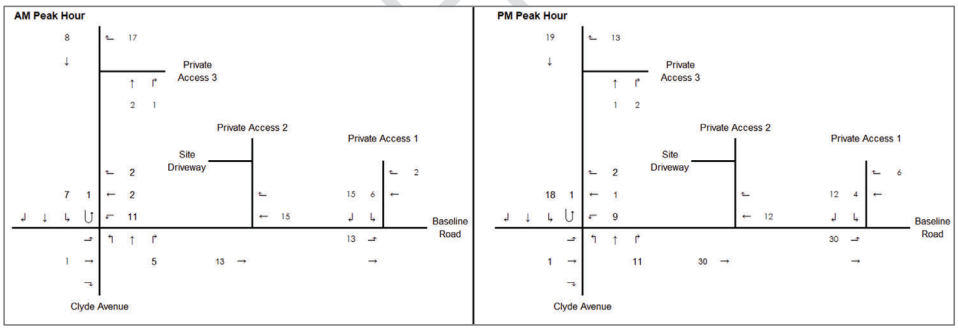


Figure 11 - Site Generated Traffic Volumes - With Baseline BRT



3.4. PROJECTED TRAFFIC VOLUMES

The background traffic volumes were combined with the site traffic to determine the weekday AM, PM, and Saturday peak hour total traffic forecasts. The future total traffic volumes for the 2020, and 2025 horizon years are shown in Figure 9, and Figure 10 respectively.

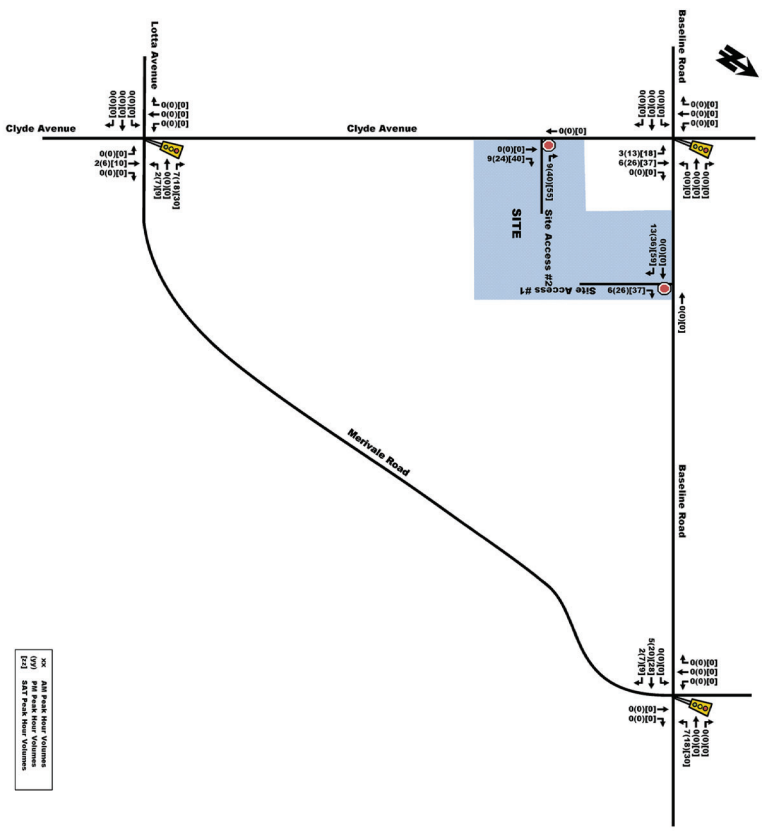


Figure 8: Site Generated Traffic Volumes (Full Build-Out)

Appendix G

Synchro Intersection Worksheets – 2024 Future Background Conditions

CGH TRANSPORTATION

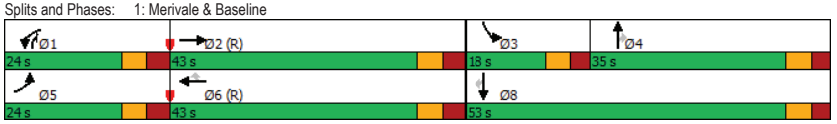
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	222	1018	8	126	908	375	0	645	245	314	328	284
Future Volume (vph)	222	1018	8	126	908	375	0	645	245	314	328	284
Satd. Flow (prot)	1642	3308	0	1595	3283	1483	0	3252	1469	3185	3191	1455
Flt Permitted	0.950			0.950						0.950		
Satd. Flow (perm)	1625	3308	0	1587	3283	1415	0	3252	1379	3076	3191	1395
Satd. Flow (RTOR)		1				210			96			284
Lane Group Flow (vph)	222	1026	0	126	908	375	0	645	245	314	328	284
Turn Type	Prot	NA		Prot	NA	Perm		NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6			4	1	3	8	
Permitted Phases						6			4			8
Detector Phase	5	2		1	6	6		4	1	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0		10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	12.1	41.1		12.1	41.1	41.1		34.6	12.1	11.5	34.6	34.6
Total Split (s)	24.0	43.0		24.0	43.0	43.0		35.0	24.0	18.0	53.0	53.0
Total Split (%)	20.0%	35.8%		20.0%	35.8%	35.8%		29.2%	20.0%	15.0%	44.2%	44.2%
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.4	3.4		3.4	3.4	3.4		2.9	3.4	2.8	2.9	2.9
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.1	7.1		7.1	7.1	7.1		6.6	7.1	6.5	6.6	6.6
Lead/Lag	Lead	Lag		Lead	Lag	Lag		Lag	Lead	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes		Yes	Yes	Yes		
Recall Mode	None	C-Max		None	C-Max	C-Max		None	None	None	None	None
Act Effct Green (s)	17.6	40.3		14.0	36.6	36.6		26.9	40.4	11.5	44.9	44.9
Actuated g/C Ratio	0.15	0.34		0.12	0.30	0.30		0.22	0.34	0.10	0.37	0.37
v/c Ratio	0.92	0.92		0.68	0.91	0.65		0.88	0.46	1.03	0.27	0.41
Control Delay	91.9	53.4		68.9	53.9	21.5		59.8	17.5	112.4	26.6	4.6
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	91.9	53.4		68.9	53.9	21.5		59.8	17.5	112.4	26.6	4.6
LOS	F	D		E	D	C		E	B	F	C	A
Approach Delay		60.3			46.6			48.1			48.9	
Approach LOS		E			D			D			D	
Queue Length 50th (m)	52.7	125.2		28.7	108.8	33.4		76.5	22.8	~40.7	27.4	0.0
Queue Length 95th (m)	#100.2	#178.4		48.0	#147.0	67.9		#103.7	41.6	#69.3	38.5	16.7
Internal Link Dist (m)		323.1			324.6			263.9			243.9	
Turn Bay Length (m)	115.0			200.0		40.0			115.0	105.0		50.0
Base Capacity (vph)	241	1111		224	1002	577		769	571	305	1233	713
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	0
Reduced v/c Ratio	0.92	0.92		0.56	0.91	0.65		0.84	0.43	1.03	0.27	0.40

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 45 (38%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.03
Intersection Signal Delay: 51.2 — Intersection LOS: D
Intersection Capacity Utilization 95.6% — 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: Merivale & Baseline



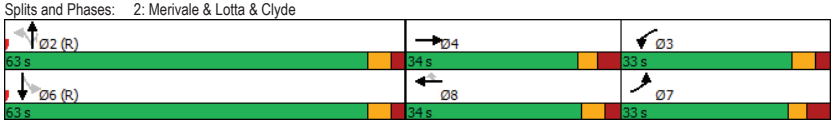
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	74	22	365	42	73	37	844	836	27	612	14
Future Volume (vph)	25	74	22	365	42	73	37	844	836	27	612	14
Satd. Flow (prot)	1626	1663	0	3154	1695	1469	1658	3316	1469	1658	3298	0
Flt Permitted	0.950			0.950			0.377			0.277		
Satd. Flow (perm)	1619	1663	0	3114	1695	1445	650	3316	1435	482	3298	0
Satd. Flow (RTOR)		10				82			836		2	
Lane Group Flow (vph)	25	96	0	365	42	73	37	844	836	27	626	0
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases						8	2		2	6		
Detector Phase	7	4		3	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	11.8	33.8		11.2	33.2	33.2	30.0	30.0	30.0	30.0	30.0	
Total Split (s)	33.0	34.0		33.0	34.0	34.0	63.0	63.0	63.0	63.0	63.0	
Total Split (%)	25.4%	26.2%		25.4%	26.2%	26.2%	48.5%	48.5%	48.5%	48.5%	48.5%	
Yellow Time (s)	3.0	3.0		3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	3.8	3.8		2.5	2.5	2.5	2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.2	6.2	6.2	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lag	Lead		Lag	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Recall Mode	None	None		None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)	17.2	14.7		20.2	22.7	22.7	76.1	76.1	76.1	76.1	76.1	
Actuated g/C Ratio	0.13	0.11		0.16	0.17	0.17	0.59	0.59	0.59	0.59	0.59	
v/c Ratio	0.12	0.49		0.74	0.14	0.23	0.10	0.44	0.70	0.10	0.32	
Control Delay	45.9	55.2		61.8	49.9	9.6	7.2	8.8	9.2	17.0	15.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	
Total Delay	45.9	55.2		61.8	49.9	9.6	7.2	8.8	10.5	17.0	15.9	
LOS	D	E		E	D	A	A	A	B	B	B	
Approach Delay		53.3			52.8			9.6			15.9	
Approach LOS		D			D			A			B	
Queue Length 50th (m)	5.4	21.4		46.5	10.4	0.0	1.7	33.5	111.3	2.8	38.8	
Queue Length 95th (m)	13.2	34.6		60.3	19.0	10.6	m2.2	31.7	258.1	10.4	71.4	
Internal Link Dist (m)		153.9			65.4			272.8			356.1	
Turn Bay Length (m)	35.0						30.0			40.0		
Base Capacity (vph)	328	355		650	391	396	380	1940	1186	282	1931	
Starvation Cap Reductn	0	0		0	0	0	0	0	168	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.08	0.27		0.56	0.11	0.18	0.10	0.44	0.82	0.10	0.32	

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 9 (7%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74
Intersection Signal Delay: 19.8 — Intersection LOS: B
Intersection Capacity Utilization 91.7% — ICU Level of Service F
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Merivale & Lotta & Clyde

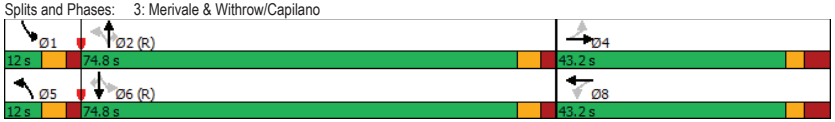


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	16	20	27	10	35	22	1618	38	30	972	5
Future Volume (vph)	38	16	20	27	10	35	22	1618	38	30	972	5
Satd. Flow (prot)	1658	1560	0	1658	1515	0	1658	3283	1388	1658	3316	1483
Flt Permitted	0.728			0.734			0.269			0.110		
Satd. Flow (perm)	1270	1560	0	1276	1515	0	469	3283	1346	192	3316	1440
Satd. Flow (RTOR)		20			35				86			86
Lane Group Flow (vph)	38	36	0	27	45	0	22	1618	38	30	972	5
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	43.2	43.2		43.2	43.2		11.1	33.1	33.1	11.1	33.1	33.1
Total Split (s)	43.2	43.2		43.2	43.2		12.0	74.8	74.8	12.0	74.8	74.8
Total Split (%)	33.2%	33.2%		33.2%	33.2%		9.2%	57.5%	57.5%	9.2%	57.5%	57.5%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	4.2	4.2		4.2	4.2		2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.2	7.2		7.2	7.2		6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	15.4	15.4		15.4	15.4		101.0	98.7	98.7	101.1	98.8	98.8
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.78	0.76	0.76	0.78	0.76	0.76
v/c Ratio	0.25	0.18		0.18	0.21		0.05	0.65	0.04	0.14	0.39	0.00
Control Delay	52.4	27.5		50.0	20.6		6.0	14.0	0.1	4.3	4.0	0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.4	27.5		50.0	20.6		6.0	14.0	0.1	4.3	4.0	0.0
LOS	D	C		D	C		A	B	A	A	A	A
Approach Delay		40.3			31.6			13.5			4.0	
Approach LOS		D			C			B			A	
Queue Length 50th (m)	9.4	3.9		6.6	2.4		0.8	104.0	0.0	0.7	19.5	0.0
Queue Length 95th (m)	16.3	11.4		12.7	11.2		5.4	#252.5	0.0	m2.8	26.1	m0.0
Internal Link Dist (m)		360.6			176.8			203.0			272.8	
Turn Bay Length (m)	20.0			25.0			20.0		10.0	30.0		
Base Capacity (vph)	351	446		353	444		418	2493	1042	216	2519	1114
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	16	0		0	19		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.08		0.08	0.11		0.05	0.65	0.04	0.14	0.39	0.00

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 116 (89%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65
Intersection Signal Delay: 11.3 — Intersection LOS: B
Intersection Capacity Utilization 69.8% — 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Merivale & Withrow/Capilano

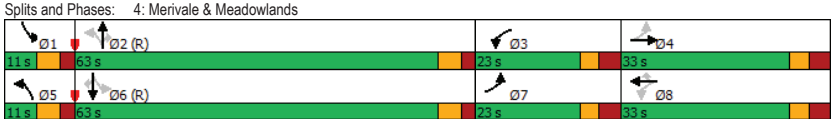


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	343	395	122	83	236	195	92	1198	85	96	777	113
Future Volume (vph)	343	395	122	83	236	195	92	1198	85	96	777	113
Satd. Flow (prot)	1658	3155	0	1626	3252	1441	1610	3252	1363	1642	3283	1483
Flt Permitted	0.410			0.321			0.279			0.118		
Satd. Flow (perm)	707	3155	0	547	3252	1396	471	3252	1321	204	3283	1436
Satd. Flow (RTOR)		28				130			134			134
Lane Group Flow (vph)	343	517	0	83	236	195	92	1198	85	96	777	113
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.5	30.5		11.5	30.5	30.5	11.0	38.0	38.0	11.0	38.0	38.0
Total Split (s)	23.0	33.0		23.0	33.0	33.0	11.0	63.0	63.0	11.0	63.0	63.0
Total Split (%)	17.7%	25.4%		17.7%	25.4%	25.4%	8.5%	48.5%	48.5%	8.5%	48.5%	48.5%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.5	3.5		3.5	3.5	3.5	2.3	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	6.5	6.5	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	40.9	25.2		29.0	18.9	18.9	69.3	62.0	62.0	70.0	62.4	62.4
Actuated g/C Ratio	0.31	0.19		0.22	0.15	0.15	0.53	0.48	0.48	0.54	0.48	0.48
v/c Ratio	1.00	0.81		0.40	0.50	0.62	0.29	0.77	0.12	0.49	0.49	0.15
Control Delay	88.8	58.1		36.4	53.8	26.5	16.7	33.4	1.0	24.9	25.3	2.6
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	88.8	58.1		36.4	53.8	26.5	16.7	33.4	1.0	24.9	25.3	2.6
LOS	F	E		D	D	C	B	C	A	C	C	A
Approach Delay		70.3			40.6			30.3			22.7	
Approach LOS		E			D			C			C	
Queue Length 50th (m)	74.8	63.8		15.1	29.6	15.1	10.0	134.8	0.0	10.5	71.7	0.0
Queue Length 95th (m)	#98.1	80.7		25.2	40.0	37.8	20.7	171.4	2.2	#24.3	94.6	7.5
Internal Link Dist (m)		444.5			230.0			176.3			262.1	
Turn Bay Length (m)	100.0			120.0		100.0	85.0		90.0	135.0		165.0
Base Capacity (vph)	342	687		285	662	388	314	1551	700	194	1575	758
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	1.00	0.75		0.29	0.36	0.50	0.29	0.77	0.12	0.49	0.49	0.15

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 115 (88%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.00
Intersection Signal Delay: 38.9 Intersection LOS: D
Intersection Capacity Utilization 93.1% 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: 4: Merivale & Meadowlands



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	243	1006	19	326	1152	204	0	478	240	356	753	378
Future Volume (vph)	243	1006	19	326	1152	204	0	478	240	356	753	378
Satd. Flow (prot)	1658	3304	0	1658	3316	1483	0	3316	1483	3216	3316	1483
Flt Permitted	0.950			0.950						0.950		
Satd. Flow (perm)	1645	3304	0	1648	3316	1412	0	3316	1380	3055	3316	1415
Satd. Flow (RTOR)		2				134			83			284
Lane Group Flow (vph)	243	1025	0	326	1152	204	0	478	240	356	753	378
Turn Type	Prot	NA		Prot	NA	Perm		NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6			4	1	3	8	
Permitted Phases						6			4			8
Detector Phase	5	2		1	6	6		4	1	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0		10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	12.1	41.1		12.1	41.1	41.1		34.6	12.1	11.5	34.6	34.6
Total Split (s)	25.0	60.0		25.0	60.0	60.0		35.0	25.0	20.0	55.0	55.0
Total Split (%)	17.9%	42.9%		17.9%	42.9%	42.9%		25.0%	17.9%	14.3%	39.3%	39.3%
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.4	3.4		3.4	3.4	3.4		2.9	3.4	2.8	2.9	2.9
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.1	7.1		7.1	7.1	7.1		6.6	7.1	6.5	6.6	6.6
Lead/Lag	Lead	Lag		Lead	Lag	Lag		Lag	Lead	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes		Yes	Yes	Yes		
Recall Mode	None	C-Max		None	C-Max	C-Max		None	None	None	None	None
Act Effct Green (s)	20.9	52.9		20.9	52.9	52.9		25.4	45.8	13.5	45.4	45.4
Actuated g/C Ratio	0.15	0.38		0.15	0.38	0.38		0.18	0.33	0.10	0.32	0.32
v/c Ratio	0.98	0.82		1.32	0.92	0.33		0.80	0.46	1.15	0.70	0.58
Control Delay	111.4	45.8		213.4	54.1	12.4		65.1	23.8	151.9	45.1	13.2
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	111.4	45.8		213.4	54.1	12.4		65.1	23.8	151.9	45.1	13.2
LOS	F	D		F	D	B		E	C	F	D	B
Approach Delay		58.3			79.9			51.3			62.5	
Approach LOS		E			E			D			E	
Queue Length 50th (m)	~77.3	133.5		~125.0	159.1	12.6		65.7	30.9	~59.4	93.1	18.5
Queue Length 95th (m)	#132.1	161.5		#185.5	#201.2	31.7		84.8	53.6	#90.8	114.5	50.2
Internal Link Dist (m)		323.1			324.6			263.9			243.9	
Turn Bay Length (m)	115.0			200.0		40.0			115.0	105.0		50.0
Base Capacity (vph)	247	1249		247	1252	616		672	522	310	1146	675
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	0
Reduced v/c Ratio	0.98	0.82		1.32	0.92	0.33		0.71	0.46	1.15	0.66	0.56

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 19 (14%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.32

Intersection Signal Delay: 65.6	Intersection LOS: E
Intersection Capacity Utilization 103.3%	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: Merivale & Baseline

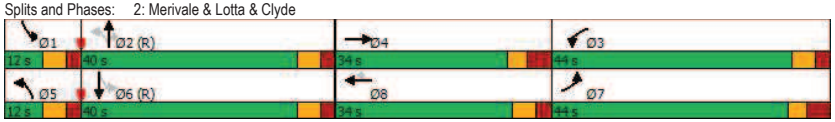
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	48	42	895	120	171	82	926	656	74	860	27
Future Volume (vph)	35	48	42	895	120	171	82	926	656	74	860	27
Satd. Flow (prot)	1658	1604	0	3216	1745	1469	1658	3316	1483	1658	3293	0
Flt Permitted	0.950			0.950			0.107			0.109		
Satd. Flow (perm)	1650	1604	0	3179	1745	1443	187	3316	1414	190	3293	0
Satd. Flow (RTOR)		31				171			556		2	
Lane Group Flow (vph)	35	90	0	895	120	171	82	926	656	74	887	0
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		
Detector Phase	7	4		3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.8	33.8		11.2	33.2	33.2	11.0	30.0	30.0	11.0	30.0	
Total Split (s)	44.0	34.0		44.0	34.0	34.0	12.0	40.0	40.0	12.0	40.0	
Total Split (%)	33.8%	26.2%		33.8%	26.2%	26.2%	9.2%	30.8%	30.8%	9.2%	30.8%	
Yellow Time (s)	3.0	3.0		3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	3.8	3.8		2.5	2.5	2.5	2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.2	6.2	6.2	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lag	Lead		Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Act Effct Green (s)	26.1	13.9		40.7	33.8	33.8	51.9	45.0	45.0	49.9	42.1	
Actuated g/C Ratio	0.20	0.11		0.31	0.26	0.26	0.40	0.35	0.35	0.38	0.32	
v/c Ratio	0.11	0.45		0.89	0.26	0.34	0.49	0.81	0.77	0.46	0.83	
Control Delay	36.3	41.6		54.1	45.8	8.5	38.8	40.1	13.7	35.2	49.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	36.3	41.6		54.1	45.8	8.5	38.8	40.1	13.7	35.2	49.4	
LOS	D	D		D	D	A	D	D	B	D	D	
Approach Delay		40.1			46.7			29.6			48.3	
Approach LOS		D			D			C			D	
Queue Length 50th (m)	6.4	14.7		108.9	29.9	0.0	5.9	117.1	81.8	10.9	110.3	
Queue Length 95th (m)	14.7	27.7		#156.0	44.7	18.5	m18.1	#175.8	#62.9	#25.7	#168.4	
Internal Link Dist (m)		153.9			65.4			272.8			356.1	
Turn Bay Length (m)	35.0						30.0			40.0		
Base Capacity (vph)	490	360		1015	522	551	167	1147	853	161	1068	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.07	0.25		0.88	0.23	0.31	0.49	0.81	0.77	0.46	0.83	

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 98 (75%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89
Intersection Signal Delay: 39.7 — Intersection LOS: D
Intersection Capacity Utilization 80.1% — ICU Level of Service D
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Merivale & Lotta & Clyde



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	8	28	64	14	56	41	1594	30	64	1694	21
Future Volume (vph)	34	8	28	64	14	56	41	1594	30	64	1694	21
Satd. Flow (prot)	1658	1494	0	1658	1512	0	1658	3316	1483	1658	3316	1483
Flt Permitted	0.711			0.734			0.079			0.096		
Satd. Flow (perm)	1232	1494	0	1270	1512	0	138	3316	1391	168	3316	1399
Satd. Flow (RTOR)		28			56				86			86
Lane Group Flow (vph)	34	36	0	64	70	0	41	1594	30	64	1694	21
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	43.2	43.2		43.2	43.2		11.1	33.1	33.1	11.1	33.1	33.1
Total Split (s)	43.2	43.2		43.2	43.2		12.0	74.8	74.8	12.0	74.8	74.8
Total Split (%)	33.2%	33.2%		33.2%	33.2%		9.2%	57.5%	57.5%	9.2%	57.5%	57.5%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	4.2	4.2		4.2	4.2		2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.2	7.2		7.2	7.2		6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	20.8	20.8		20.8	20.8		90.9	86.2	86.2	91.2	86.3	86.3
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.70	0.66	0.66	0.70	0.66	0.66
v/c Ratio	0.17	0.14		0.32	0.24		0.25	0.73	0.03	0.34	0.77	0.02
Control Delay	43.6	17.3		48.2	15.0		11.4	20.4	0.1	10.0	13.6	0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.6	17.3		48.2	15.0		11.4	20.4	0.1	10.0	13.6	0.0
LOS	D	B		D	B		B	C	A	A	B	A
Approach Delay		30.1			30.9			19.8			13.3	
Approach LOS		C			C			B			B	
Queue Length 50th (m)	8.3	1.9		16.0	3.4		1.7	108.4	0.0	0.6	126.0	0.0
Queue Length 95th (m)	15.0	9.8		24.6	14.0		8.3	226.6	0.0	m1.9	#265.4	m0.0
Internal Link Dist (m)		360.6			176.8			203.0			272.8	
Turn Bay Length (m)	20.0			25.0			20.0		10.0	30.0		
Base Capacity (vph)	341	433		351	459		166	2197	950	187	2201	957
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.08		0.18	0.15		0.25	0.73	0.03	0.34	0.77	0.02

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 76 (58%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77
Intersection Signal Delay: 17.2 — Intersection LOS: B
Intersection Capacity Utilization 81.7% — 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: 3: Merivale & Withrow/Capilano

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	183	319	154	184	512	183	195	1282	102	234	1185	307
Future Volume (vph)	183	319	154	184	512	183	195	1282	102	234	1185	307
Satd. Flow (prot)	1658	3075	0	1658	3283	1483	1658	3316	1483	1658	3316	1483
Flt Permitted	0.218			0.264			0.114			0.069		
Satd. Flow (perm)	375	3075	0	451	3283	1402	198	3316	1354	120	3316	1381
Satd. Flow (RTOR)		55				183			134			307
Lane Group Flow (vph)	183	473	0	184	512	183	195	1282	102	234	1185	307
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.5	30.5		11.5	30.5	30.5	11.0	38.0	38.0	11.0	38.0	38.0
Total Split (s)	19.0	31.0		19.0	31.0	31.0	17.0	59.0	59.0	21.0	63.0	63.0
Total Split (%)	14.6%	23.8%		14.6%	23.8%	23.8%	13.1%	45.4%	45.4%	16.2%	48.5%	48.5%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.5	3.5		3.5	3.5	3.5	2.3	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	6.5	6.5	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	35.8	23.4		35.6	23.3	23.3	65.2	53.8	53.8	73.3	57.8	57.8
Actuated g/C Ratio	0.28	0.18		0.27	0.18	0.18	0.50	0.41	0.41	0.56	0.44	0.44
v/c Ratio	0.81	0.79		0.78	0.87	0.46	0.86	0.94	0.16	0.94	0.80	0.39
Control Delay	61.6	55.2		56.7	67.9	10.1	57.1	50.0	2.2	78.5	36.6	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
Total Delay	61.6	55.2		56.7	67.9	10.1	57.1	50.0	2.2	78.5	36.6	3.9
LOS	E	E		E	E	B	E	D	A	E	D	A
Approach Delay		57.0			53.5			47.8			36.5	
Approach LOS		E			D			D			D	
Queue Length 50th (m)	35.0	54.1		35.2	67.0	0.0	27.2	165.0	0.0	45.9	137.2	0.0
Queue Length 95th (m)	#63.0	73.5		#56.0	#91.7	19.8	#70.7	#212.0	5.6	#96.5	166.3	16.3
Internal Link Dist (m)		444.5			230.0			176.3			262.1	
Turn Bay Length (m)	100.0			120.0		100.0	85.0		90.0	135.0		165.0
Base Capacity (vph)	227	624		240	618	412	228	1371	638	250	1475	784
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	0.81	0.76		0.77	0.83	0.44	0.86	0.94	0.16	0.94	0.80	0.39

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 61 (47%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94
Intersection Signal Delay: 46.0 — Intersection LOS: D
Intersection Capacity Utilization 101.1% — ICU Level of Service G
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Merivale & Meadowlands

Appendix H

Synchro Intersection Worksheets – 2029 Future Background Conditions

CGH TRANSPORTATION

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	222	1018	8	130	919	375	0	652	254	314	332	284
Future Volume (vph)	222	1018	8	130	919	375	0	652	254	314	332	284
Satd. Flow (prot)	1642	3308	0	1595	3283	1483	0	3252	1469	3185	3191	1455
Flt Permitted	0.950			0.950						0.950		
Satd. Flow (perm)	1626	3308	0	1587	3283	1415	0	3252	1379	3077	3191	1395
Satd. Flow (RTOR)		1				208			96			284
Lane Group Flow (vph)	222	1026	0	130	919	375	0	652	254	314	332	284
Turn Type	Prot	NA		Prot	NA	Perm		NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6			4	1	3	8	
Permitted Phases						6			4			8
Detector Phase	5	2		1	6	6		4	1	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0		10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	12.1	41.1		12.1	41.1	41.1		34.6	12.1	11.5	34.6	34.6
Total Split (s)	24.0	43.0		24.0	43.0	43.0		35.0	24.0	18.0	53.0	53.0
Total Split (%)	20.0%	35.8%		20.0%	35.8%	35.8%		29.2%	20.0%	15.0%	44.2%	44.2%
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.4	3.4		3.4	3.4	3.4		2.9	3.4	2.8	2.9	2.9
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.1	7.1		7.1	7.1	7.1		6.6	7.1	6.5	6.6	6.6
Lead/Lag	Lead	Lag		Lead	Lag	Lag		Lag	Lead	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes		Yes	Yes	Yes		
Recall Mode	None	C-Max		None	C-Max	C-Max		None	None	None	None	None
Act Effct Green (s)	17.6	40.0		14.1	36.6	36.6		27.1	40.7	11.5	45.1	45.1
Actuated g/C Ratio	0.15	0.33		0.12	0.30	0.30		0.23	0.34	0.10	0.38	0.38
v/c Ratio	0.93	0.93		0.70	0.92	0.65		0.89	0.47	1.03	0.28	0.41
Control Delay	92.7	54.4		69.9	55.5	21.7		60.3	18.1	112.4	26.6	4.6
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	92.7	54.4		69.9	55.5	21.7		60.3	18.1	112.4	26.6	4.6
LOS	F	D		E	E	C		E	B	F	C	A
Approach Delay		61.2			47.9			48.5			48.8	
Approach LOS		E			D			D			D	
Queue Length 50th (m)	52.7	125.8		29.6	110.7	33.9		77.5	24.4	~40.7	27.8	0.0
Queue Length 95th (m)	#100.2	#178.4		49.6	#150.0	68.5		#105.5	43.8	#69.3	38.9	16.7
Internal Link Dist (m)		323.1			324.6			263.9			243.9	
Turn Bay Length (m)	115.0			200.0		40.0			115.0	105.0		50.0
Base Capacity (vph)	240	1104		224	1000	576		769	573	305	1233	713
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	0
Reduced v/c Ratio	0.93	0.93		0.58	0.92	0.65		0.85	0.44	1.03	0.27	0.40

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 45 (38%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 51.9	Intersection LOS: D
Intersection Capacity Utilization 95.7%	ICU Level of Service F
Analysis Period (min) 15	

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

Splits and Phases: 1: Merivale & Baseline

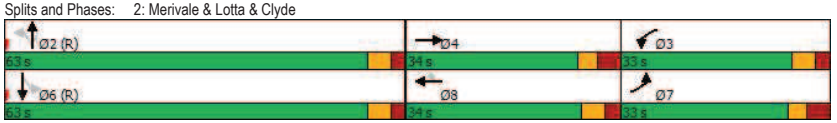
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	74	22	372	47	87	38	936	839	34	619	14
Future Volume (vph)	25	74	22	372	47	87	38	936	839	34	619	14
Satd. Flow (prot)	1626	1663	0	3154	1695	1469	1658	3316	1469	1658	3298	0
Flt Permitted	0.950			0.950			0.373			0.241		
Satd. Flow (perm)	1619	1663	0	3114	1695	1445	644	3316	1435	420	3298	0
Satd. Flow (RTOR)		10				87			839		2	
Lane Group Flow (vph)	25	96	0	372	47	87	38	936	839	34	633	0
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases						8	2		2	6		
Detector Phase	7	4		3	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	11.8	33.8		11.2	33.2	33.2	30.0	30.0	30.0	30.0	30.0	
Total Split (s)	33.0	34.0		33.0	34.0	34.0	63.0	63.0	63.0	63.0	63.0	
Total Split (%)	25.4%	26.2%		25.4%	26.2%	26.2%	48.5%	48.5%	48.5%	48.5%	48.5%	
Yellow Time (s)	3.0	3.0		3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	3.8	3.8		2.5	2.5	2.5	2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.2	6.2	6.2	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lag	Lead		Lag	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Recall Mode	None	None		None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)	17.3	14.7		20.5	22.9	22.9	75.8	75.8	75.8	75.8	75.8	
Actuated g/C Ratio	0.13	0.11		0.16	0.18	0.18	0.58	0.58	0.58	0.58	0.58	
v/c Ratio	0.12	0.49		0.75	0.16	0.27	0.10	0.48	0.71	0.14	0.33	
Control Delay	45.8	55.2		61.7	50.0	11.5	7.5	9.6	8.9	18.1	16.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	
Total Delay	45.8	55.2		61.7	50.0	11.5	7.5	9.6	10.2	18.1	16.1	
LOS	D	E		E	D	B	A	A	B	B	B	
Approach Delay		53.3			52.0			9.8			16.2	
Approach LOS		D			D			A			B	
Queue Length 50th (m)	5.4	21.4		47.5	11.7	0.0	1.8	41.3	108.7	3.6	39.5	
Queue Length 95th (m)	13.2	34.6		61.2	20.6	13.7	m2.2	43.8	255.8	12.9	72.6	
Internal Link Dist (m)		153.9			65.4			272.8			356.1	
Turn Bay Length (m)	35.0						30.0			40.0		
Base Capacity (vph)	328	355		650	392	401	375	1934	1186	244	1924	
Starvation Cap Reductn	0	0		0	0	0	0	0	163	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.08	0.27		0.57	0.12	0.22	0.10	0.48	0.82	0.14	0.33	

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 9 (7%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75
Intersection Signal Delay: 19.7 — Intersection LOS: B
Intersection Capacity Utilization 91.9% — ICU Level of Service F
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Merivale & Lotta & Clyde



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	16	20	27	10	35	24	1666	42	33	986	6
Future Volume (vph)	38	16	20	27	10	35	24	1666	42	33	986	6
Satd. Flow (prot)	1658	1560	0	1658	1515	0	1658	3283	1388	1658	3316	1483
Flt Permitted	0.728			0.734			0.264			0.102		
Satd. Flow (perm)	1270	1560	0	1276	1515	0	460	3283	1346	178	3316	1440
Satd. Flow (RTOR)		20			35				86			86
Lane Group Flow (vph)	38	36	0	27	45	0	24	1666	42	33	986	6
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	43.2	43.2		43.2	43.2		11.1	33.1	33.1	11.1	33.1	33.1
Total Split (s)	43.2	43.2		43.2	43.2		12.0	74.8	74.8	12.0	74.8	74.8
Total Split (%)	33.2%	33.2%		33.2%	33.2%		9.2%	57.5%	57.5%	9.2%	57.5%	57.5%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	4.2	4.2		4.2	4.2		2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.2	7.2		7.2	7.2		6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	15.4	15.4		15.4	15.4		101.0	98.7	98.7	101.1	98.8	98.8
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.78	0.76	0.76	0.78	0.76	0.76
v/c Ratio	0.25	0.18		0.18	0.21		0.06	0.67	0.04	0.16	0.39	0.01
Control Delay	52.4	27.5		50.0	20.6		5.9	14.4	0.1	4.6	4.0	0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.4	27.5		50.0	20.6		5.9	14.4	0.1	4.6	4.0	0.0
LOS	D	C		D	C		A	B	A	A	A	A
Approach Delay		40.3			31.6			13.9			4.0	
Approach LOS		D			C			B			A	
Queue Length 50th (m)	9.4	3.9		6.6	2.4		0.9	110.2	0.0	0.7	19.8	0.0
Queue Length 95th (m)	16.3	11.4		12.7	11.2		5.6	#266.0	0.3	m3.0	26.5	m0.0
Internal Link Dist (m)		360.6			176.8			203.0			272.8	
Turn Bay Length (m)	20.0			25.0			20.0		10.0	30.0		
Base Capacity (vph)	351	446		353	444		412	2492	1042	206	2519	1114
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	15	0		0	18		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.08		0.08	0.11		0.06	0.67	0.04	0.16	0.39	0.01

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 116 (89%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67
Intersection Signal Delay: 11.5 — Intersection LOS: B
Intersection Capacity Utilization 71.2% — 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: Merivale & Withrow/Capilano

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	361	416	122	83	248	195	92	1236	85	96	791	113
Future Volume (vph)	361	416	122	83	248	195	92	1236	85	96	791	113
Satd. Flow (prot)	1658	3159	0	1626	3252	1441	1610	3252	1363	1642	3283	1483
Flt Permitted	0.402			0.302			0.272			0.104		
Satd. Flow (perm)	694	3159	0	515	3252	1396	459	3252	1321	180	3283	1436
Satd. Flow (RTOR)		26				130			134			134
Lane Group Flow (vph)	361	538	0	83	248	195	92	1236	85	96	791	113
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.5	30.5		11.5	30.5	30.5	11.0	38.0	38.0	11.0	38.0	38.0
Total Split (s)	23.0	33.0		23.0	33.0	33.0	11.0	63.0	63.0	11.0	63.0	63.0
Total Split (%)	17.7%	25.4%		17.7%	25.4%	25.4%	8.5%	48.5%	48.5%	8.5%	48.5%	48.5%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.5	3.5		3.5	3.5	3.5	2.3	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	6.5	6.5	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	41.6	26.0		29.6	19.5	19.5	68.4	61.4	61.4	69.5	61.9	61.9
Actuated g/C Ratio	0.32	0.20		0.23	0.15	0.15	0.53	0.47	0.47	0.53	0.48	0.48
v/c Ratio	1.05	0.83		0.41	0.51	0.61	0.30	0.81	0.12	0.53	0.51	0.15
Control Delay	100.5	58.6		36.2	53.5	25.7	17.2	35.3	1.0	27.6	25.8	2.6
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	100.5	58.6		36.2	53.5	25.7	17.2	35.3	1.0	27.6	25.8	2.6
LOS	F	E		D	D	C	B	D	A	C	C	A
Approach Delay		75.4			40.5			32.0			23.4	
Approach LOS		E			D			C			C	
Queue Length 50th (m)	~81.8	66.6		15.0	31.0	15.0	10.2	144.8	0.0	10.7	74.5	0.0
Queue Length 95th (m)	#110.2	84.5		25.2	41.9	37.8	20.7	179.9	2.2	#27.2	96.7	7.5
Internal Link Dist (m)		444.5			230.0			176.3			262.1	
Turn Bay Length (m)	100.0			120.0		100.0	85.0		90.0	135.0		165.0
Base Capacity (vph)	344	691		283	662	388	304	1534	694	181	1562	753
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	1.05	0.78		0.29	0.37	0.50	0.30	0.81	0.12	0.53	0.51	0.15

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 115 (88%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.05
Intersection Signal Delay: 41.1 — Intersection LOS: D
Intersection Capacity Utilization 95.3% — 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: 4: Merivale & Meadowlands

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	243	1018	19	335	1152	204	0	483	247	356	760	378
Future Volume (vph)	243	1018	19	335	1152	204	0	483	247	356	760	378
Satd. Flow (prot)	1658	3304	0	1658	3316	1483	0	3316	1483	3216	3316	1483
Flt Permitted	0.950			0.950						0.950		
Satd. Flow (perm)	1646	3304	0	1648	3316	1412	0	3316	1380	3056	3316	1415
Satd. Flow (RTOR)		1				134			83			281
Lane Group Flow (vph)	243	1037	0	335	1152	204	0	483	247	356	760	378
Turn Type	Prot	NA		Prot	NA	Perm		NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6			4	1	3	8	
Permitted Phases						6			4			8
Detector Phase	5	2		1	6	6		4	1	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0		10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	12.1	41.1		12.1	41.1	41.1		34.6	12.1	11.5	34.6	34.6
Total Split (s)	25.0	60.0		25.0	60.0	60.0		35.0	25.0	20.0	55.0	55.0
Total Split (%)	17.9%	42.9%		17.9%	42.9%	42.9%		25.0%	17.9%	14.3%	39.3%	39.3%
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.4	3.4		3.4	3.4	3.4		2.9	3.4	2.8	2.9	2.9
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.1	7.1		7.1	7.1	7.1		6.6	7.1	6.5	6.6	6.6
Lead/Lag	Lead	Lag		Lead	Lag	Lag		Lag	Lead	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes		Yes	Yes	Yes		
Recall Mode	None	C-Max		None	C-Max	C-Max		None	None	None	None	None
Act Effct Green (s)	20.9	52.9		20.9	52.9	52.9		25.4	45.8	13.5	45.4	45.4
Actuated g/C Ratio	0.15	0.38		0.15	0.38	0.38		0.18	0.33	0.10	0.32	0.32
v/c Ratio	0.98	0.83		1.36	0.92	0.33		0.80	0.47	1.15	0.71	0.58
Control Delay	112.3	46.4		228.9	54.1	12.4		65.5	24.4	151.9	45.2	13.5
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	112.3	46.4		228.9	54.1	12.4		65.5	24.4	151.9	45.2	13.5
LOS	F	D		F	D	B		E	C	F	D	B
Approach Delay		58.9			83.7			51.6			62.6	
Approach LOS		E			F			D			E	
Queue Length 50th (m)	~77.3	136.1		~130.2	159.1	12.6		66.5	32.4	~59.4	94.2	19.2
Queue Length 95th (m)	#132.1	164.2		#191.3	#201.2	31.7		85.8	55.7	#90.8	115.8	51.1
Internal Link Dist (m)		323.1			324.6			263.9			243.9	
Turn Bay Length (m)	115.0			200.0		40.0			115.0	105.0		50.0
Base Capacity (vph)	247	1249		247	1252	616		672	522	310	1146	673
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	0
Reduced v/c Ratio	0.98	0.83		1.36	0.92	0.33		0.72	0.47	1.15	0.66	0.56

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 19 (14%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.36
Intersection Signal Delay: 67.0 — Intersection LOS: E
Intersection Capacity Utilization 104.3% — 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.

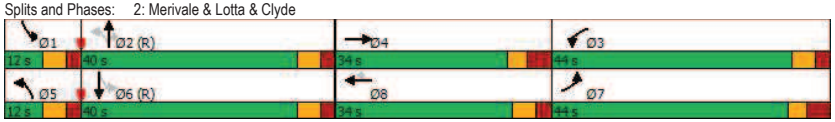
Splits and Phases: 1: Merivale & Baseline

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	53	47	900	120	180	82	933	663	87	955	27
Future Volume (vph)	38	53	47	900	120	180	82	933	663	87	955	27
Satd. Flow (prot)	1658	1602	0	3216	1745	1469	1658	3316	1483	1658	3297	0
Flt Permitted	0.950			0.950			0.101			0.100		
Satd. Flow (perm)	1650	1602	0	3180	1745	1443	176	3316	1414	175	3297	0
Satd. Flow (RTOR)		31				180			557		2	
Lane Group Flow (vph)	38	100	0	900	120	180	82	933	663	87	982	0
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		
Detector Phase	7	4		3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.8	33.8		11.2	33.2	33.2	11.0	30.0	30.0	11.0	30.0	
Total Split (s)	44.0	34.0		44.0	34.0	34.0	12.0	40.0	40.0	12.0	40.0	
Total Split (%)	33.8%	26.2%		33.8%	26.2%	26.2%	9.2%	30.8%	30.8%	9.2%	30.8%	
Yellow Time (s)	3.0	3.0		3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	3.8	3.8		2.5	2.5	2.5	2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.2	6.2	6.2	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lag	Lead		Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Act Effct Green (s)	33.5	14.3		41.0	24.3	24.3	49.5	41.2	41.2	50.0	41.4	
Actuated g/C Ratio	0.26	0.11		0.32	0.19	0.19	0.38	0.32	0.32	0.38	0.32	
v/c Ratio	0.09	0.49		0.89	0.37	0.43	0.51	0.89	0.80	0.53	0.93	
Control Delay	32.8	44.0		53.9	53.1	9.8	42.1	46.6	15.4	39.1	59.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	32.8	44.0		53.9	53.1	9.8	42.1	46.6	15.4	39.1	59.4	
LOS	C	D		D	D	A	D	D	B	D	E	
Approach Delay		40.9			47.2			34.0			57.7	
Approach LOS		D			D			C			E	
Queue Length 50th (m)	6.9	17.2		109.3	29.9	0.0	6.0	121.3	85.7	13.1	129.2	
Queue Length 95th (m)	15.7	30.9		#157.4	44.7	18.9	m18.4	#177.4	#65.9	#35.2	#195.9	
Internal Link Dist (m)		153.9			65.4			272.8			356.1	
Turn Bay Length (m)	35.0						30.0			40.0		
Base Capacity (vph)	507	359		1018	442	500	161	1049	828	165	1051	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.07	0.28		0.88	0.27	0.36	0.51	0.89	0.80	0.53	0.93	

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 98 (75%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93
Intersection Signal Delay: 44.3 — Intersection LOS: D
Intersection Capacity Utilization 82.5% — 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: Merivale & Lotta & Clyde



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	8	31	71	14	62	41	1608	30	64	1748	21
Future Volume (vph)	37	8	31	71	14	62	41	1608	30	64	1748	21
Satd. Flow (prot)	1658	1489	0	1658	1508	0	1658	3316	1483	1658	3316	1483
Flt Permitted	0.708			0.732			0.070			0.093		
Satd. Flow (perm)	1227	1489	0	1267	1508	0	122	3316	1391	162	3316	1399
Satd. Flow (RTOR)		31			62				86			86
Lane Group Flow (vph)	37	39	0	71	76	0	41	1608	30	64	1748	21
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	43.2	43.2		43.2	43.2		11.1	33.1	33.1	11.1	33.1	33.1
Total Split (s)	43.2	43.2		43.2	43.2		12.0	74.8	74.8	12.0	74.8	74.8
Total Split (%)	33.2%	33.2%		33.2%	33.2%		9.2%	57.5%	57.5%	9.2%	57.5%	57.5%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	4.2	4.2		4.2	4.2		2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.2	7.2		7.2	7.2		6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	21.0	21.0		21.0	21.0		90.7	85.9	85.9	91.0	86.1	86.1
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.70	0.66	0.66	0.70	0.66	0.66
v/c Ratio	0.19	0.15		0.35	0.26		0.27	0.73	0.03	0.35	0.80	0.02
Control Delay	43.8	16.6		49.1	14.4		12.1	20.7	0.1	10.5	14.0	0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.8	16.6		49.1	14.4		12.1	20.7	0.1	10.5	14.0	0.0
LOS	D	B		D	B		B	C	A	B	B	A
Approach Delay		29.8			31.2			20.2			13.7	
Approach LOS		C			C			C			B	
Queue Length 50th (m)	9.0	1.9		17.7	3.3		1.8	113.2	0.0	1.0	130.4	0.0
Queue Length 95th (m)	16.1	10.2		26.9	14.5		8.3	#232.6	0.0	m1.9	m#276.2	m0.0
Internal Link Dist (m)		360.6			176.8			203.0			272.8	
Turn Bay Length (m)	20.0			25.0			20.0		10.0	30.0		
Base Capacity (vph)	339	434		350	462		155	2192	948	182	2195	955
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.09		0.20	0.16		0.26	0.73	0.03	0.35	0.80	0.02

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 76 (58%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80
Intersection Signal Delay: 17.6 — Intersection LOS: B
Intersection Capacity Utilization 82.0% — 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: 3: Merivale & Withrow/Capilano

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	192	336	154	184	538	183	195	1296	102	234	1226	315
Future Volume (vph)	192	336	154	184	538	183	195	1296	102	234	1226	315
Satd. Flow (prot)	1658	3085	0	1658	3283	1483	1658	3316	1483	1658	3316	1483
Flt Permitted	0.197			0.254			0.095			0.070		
Satd. Flow (perm)	339	3085	0	434	3283	1402	166	3316	1354	122	3316	1381
Satd. Flow (RTOR)		51				183			134			315
Lane Group Flow (vph)	192	490	0	184	538	183	195	1296	102	234	1226	315
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.5	30.5		11.5	30.5	30.5	11.0	38.0	38.0	11.0	38.0	38.0
Total Split (s)	19.0	31.0		19.0	31.0	31.0	17.0	59.0	59.0	21.0	63.0	63.0
Total Split (%)	14.6%	23.8%		14.6%	23.8%	23.8%	13.1%	45.4%	45.4%	16.2%	48.5%	48.5%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.5	3.5		3.5	3.5	3.5	2.3	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	6.5	6.5	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	36.5	24.0		36.1	23.8	23.8	65.1	53.4	53.4	72.2	57.0	57.0
Actuated g/C Ratio	0.28	0.18		0.28	0.18	0.18	0.50	0.41	0.41	0.56	0.44	0.44
v/c Ratio	0.86	0.80		0.78	0.90	0.45	0.90	0.95	0.16	0.95	0.84	0.40
Control Delay	69.3	56.2		56.9	70.3	10.0	69.9	52.6	2.2	81.2	39.2	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
Total Delay	69.3	56.2		56.9	70.3	10.0	69.9	52.6	2.2	81.2	39.2	4.0
LOS	E	E		E	E	A	E	D	A	F	D	A
Approach Delay		59.9			55.4			51.5			38.5	
Approach LOS		E			E			D			D	
Queue Length 50th (m)	36.9	57.3		35.2	71.1	0.0	31.7	168.0	0.0	45.6	144.8	0.0
Queue Length 95th (m)	#72.4	77.3		#57.7	#99.6	19.8	#77.9	#216.0	5.6	#96.0	175.1	16.4
Internal Link Dist (m)		444.5			230.0			176.3			262.1	
Turn Bay Length (m)	100.0			120.0		100.0	85.0		90.0	135.0		165.0
Base Capacity (vph)	222	622		239	618	412	216	1362	635	247	1453	782
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	0.86	0.79		0.77	0.87	0.44	0.90	0.95	0.16	0.95	0.84	0.40

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 61 (47%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated

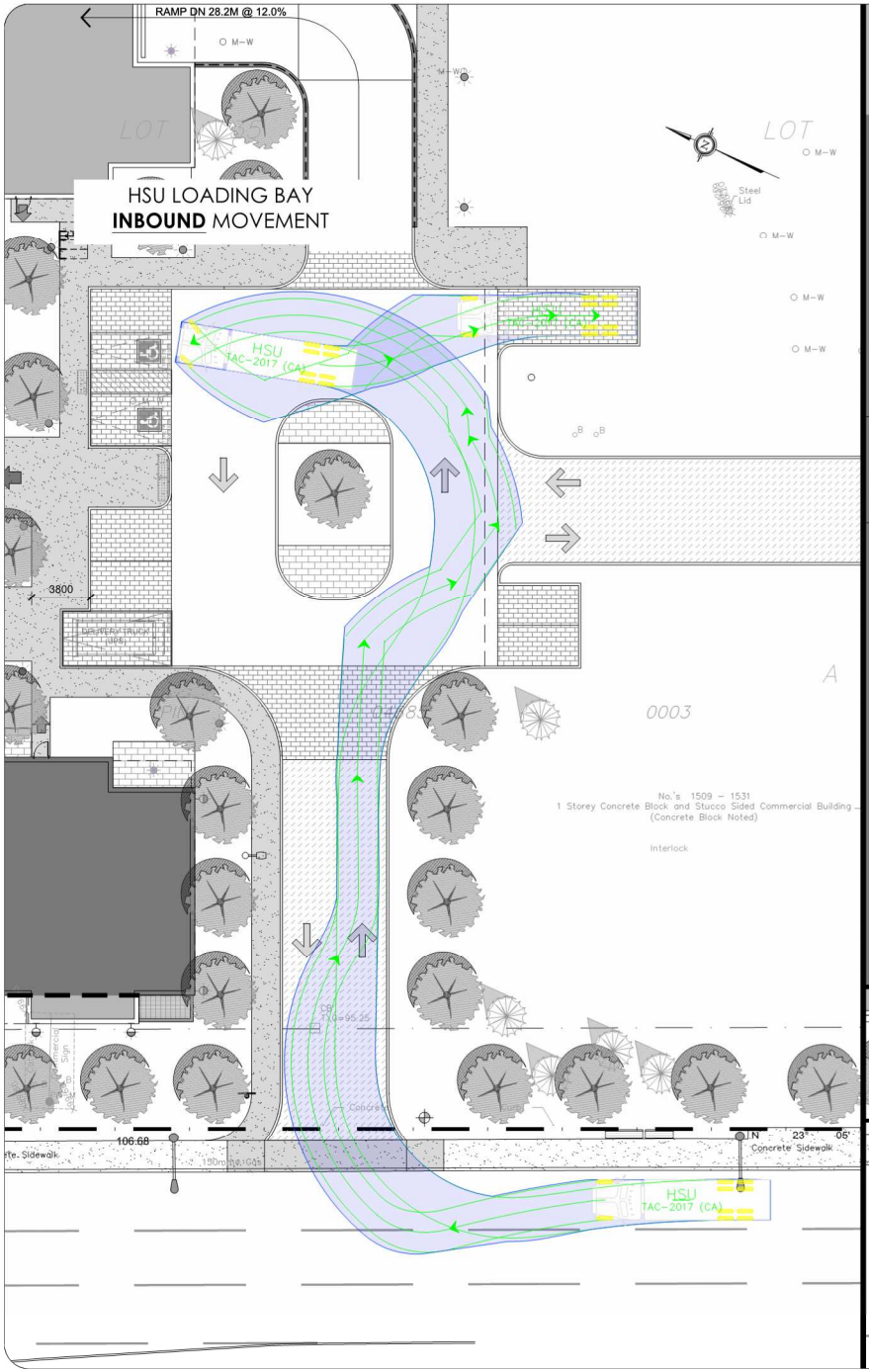
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 48.7 — Intersection LOS: D
Intersection Capacity Utilization 101.7% — ICU Level of Service G
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

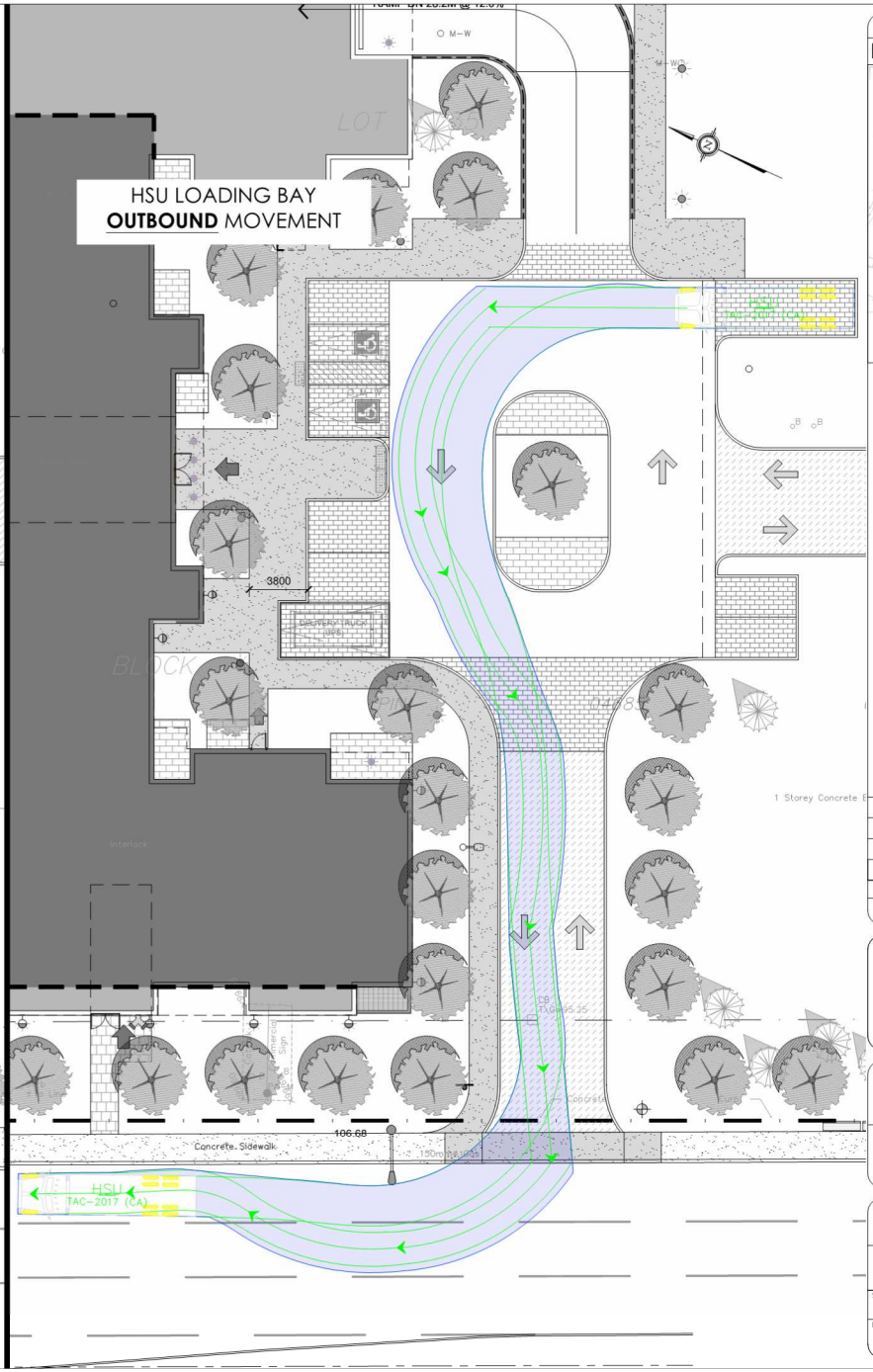
Splits and Phases: 4: Merivale & Meadowlands

Appendix I

Turning Templates

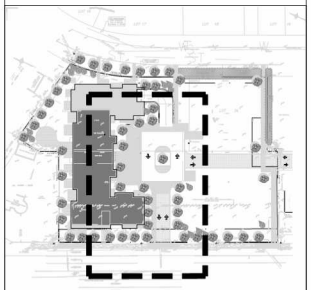
CGH TRANSPORTATION

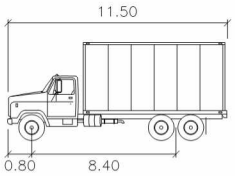




Notes:

KEY MAP





HSU

meters

Width	: 2.60
Track	: 2.60
Lock to Lock Time	: 6.0
Steering Angle	: 40.0

REV:	DESCRIPTION:	BY:	DATE:
04	Updated Site Plan	AN	2023-04-21
03	Issued for Review	AN	2023-03-13
02	Issued for Review	BB	2021-11-05
01	Issued for Review	BB	2021-08-04

STATUS:

CGH Transportation
13 Markham Ave
Ottawa, ON
K2G 3Z1
(343) 999-9117

CLIENT: Katasta Group

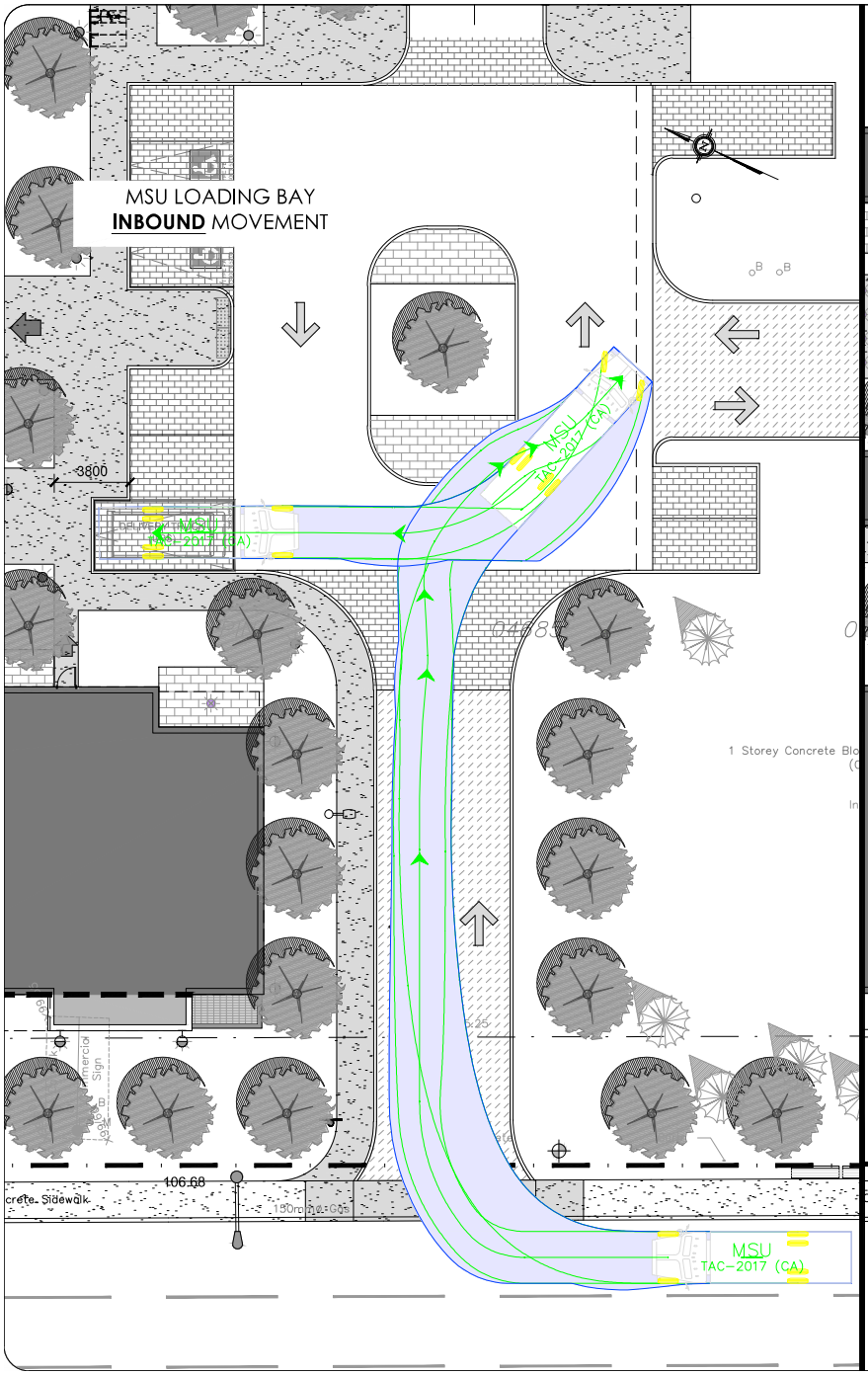
ARCHITECT:

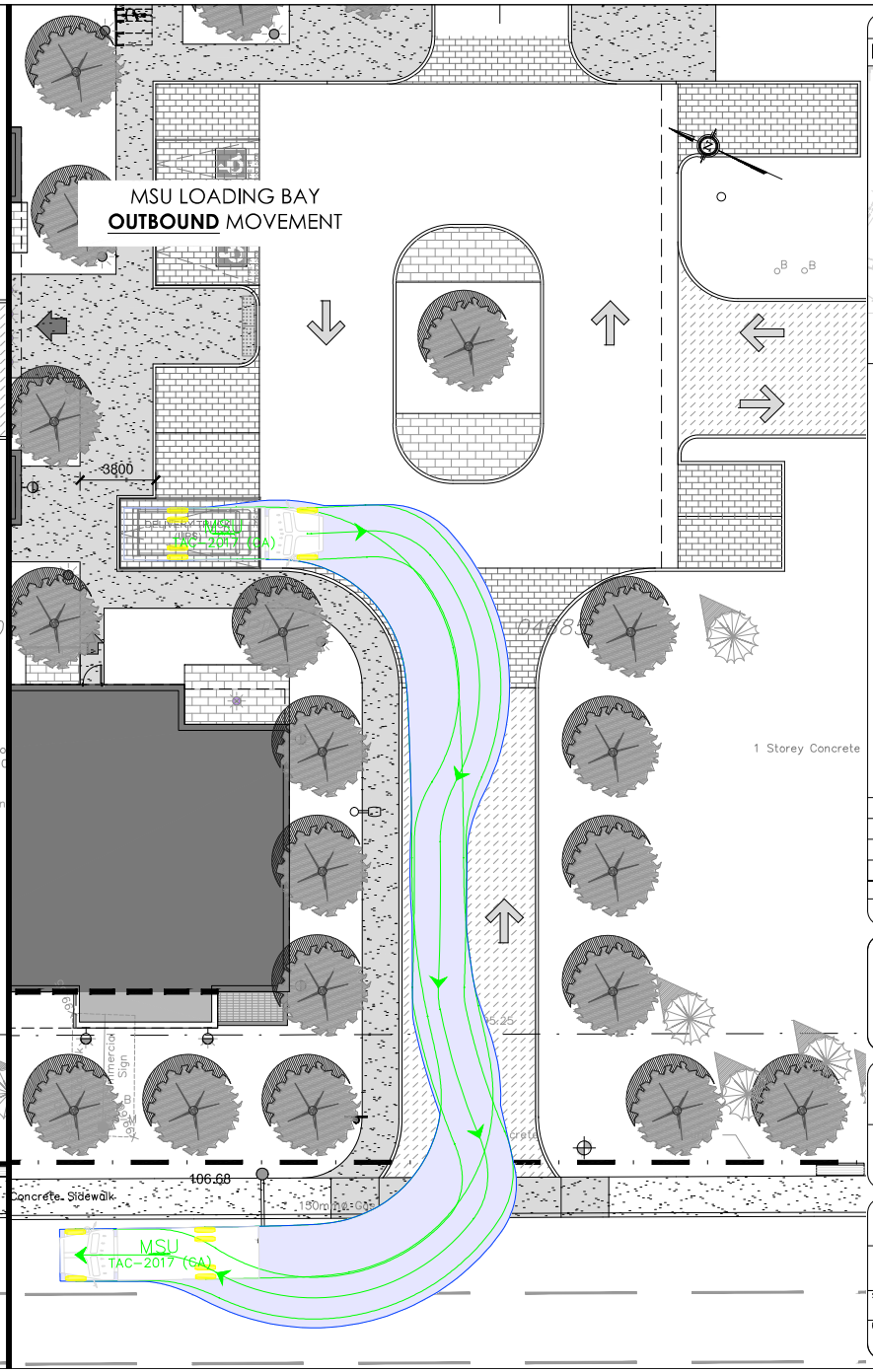
SITE: 1509 Merivale Road

TITLE: Turning Movement Analysis
HSU Turning Movements (1)

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2023-04-21	AN	JK

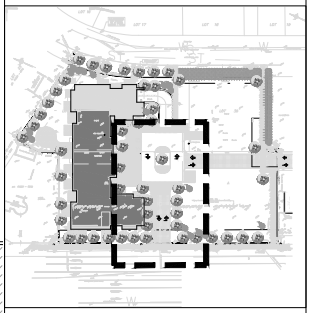
PROJECT NO:	DRAWING NO:	REVISION:
2020-47	001	04

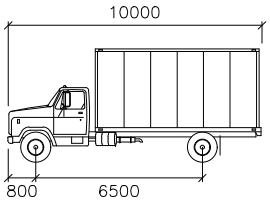




Notes:

KEY MAP





MSU

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

REV:	DESCRIPTION:	BY:	DATE:
04	Updated Site Plan	AN	2023-04-21
03	Issued for Review	AN	2023-03-13
02	Issued for Review	BB	2021-11-05
01	Issued for Review	BB	2021-08-04

STATUS:

CGH Transportation
13 Markham Ave
Ottawa, ON
K2G 3Z1
(343) 999-9117

CLIENT: Katasta Group

ARCHITECT:

SITE: 1509 Merivale Road

TITLE: Turning Movement Analysis
MSU Turning Movements

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2023-04-21	AN	JK

PROJECT NO:	DRAWING NO:	REVISION:
2020-47	003	04

Appendix J

MMLOS Analysis

CGH TRANSPORTATION

Multi-Modal Level of Service - Segments Form

Consultant	**CGH Transportation**	**Project**	**2020-47**
Scenario	**Existing/Future**	**Date**	**2020-10-26**
Comments			

SEGMENTS		**Street A**	Merivale Rd	Kerry Cres	Section
			1	2	3
Pedestrian	Sidewalk Width Boulevard Width	**F**	≥ 2 m < 0.5	no sidewalk n/a	
	Avg Daily Curb Lane Traffic Volume		> 3000	≤ 3000	
	Operating Speed On-Street Parking		> 60 km/h no	> 30 to 50 km/h no	
	Exposure to Traffic PLoS		**F**	**F**	**-**
	Effective Sidewalk Width				
	Pedestrian Volume				
	Crowding PLoS		**A**	**A**	**-**
	Level of Service		**F**	**F**	**-**
Bicycle	Type of Cycling Facility	**F**	Mixed Traffic	Mixed Traffic	
	Number of Travel Lanes		≥ 6 lanes total	≤ 2 (no centreline)	
	Operating Speed		≥ 60 km/h	>40 to <50 km/h	
	# of Lanes & Operating Speed LoS		**F**	**B**	**-**
	Bike Lane (+ Parking Lane) Width				
	Bike Lane Width LoS		-	-	-
	Bike Lane Blockages				
	Blockage LoS		-	-	-
	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 km/h	≤ 40 km/h	
	Unsignalized Crossing - Lowest LoS		**A**	**A**	**-**
	Level of Service		**F**	**B**	**-**
Transit	Facility Type	**D**	Mixed Traffic		
	Friction or Ratio Transit:Posted Speed		Vt/Vp ≥ 0.8		
	Level of Service		**D**	**-**	**-**
Truck	Truck Lane Width	**A**	> 3.7 m		
	Travel Lanes per Direction		> 1		
	Level of Service		**A**	**-**	**-**
Auto	**Level of Service**	**Not Applicable**			

Multi-Modal Level of Service - Intersections Form

Consultant	**CGH Transportation**	**Project**	**2020-47**
Scenario	**Existing/Future**	**Date**	**2020-10-26**
Comments			

INTERSECTIONS		Merivale Rd at Baseline Rd				Merivale Rd/Clyde Ave at Lotta Ave/Merivale Rd				Merivale Rd at Withrow Ave/Capilano Dr				Merivale Rd at Meadowlands Dr			
Crossing Side		NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	8	9	8	7	7	8	6	6	9	9	7	5	6	6	6	6
	Median	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m
	Conflicting Left Turns	Protected	Protected	Protected	No left turn / Prohib.	Protected	Protected	Permissive	Permissive	Permissive	Permissive	Protected/ Permissive	Protected/ Permissive	Protected/ Permissive	Protected/ Permissive	Protected/ Permissive	Protected/ Permissive
	Conflicting Right Turns	Permissive or yield control	Permissive or yield control	Protected/ Permissive	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control
	Right Turns on Red (RToR) ?	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	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	No	No	No	No
	Right Turn Channel	Conv'tl without Receiving Lane	Conv'tl without Receiving Lane	No Channel	Conventional with Receiving Lane	Conv'tl without Receiving Lane	No Channel	Conventional with Receiving Lane	No Channel	No Channel	No Channel	No Channel	No Channel	Conventional with Receiving Lane	Conventional with Receiving Lane	Conventional with Receiving Lane	Conv'tl without Receiving Lane
	Corner Radius	10-15m	15-25m	5-10m	10-15m	>25m	5-10m	>25m	10-15m	5-10m	5-10m	5-10m	5-10m	15-25m	15-25m	15-25m	15-25m
	Crosswalk Type	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	Std transverse markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings
	PETSI Score	**3**	**-16**	**0**	**16**	**13**	**-3**	**18**	**20**	**-25**	**-25**	**8**	**38**	**22**	**22**	**22**	**25**
	Ped. Exposure to Traffic LoS	**F**	**F**	**F**	**F**	**F**	**F**	**F**	**F**	**F**	**F**	**F**	**E**	**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**	**E**	**F**	**F**	**F**	**F**
		F				**F**				**F**				**F**			
Approach From		NORTH	SOUTH	EAST	WEST	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			Mixed Traffic	Mixed Traffic		Mixed Traffic	Mixed Traffic			Mixed Traffic	Mixed Traffic	Mixed Traffic	
	Right Turn Lane Configuration	> 50 m Introduced right turn lane	> 50 m Introduced right turn lane	≤ 50 m Introduced right turn lane			> 50 m	> 50 m		> 50 m	≤ 50 m			> 50 m	> 50 m	> 50 m	
	Right Turning Speed	>25 to 30 km/h	≤ 25 km/h	>25 to 30 km/h			≤ 25 km/h	>25 km/h		≤ 25 km/h	≤ 25 km/h			>25 km/h	>25 km/h	>25 km/h	
	Cyclist relative to RT motorists	**D**	**D**	**C**	**-**	**-**	**F**	**F**	**-**	**F**	**D**	**-**	**-**	**F**	**F**	**F**	**-**
	Separated or Mixed Traffic	**Separated**	**Separated**	**Separated**	**-**	**-**	**Mixed Traffic**	**Mixed Traffic**	**-**	**Mixed Traffic**	**Mixed Traffic**	**-**	**-**	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	**-**
	Left Turn Approach	≥ 2 lanes crossed		1 lane crossed	One lane crossed	One lane crossed	One lane crossed	One lane crossed	No lane crossed	≥ 2 lanes crossed	One lane crossed	No lane crossed	No lane crossed	One lane crossed	One lane crossed	One lane crossed	One lane crossed
	Operating Speed	≥ 60 km/h		≥ 60 km/h	≥ 60 km/h	≥ 60 km/h	≥ 60 km/h	≥ 60 km/h	≤ 40 km/h	≥ 60 km/h	≥ 60 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	≥ 60 km/h	≥ 60 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h
	Left Turning Cyclist	**F**	**A**	**E**	**F**	**F**	**F**	**F**	**B**	**F**	**F**	**B**	**B**	**F**	**F**	**D**	**D**
	Level of Service	**F**	**D**	**E**	**-**	**-**	**F**	**F**	**-**	**F**	**F**	**-**	**-**	**F**	**F**	**F**	**-**
		F				**F**				**F**				**F**			
Transit	Average Signal Delay	> 40 sec	> 40 sec	> 40 sec	> 40 sec		≤ 30 sec	> 40 sec		≤ 20 sec	≤ 30 sec			> 40 sec	> 40 sec	> 40 sec	> 40 sec
	Level of Service	**F**	**F**	**F**	**F**	**-**	**D**	**F**	**-**	**C**	**D**	**-**	**-**	**F**	**F**	**F**	**F**
		F				**F**				**D**				**F**			
Truck	Effective Corner Radius	10 - 15 m	< 10 m	> 15 m	> 15 m	10 - 15 m	> 15 m	> 15 m									
	Number of Receiving Lanes on Departure from Intersection	≥ 2	≥ 2	≥ 2	≥ 2	≥ 2	≥ 2	≥ 2									
	Level of Service	**B**	**D**	**A**	**A**	**B**	**A**	**A**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		D				**B**				**-**				**-**			
Auto	Volume to Capacity Ratio	> 1.00				0.81 - 0.90				0.91 - 1.00				> 1.00			
	Level of Service	**F**				**D**				**E**				**F**			

Appendix K

Synchro Intersection Worksheets – 2024 Future Total Conditions

CGH TRANSPORTATION

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	222	1018	8	127	908	375	0	647	247	314	329	284
Future Volume (vph)	222	1018	8	127	908	375	0	647	247	314	329	284
Satd. Flow (prot)	1642	3308	0	1595	3283	1483	0	3252	1469	3185	3191	1455
Flt Permitted	0.950			0.950						0.950		
Satd. Flow (perm)	1625	3308	0	1587	3283	1415	0	3252	1379	3077	3191	1395
Satd. Flow (RTOR)		1				210			96			284
Lane Group Flow (vph)	222	1026	0	127	908	375	0	647	247	314	329	284
Turn Type	Prot	NA		Prot	NA	Perm		NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6			4	1	3	8	
Permitted Phases						6			4			8
Detector Phase	5	2		1	6	6		4	1	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0		10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	12.1	41.1		12.1	41.1	41.1		34.6	12.1	11.5	34.6	34.6
Total Split (s)	24.0	43.0		24.0	43.0	43.0		35.0	24.0	18.0	53.0	53.0
Total Split (%)	20.0%	35.8%		20.0%	35.8%	35.8%		29.2%	20.0%	15.0%	44.2%	44.2%
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.4	3.4		3.4	3.4	3.4		2.9	3.4	2.8	2.9	2.9
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.1	7.1		7.1	7.1	7.1		6.6	7.1	6.5	6.6	6.6
Lead/Lag	Lead	Lag		Lead	Lag	Lag		Lag	Lead	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes		Yes	Yes	Yes		
Recall Mode	None	C-Max		None	C-Max	C-Max		None	None	None	None	None
Act Effct Green (s)	17.6	40.2		14.0	36.6	36.6		27.0	40.5	11.5	45.0	45.0
Actuated g/C Ratio	0.15	0.34		0.12	0.30	0.30		0.22	0.34	0.10	0.38	0.38
v/c Ratio	0.92	0.93		0.69	0.91	0.65		0.89	0.46	1.03	0.28	0.41
Control Delay	92.1	53.7		69.1	54.0	21.5		59.9	17.6	112.4	26.6	4.6
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	92.1	53.7		69.1	54.0	21.5		59.9	17.6	112.4	26.6	4.6
LOS	F	D		E	D	C		E	B	F	C	A
Approach Delay		60.5			46.7			48.2			48.9	
Approach LOS		E			D			D			D	
Queue Length 50th (m)	52.7	125.4		28.9	108.8	33.4		76.7	23.1	~40.7	27.5	0.0
Queue Length 95th (m)	#100.2	#178.4		48.5	#147.0	67.9		#104.0	42.2	#69.3	38.6	16.7
Internal Link Dist (m)		323.1			324.6			263.9			243.9	
Turn Bay Length (m)	115.0			200.0		40.0			115.0	105.0		50.0
Base Capacity (vph)	241	1109		224	1001	577		769	572	305	1233	713
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	0
Reduced v/c Ratio	0.92	0.93		0.57	0.91	0.65		0.84	0.43	1.03	0.27	0.40

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 45 (38%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.03
Intersection Signal Delay: 51.3 — Intersection LOS: D
Intersection Capacity Utilization 95.6% — 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: Merivale & Baseline

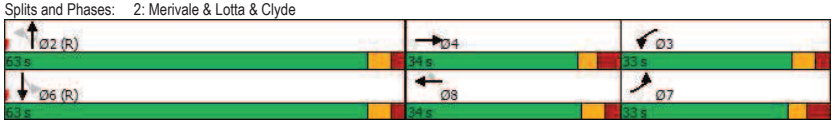
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	74	22	367	42	73	37	856	840	27	618	14
Future Volume (vph)	25	74	22	367	42	73	37	856	840	27	618	14
Satd. Flow (prot)	1626	1663	0	3154	1695	1469	1658	3316	1469	1658	3298	0
Flt Permitted	0.950			0.950			0.374			0.272		
Satd. Flow (perm)	1619	1663	0	3114	1695	1445	644	3316	1435	474	3298	0
Satd. Flow (RTOR)		10				82			840		2	
Lane Group Flow (vph)	25	96	0	367	42	73	37	856	840	27	632	0
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases						8	2		2	6		
Detector Phase	7	4		3	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	11.8	33.8		11.2	33.2	33.2	30.0	30.0	30.0	30.0	30.0	
Total Split (s)	33.0	34.0		33.0	34.0	34.0	63.0	63.0	63.0	63.0	63.0	
Total Split (%)	25.4%	26.2%		25.4%	26.2%	26.2%	48.5%	48.5%	48.5%	48.5%	48.5%	
Yellow Time (s)	3.0	3.0		3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	3.8	3.8		2.5	2.5	2.5	2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.2	6.2	6.2	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lag	Lead		Lag	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Recall Mode	None	None		None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)	17.3	14.7		20.3	22.8	22.8	76.0	76.0	76.0	76.0	76.0	
Actuated g/C Ratio	0.13	0.11		0.16	0.18	0.18	0.58	0.58	0.58	0.58	0.58	
v/c Ratio	0.12	0.49		0.75	0.14	0.23	0.10	0.44	0.71	0.10	0.33	
Control Delay	45.8	55.2		61.8	49.9	9.6	7.1	8.2	9.0	17.1	16.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	
Total Delay	45.8	55.2		61.8	49.9	9.6	7.1	8.2	10.3	17.1	16.0	
LOS	D	E		E	D	A	A	A	B	B	B	
Approach Delay		53.3			52.8			9.2			16.0	
Approach LOS		D			D			A			B	
Queue Length 50th (m)	5.4	21.4		46.8	10.4	0.0	1.7	34.3	111.3	2.7	39.3	
Queue Length 95th (m)	13.2	34.6		60.6	19.0	10.6	m2.1	34.0	258.0	10.4	72.3	
Internal Link Dist (m)		153.9			65.4			109.5			356.1	
Turn Bay Length (m)	35.0						30.0			40.0		
Base Capacity (vph)	328	355		650	391	397	376	1939	1187	277	1929	
Starvation Cap Reductn	0	0		0	0	0	0	0	166	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.08	0.27		0.56	0.11	0.18	0.10	0.44	0.82	0.10	0.33	

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 9 (7%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75
Intersection Signal Delay: 19.5 — Intersection LOS: B
Intersection Capacity Utilization 92.0% — ICU Level of Service F
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Merivale & Lotta & Clyde



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	16	20	31	10	35	22	1620	38	38	972	5
Future Volume (vph)	38	16	20	31	10	35	22	1620	38	38	972	5
Satd. Flow (prot)	1658	1560	0	1658	1515	0	1658	3283	1388	1658	3316	1483
Flt Permitted	0.728			0.734			0.272			0.106		
Satd. Flow (perm)	1270	1560	0	1276	1515	0	474	3283	1346	185	3316	1440
Satd. Flow (RTOR)		20			35				86			86
Lane Group Flow (vph)	38	36	0	31	45	0	22	1620	38	38	972	5
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	43.2	43.2		43.2	43.2		11.1	33.1	33.1	11.1	33.1	33.1
Total Split (s)	43.2	43.2		43.2	43.2		12.0	74.8	74.8	12.0	74.8	74.8
Total Split (%)	33.2%	33.2%		33.2%	33.2%		9.2%	57.5%	57.5%	9.2%	57.5%	57.5%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	4.2	4.2		4.2	4.2		2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.2	7.2		7.2	7.2		6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	15.4	15.4		15.4	15.4		99.7	96.3	96.3	101.2	98.8	98.8
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.77	0.74	0.74	0.78	0.76	0.76
v/c Ratio	0.25	0.18		0.21	0.21		0.05	0.67	0.04	0.18	0.39	0.00
Control Delay	52.4	27.5		50.8	20.6		6.0	15.1	0.1	4.9	4.0	0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.4	27.5		50.8	20.6		6.0	15.1	0.1	4.9	4.0	0.0
LOS	D	C		D	C		A	B	A	A	A	A
Approach Delay		40.3			32.9			14.6			4.0	
Approach LOS		D			C			B			A	
Queue Length 50th (m)	9.4	3.9		7.7	2.4		0.8	104.4	0.0	0.9	19.5	0.0
Queue Length 95th (m)	16.3	11.4		14.0	11.2		5.4	#253.1	0.0	m3.3	26.1	m0.0
Internal Link Dist (m)		360.6			33.1			203.0			139.3	
Turn Bay Length (m)	20.0			25.0			20.0		10.0	30.0		
Base Capacity (vph)	351	446		353	444		417	2432	1019	212	2519	1114
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	16	0		0	20		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.08		0.09	0.11		0.05	0.67	0.04	0.18	0.39	0.00

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 116 (89%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67
Intersection Signal Delay: 12.0 — Intersection LOS: B
Intersection Capacity Utilization 69.9% — 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Merivale & Withrow/Capilano

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	343	395	122	83	236	195	92	1200	85	96	781	113
Future Volume (vph)	343	395	122	83	236	195	92	1200	85	96	781	113
Satd. Flow (prot)	1658	3155	0	1626	3252	1441	1610	3252	1363	1642	3283	1483
Flt Permitted	0.410			0.321			0.277			0.118		
Satd. Flow (perm)	707	3155	0	547	3252	1396	467	3252	1321	204	3283	1436
Satd. Flow (RTOR)		28				130			134			134
Lane Group Flow (vph)	343	517	0	83	236	195	92	1200	85	96	781	113
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.5	30.5		11.5	30.5	30.5	11.0	38.0	38.0	11.0	38.0	38.0
Total Split (s)	23.0	33.0		23.0	33.0	33.0	11.0	63.0	63.0	11.0	63.0	63.0
Total Split (%)	17.7%	25.4%		17.7%	25.4%	25.4%	8.5%	48.5%	48.5%	8.5%	48.5%	48.5%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.5	3.5		3.5	3.5	3.5	2.3	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	6.5	6.5	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	40.9	25.2		29.0	18.9	18.9	69.3	62.0	62.0	70.0	62.4	62.4
Actuated g/C Ratio	0.31	0.19		0.22	0.15	0.15	0.53	0.48	0.48	0.54	0.48	0.48
v/c Ratio	1.00	0.81		0.40	0.50	0.62	0.29	0.77	0.12	0.49	0.50	0.15
Control Delay	88.8	58.1		36.4	53.8	26.5	16.7	33.5	1.0	24.9	25.4	2.6
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	88.8	58.1		36.4	53.8	26.5	16.7	33.5	1.0	24.9	25.4	2.6
LOS	F	E		D	D	C	B	C	A	C	C	A
Approach Delay		70.3			40.6			30.4			22.7	
Approach LOS		E			D			C			C	
Queue Length 50th (m)	74.8	63.8		15.1	29.6	15.1	10.0	135.2	0.0	10.5	72.1	0.0
Queue Length 95th (m)	#98.1	80.7		25.2	40.0	37.8	20.7	172.0	2.2	#24.3	95.3	7.5
Internal Link Dist (m)		444.5			230.0			176.3			262.1	
Turn Bay Length (m)	100.0			120.0		100.0	85.0		90.0	135.0		165.0
Base Capacity (vph)	342	687		285	662	388	312	1551	700	194	1575	758
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	1.00	0.75		0.29	0.36	0.50	0.29	0.77	0.12	0.49	0.50	0.15

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 115 (88%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.00
Intersection Signal Delay: 38.9 — Intersection LOS: D
Intersection Capacity Utilization 93.2% — 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: 4: Merivale & Meadowlands

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	17	1717	2	0	1007
Future Vol, veh/h	0	17	1717	2	0	1007
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	17	1717	2	0	1007

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	860	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	257	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	257	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	257	-
HCM Lane V/C Ratio	-	-	0.066	-
HCM Control Delay (s)	-	-	20	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	84	72	1	1	4
Future Vol, veh/h	8	84	72	1	1	4
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	8	84	72	1	1	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	73	0	-	0	173	73
Stage 1	-	-	-	-	73	-
Stage 2	-	-	-	-	100	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1527	-	-	-	817	989
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	924	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1527	-	-	-	813	989
Mov Cap-2 Maneuver	-	-	-	-	813	-
Stage 1	-	-	-	-	945	-
Stage 2	-	-	-	-	924	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1527	-	-	-	948
HCM Lane V/C Ratio	0.005	-	-	-	0.005
HCM Control Delay (s)	7.4	0	-	-	8.8
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	243	1006	19	328	1152	204	0	479	241	356	755	378
Future Volume (vph)	243	1006	19	328	1152	204	0	479	241	356	755	378
Satd. Flow (prot)	1658	3304	0	1658	3316	1483	0	3316	1483	3216	3316	1483
Flt Permitted	0.950			0.950						0.950		
Satd. Flow (perm)	1644	3304	0	1648	3316	1412	0	3316	1380	3055	3316	1415
Satd. Flow (RTOR)		2				134			83			284
Lane Group Flow (vph)	243	1025	0	328	1152	204	0	479	241	356	755	378
Turn Type	Prot	NA		Prot	NA	Perm		NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6			4	1	3	8	
Permitted Phases						6			4			8
Detector Phase	5	2		1	6	6		4	1	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0		10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	12.1	41.1		12.1	41.1	41.1		34.6	12.1	11.5	34.6	34.6
Total Split (s)	25.0	60.0		25.0	60.0	60.0		35.0	25.0	20.0	55.0	55.0
Total Split (%)	17.9%	42.9%		17.9%	42.9%	42.9%		25.0%	17.9%	14.3%	39.3%	39.3%
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.4	3.4		3.4	3.4	3.4		2.9	3.4	2.8	2.9	2.9
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.1	7.1		7.1	7.1	7.1		6.6	7.1	6.5	6.6	6.6
Lead/Lag	Lead	Lag		Lead	Lag	Lag		Lag	Lead	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes		Yes	Yes	Yes		
Recall Mode	None	C-Max		None	C-Max	C-Max		None	None	None	None	None
Act Effct Green (s)	20.9	52.9		20.9	52.9	52.9		25.4	45.8	13.5	45.4	45.4
Actuated g/C Ratio	0.15	0.38		0.15	0.38	0.38		0.18	0.33	0.10	0.32	0.32
v/c Ratio	0.98	0.82		1.33	0.92	0.33		0.80	0.46	1.15	0.70	0.58
Control Delay	111.8	45.8		217.3	54.1	12.4		65.2	23.9	151.9	45.1	13.2
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	111.8	45.8		217.3	54.1	12.4		65.2	23.9	151.9	45.1	13.2
LOS	F	D		F	D	B		E	C	F	D	B
Approach Delay		58.4			80.8			51.4			62.6	
Approach LOS		E			F			D			E	
Queue Length 50th (m)	~77.3	133.5		~126.2	159.1	12.6		66.0	31.1	~59.4	93.4	18.5
Queue Length 95th (m)	#132.1	161.5		#186.7	#201.2	31.7		85.2	53.9	#90.8	114.9	50.2
Internal Link Dist (m)		323.1			324.6			263.9			243.9	
Turn Bay Length (m)	115.0			200.0		40.0			115.0	105.0		50.0
Base Capacity (vph)	247	1249		247	1252	616		672	522	310	1146	675
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	0
Reduced v/c Ratio	0.98	0.82		1.33	0.92	0.33		0.71	0.46	1.15	0.66	0.56

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 19 (14%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.33
Intersection Signal Delay: 65.9 — Intersection LOS: E
Intersection Capacity Utilization 103.5% — ICU Level of Service G
Analysis Period (min) 15

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

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

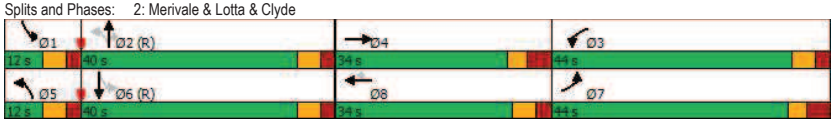
Splits and Phases: 1: Merivale & Baseline

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	48	42	899	120	171	82	934	659	74	870	27
Future Volume (vph)	35	48	42	899	120	171	82	934	659	74	870	27
Satd. Flow (prot)	1658	1604	0	3216	1745	1469	1658	3316	1483	1658	3293	0
Flt Permitted	0.950			0.950			0.100			0.105		
Satd. Flow (perm)	1650	1604	0	3179	1745	1443	175	3316	1414	183	3293	0
Satd. Flow (RTOR)		31				171			553		2	
Lane Group Flow (vph)	35	90	0	899	120	171	82	934	659	74	897	0
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		
Detector Phase	7	4		3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.8	33.8		11.2	33.2	33.2	11.0	30.0	30.0	11.0	30.0	
Total Split (s)	44.0	34.0		44.0	34.0	34.0	12.0	40.0	40.0	12.0	40.0	
Total Split (%)	33.8%	26.2%		33.8%	26.2%	26.2%	9.2%	30.8%	30.8%	9.2%	30.8%	
Yellow Time (s)	3.0	3.0		3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	3.8	3.8		2.5	2.5	2.5	2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.2	6.2	6.2	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lag	Lead		Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Act Effct Green (s)	26.1	13.9		40.9	33.9	33.9	51.7	44.8	44.8	49.7	41.9	
Actuated g/C Ratio	0.20	0.11		0.31	0.26	0.26	0.40	0.34	0.34	0.38	0.32	
v/c Ratio	0.11	0.45		0.89	0.26	0.34	0.50	0.82	0.78	0.47	0.84	
Control Delay	36.3	41.6		54.0	45.7	8.5	40.4	39.8	13.6	35.8	50.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	36.3	41.6		54.0	45.7	8.5	40.4	39.8	13.6	35.8	50.4	
LOS	D	D		D	D	A	D	D	B	D	D	
Approach Delay		40.1			46.6			29.5			49.2	
Approach LOS		D			D			C			D	
Queue Length 50th (m)	6.4	14.7		109.3	29.9	0.0	6.0	118.6	85.0	10.9	112.3	
Queue Length 95th (m)	14.7	27.7		#157.2	44.7	18.5	m18.2	#178.2	#64.9	#24.6	#171.0	
Internal Link Dist (m)		153.9			65.4			109.5			356.1	
Turn Bay Length (m)	35.0						30.0			40.0		
Base Capacity (vph)	491	360		1017	524	553	163	1142	849	158	1062	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.07	0.25		0.88	0.23	0.31	0.50	0.82	0.78	0.47	0.84	

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 98 (75%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89
Intersection Signal Delay: 39.8 — Intersection LOS: D
Intersection Capacity Utilization 80.5% — 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: 2: Merivale & Lotta & Clyde



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	8	28	67	14	56	41	1598	30	78	1694	21
Future Volume (vph)	34	8	28	67	14	56	41	1598	30	78	1694	21
Satd. Flow (prot)	1658	1494	0	1658	1512	0	1658	3316	1483	1658	3316	1483
Flt Permitted	0.711			0.734			0.080			0.090		
Satd. Flow (perm)	1232	1494	0	1270	1512	0	140	3316	1391	157	3316	1399
Satd. Flow (RTOR)		28			56				86			86
Lane Group Flow (vph)	34	36	0	67	70	0	41	1598	30	78	1694	21
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	43.2	43.2		43.2	43.2		11.1	33.1	33.1	11.1	33.1	33.1
Total Split (s)	43.2	43.2		43.2	43.2		12.0	74.8	74.8	12.0	74.8	74.8
Total Split (%)	33.2%	33.2%		33.2%	33.2%		9.2%	57.5%	57.5%	9.2%	57.5%	57.5%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	4.2	4.2		4.2	4.2		2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.2	7.2		7.2	7.2		6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	20.8	20.8		20.8	20.8		89.3	83.5	83.5	91.4	86.2	86.2
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.69	0.64	0.64	0.70	0.66	0.66
v/c Ratio	0.17	0.14		0.33	0.24		0.25	0.75	0.03	0.43	0.77	0.02
Control Delay	43.5	17.3		48.6	15.0		11.4	21.7	0.1	14.3	13.5	0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.5	17.3		48.6	15.0		11.4	21.7	0.1	14.3	13.5	0.0
LOS	D	B		D	B		B	C	A	B	B	A
Approach Delay		30.0			31.4			21.1			13.4	
Approach LOS		C			C			C			B	
Queue Length 50th (m)	8.3	1.9		16.7	3.3		1.8	113.2	0.0	0.8	125.6	0.0
Queue Length 95th (m)	15.0	9.8		25.5	14.0		8.3	228.0	0.0	m2.9	#265.3	m0.0
Internal Link Dist (m)		360.6			33.1			203.0			139.3	
Turn Bay Length (m)	20.0			25.0			20.0		10.0	30.0		
Base Capacity (vph)	341	433		351	459		165	2128	923	183	2199	956
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.08		0.19	0.15		0.25	0.75	0.03	0.43	0.77	0.02

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 76 (58%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77
Intersection Signal Delay: 17.9 — Intersection LOS: B
Intersection Capacity Utilization 84.4% — 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: 3: Merivale & Withrow/Capilano

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	183	319	154	184	512	183	195	1286	102	234	1188	307
Future Volume (vph)	183	319	154	184	512	183	195	1286	102	234	1188	307
Satd. Flow (prot)	1658	3075	0	1658	3283	1483	1658	3316	1483	1658	3316	1483
Flt Permitted	0.218			0.264			0.113			0.069		
Satd. Flow (perm)	375	3075	0	451	3283	1402	196	3316	1354	120	3316	1381
Satd. Flow (RTOR)		55				183			134			307
Lane Group Flow (vph)	183	473	0	184	512	183	195	1286	102	234	1188	307
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.5	30.5		11.5	30.5	30.5	11.0	38.0	38.0	11.0	38.0	38.0
Total Split (s)	19.0	31.0		19.0	31.0	31.0	17.0	59.0	59.0	21.0	63.0	63.0
Total Split (%)	14.6%	23.8%		14.6%	23.8%	23.8%	13.1%	45.4%	45.4%	16.2%	48.5%	48.5%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.5	3.5		3.5	3.5	3.5	2.3	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	6.5	6.5	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	35.8	23.4		35.6	23.3	23.3	65.2	53.8	53.8	73.4	57.9	57.9
Actuated g/C Ratio	0.28	0.18		0.27	0.18	0.18	0.50	0.41	0.41	0.56	0.45	0.45
v/c Ratio	0.81	0.79		0.78	0.87	0.46	0.86	0.94	0.16	0.94	0.80	0.39
Control Delay	61.6	55.2		56.7	67.9	10.1	58.4	50.4	2.2	78.4	36.6	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
Total Delay	61.6	55.2		56.7	67.9	10.1	58.4	50.4	2.2	78.4	36.6	3.9
LOS	E	E		E	E	B	E	D	A	E	D	A
Approach Delay		57.0			53.5			48.2			36.5	
Approach LOS		E			D			D			D	
Queue Length 50th (m)	35.0	54.1		35.2	67.0	0.0	27.4	165.6	0.0	45.9	137.8	0.0
Queue Length 95th (m)	#63.0	73.5		#56.0	#91.7	19.8	#71.2	#212.8	5.6	#96.5	166.8	16.3
Internal Link Dist (m)		444.5			230.0			176.3			262.1	
Turn Bay Length (m)	100.0			120.0		100.0	85.0		90.0	135.0		165.0
Base Capacity (vph)	227	624		240	618	412	226	1371	638	250	1476	785
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	0.81	0.76		0.77	0.83	0.44	0.86	0.94	0.16	0.94	0.80	0.39

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 61 (47%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94
Intersection Signal Delay: 46.2 — Intersection LOS: D
Intersection Capacity Utilization 101.2% — ICU Level of Service G
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Merivale & Meadowlands

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	11	1664	4	0	1811
Future Vol, veh/h	0	11	1664	4	0	1811
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized		-	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	11	1664	4	0	1811

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	834	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	267	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	267	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.1	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	267	-
HCM Lane V/C Ratio	-	-	0.041	-
HCM Control Delay (s)	-	-	19.1	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	14	102	134	1	1	3
Future Vol, veh/h	14	102	134	1	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized		-	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	14	102	134	1	1	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	135	0	-	0	265	135
Stage 1	-	-	-	-	135	-
Stage 2	-	-	-	-	130	-
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	1449	-	-	-	724	914
Stage 1	-	-	-	-	891	-
Stage 2	-	-	-	-	896	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1449	-	-	-	717	914
Mov Cap-2 Maneuver	-	-	-	-	717	-
Stage 1	-	-	-	-	882	-
Stage 2	-	-	-	-	896	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1449	-	-	-	855
HCM Lane V/C Ratio	0.01	-	-	-	0.005
HCM Control Delay (s)	7.5	0	-	-	9.2
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Appendix L

Synchro Intersection Worksheets – 2029 Future Total Conditions

CGH TRANSPORTATION

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	222	1018	8	131	919	375	0	654	256	314	333	284
Future Volume (vph)	222	1018	8	131	919	375	0	654	256	314	333	284
Satd. Flow (prot)	1642	3308	0	1595	3283	1483	0	3252	1469	3185	3191	1455
Flt Permitted	0.950			0.950						0.950		
Satd. Flow (perm)	1626	3308	0	1587	3283	1415	0	3252	1379	3078	3191	1395
Satd. Flow (RTOR)		1				208			96			284
Lane Group Flow (vph)	222	1026	0	131	919	375	0	654	256	314	333	284
Turn Type	Prot	NA		Prot	NA	Perm		NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6			4	1	3	8	
Permitted Phases						6			4			8
Detector Phase	5	2		1	6	6		4	1	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0		10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	12.1	41.1		12.1	41.1	41.1		34.6	12.1	11.5	34.6	34.6
Total Split (s)	24.0	43.0		24.0	43.0	43.0		35.0	24.0	18.0	53.0	53.0
Total Split (%)	20.0%	35.8%		20.0%	35.8%	35.8%		29.2%	20.0%	15.0%	44.2%	44.2%
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.4	3.4		3.4	3.4	3.4		2.9	3.4	2.8	2.9	2.9
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.1	7.1		7.1	7.1	7.1		6.6	7.1	6.5	6.6	6.6
Lead/Lag	Lead	Lag		Lead	Lag	Lag		Lag	Lead	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes		Yes	Yes	Yes		
Recall Mode	None	C-Max		None	C-Max	C-Max		None	None	None	None	None
Act Effct Green (s)	17.6	39.9		14.2	36.5	36.5		27.1	40.8	11.5	45.1	45.1
Actuated g/C Ratio	0.15	0.33		0.12	0.30	0.30		0.23	0.34	0.10	0.38	0.38
v/c Ratio	0.93	0.93		0.70	0.92	0.65		0.89	0.47	1.03	0.28	0.41
Control Delay	92.8	54.8		70.0	55.5	21.7		60.4	18.2	112.4	26.6	4.6
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	92.8	54.8		70.0	55.5	21.7		60.4	18.2	112.4	26.6	4.6
LOS	F	D		E	E	C		E	B	F	C	A
Approach Delay		61.5			48.0			48.5			48.8	
Approach LOS		E			D			D			D	
Queue Length 50th (m)	52.7	125.9		29.8	110.7	33.9		77.8	24.7	~40.7	27.8	0.0
Queue Length 95th (m)	#100.2	#178.4		49.9	#150.0	68.5		#106.0	44.3	#69.3	39.0	16.7
Internal Link Dist (m)		323.1			324.6			263.9			243.9	
Turn Bay Length (m)	115.0			200.0		40.0			115.0	105.0		50.0
Base Capacity (vph)	240	1101		224	999	575		769	573	305	1233	713
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	0
Reduced v/c Ratio	0.93	0.93		0.58	0.92	0.65		0.85	0.45	1.03	0.27	0.40

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 45 (38%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.03
Intersection Signal Delay: 52.0 — Intersection LOS: D
Intersection Capacity Utilization 95.7% — ICU Level of Service F
Analysis Period (min) 15

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

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

Splits and Phases: 1: Merivale & Baseline

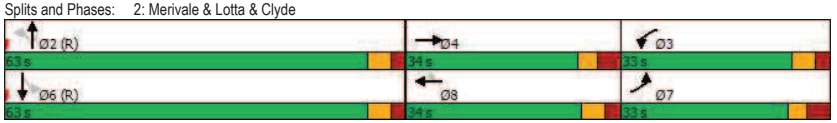
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	74	22	374	47	87	38	948	843	34	625	14
Future Volume (vph)	25	74	22	374	47	87	38	948	843	34	625	14
Satd. Flow (prot)	1626	1663	0	3154	1695	1469	1658	3316	1469	1658	3298	0
Flt Permitted	0.950			0.950			0.369			0.236		
Satd. Flow (perm)	1619	1663	0	3114	1695	1445	636	3316	1435	411	3298	0
Satd. Flow (RTOR)		10				87			843		2	
Lane Group Flow (vph)	25	96	0	374	47	87	38	948	843	34	639	0
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases						8	2		2	6		
Detector Phase	7	4		3	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	11.8	33.8		11.2	33.2	33.2	30.0	30.0	30.0	30.0	30.0	
Total Split (s)	33.0	34.0		33.0	34.0	34.0	63.0	63.0	63.0	63.0	63.0	
Total Split (%)	25.4%	26.2%		25.4%	26.2%	26.2%	48.5%	48.5%	48.5%	48.5%	48.5%	
Yellow Time (s)	3.0	3.0		3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	3.8	3.8		2.5	2.5	2.5	2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.2	6.2	6.2	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lag	Lead		Lag	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Recall Mode	None	None		None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)	17.4	14.7		20.6	23.0	23.0	75.7	75.7	75.7	75.7	75.7	
Actuated g/C Ratio	0.13	0.11		0.16	0.18	0.18	0.58	0.58	0.58	0.58	0.58	
v/c Ratio	0.12	0.49		0.75	0.16	0.27	0.10	0.49	0.71	0.14	0.33	
Control Delay	45.7	55.2		61.6	50.0	11.5	7.4	9.0	8.8	18.3	16.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	
Total Delay	45.7	55.2		61.6	50.0	11.5	7.4	9.0	10.0	18.3	16.2	
LOS	D	E		E	D	B	A	A	B	B	B	
Approach Delay		53.3			52.0			9.4			16.3	
Approach LOS		D			D			A			B	
Queue Length 50th (m)	5.4	21.4		47.7	11.7	0.0	1.8	42.8	109.3	3.6	40.1	
Queue Length 95th (m)	13.2	34.6		61.5	20.6	13.7	m2.3	46.7	255.8	13.0	73.4	
Internal Link Dist (m)		153.9			65.4			109.5			356.1	
Turn Bay Length (m)	35.0						30.0			40.0		
Base Capacity (vph)	328	355		650	393	402	370	1931	1187	239	1921	
Starvation Cap Reductn	0	0		0	0	0	0	0	162	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.08	0.27		0.58	0.12	0.22	0.10	0.49	0.82	0.14	0.33	

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 9 (7%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75
Intersection Signal Delay: 19.5 Intersection LOS: B
Intersection Capacity Utilization 92.2% ICU Level of Service F
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Merivale & Lotta & Clyde



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	16	20	31	10	35	24	1668	42	41	986	6
Future Volume (vph)	38	16	20	31	10	35	24	1668	42	41	986	6
Satd. Flow (prot)	1658	1560	0	1658	1515	0	1658	3283	1388	1658	3316	1483
Flt Permitted	0.728			0.734			0.268			0.098		
Satd. Flow (perm)	1270	1560	0	1276	1515	0	467	3283	1346	171	3316	1440
Satd. Flow (RTOR)		20			35				86			86
Lane Group Flow (vph)	38	36	0	31	45	0	24	1668	42	41	986	6
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	43.2	43.2		43.2	43.2		11.1	33.1	33.1	11.1	33.1	33.1
Total Split (s)	43.2	43.2		43.2	43.2		12.0	74.8	74.8	12.0	74.8	74.8
Total Split (%)	33.2%	33.2%		33.2%	33.2%		9.2%	57.5%	57.5%	9.2%	57.5%	57.5%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	4.2	4.2		4.2	4.2		2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.2	7.2		7.2	7.2		6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	15.4	15.4		15.4	15.4		99.7	96.3	96.3	101.2	98.8	98.8
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.77	0.74	0.74	0.78	0.76	0.76
v/c Ratio	0.25	0.18		0.21	0.21		0.06	0.69	0.04	0.20	0.39	0.01
Control Delay	52.4	27.5		50.8	20.6		6.0	15.5	0.1	6.0	4.0	0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.4	27.5		50.8	20.6		6.0	15.5	0.1	6.0	4.0	0.0
LOS	D	C		D	C		A	B	A	A	A	A
Approach Delay		40.3			32.9			15.0			4.0	
Approach LOS		D			C			B			A	
Queue Length 50th (m)	9.4	3.9		7.7	2.4		0.9	110.9	0.0	0.9	19.8	0.0
Queue Length 95th (m)	16.3	11.4		14.0	11.2		5.6	#266.8	0.3	m3.5	26.5	m0.0
Internal Link Dist (m)		360.6			33.1			203.0			139.3	
Turn Bay Length (m)	20.0			25.0			20.0		10.0	30.0		
Base Capacity (vph)	351	446		353	444		412	2431	1019	201	2519	1114
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	15	0		0	18		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.08		0.09	0.11		0.06	0.69	0.04	0.20	0.39	0.01

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 116 (89%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69
Intersection Signal Delay: 12.3 — Intersection LOS: B
Intersection Capacity Utilization 71.3% — 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: Merivale & Withrow/Capilano

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	361	416	122	83	248	195	92	1238	85	96	795	113
Future Volume (vph)	361	416	122	83	248	195	92	1238	85	96	795	113
Satd. Flow (prot)	1658	3159	0	1626	3252	1441	1610	3252	1363	1642	3283	1483
Flt Permitted	0.402			0.302			0.270			0.104		
Satd. Flow (perm)	694	3159	0	515	3252	1396	456	3252	1321	180	3283	1436
Satd. Flow (RTOR)		26				130			134			134
Lane Group Flow (vph)	361	538	0	83	248	195	92	1238	85	96	795	113
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.5	30.5		11.5	30.5	30.5	11.0	38.0	38.0	11.0	38.0	38.0
Total Split (s)	23.0	33.0		23.0	33.0	33.0	11.0	63.0	63.0	11.0	63.0	63.0
Total Split (%)	17.7%	25.4%		17.7%	25.4%	25.4%	8.5%	48.5%	48.5%	8.5%	48.5%	48.5%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.5	3.5		3.5	3.5	3.5	2.3	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	6.5	6.5	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	41.6	26.0		29.6	19.5	19.5	68.4	61.4	61.4	69.5	61.9	61.9
Actuated g/C Ratio	0.32	0.20		0.23	0.15	0.15	0.53	0.47	0.47	0.53	0.48	0.48
v/c Ratio	1.05	0.83		0.41	0.51	0.61	0.30	0.81	0.12	0.53	0.51	0.15
Control Delay	100.5	58.6		36.2	53.5	25.7	17.2	35.3	1.0	27.6	25.9	2.6
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	100.5	58.6		36.2	53.5	25.7	17.2	35.3	1.0	27.6	25.9	2.6
LOS	F	E		D	D	C	B	D	A	C	C	A
Approach Delay		75.4			40.5			32.1			23.4	
Approach LOS		E			D			C			C	
Queue Length 50th (m)	~81.8	66.6		15.0	31.0	15.0	10.2	145.2	0.0	10.7	75.0	0.0
Queue Length 95th (m)	#110.2	84.5		25.2	41.9	37.8	20.7	180.6	2.2	#27.2	97.3	7.5
Internal Link Dist (m)		444.5			230.0			176.3			262.1	
Turn Bay Length (m)	100.0			120.0		100.0	85.0		90.0	135.0		165.0
Base Capacity (vph)	344	691		283	662	388	302	1534	694	181	1562	753
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	1.05	0.78		0.29	0.37	0.50	0.30	0.81	0.12	0.53	0.51	0.15

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 115 (88%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.05
Intersection Signal Delay: 41.1 — Intersection LOS: D
Intersection Capacity Utilization 95.3% — 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: 4: Merivale & Meadowlands

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	17	1813	2	0	1021
Future Vol, veh/h	0	17	1813	2	0	1021
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	17	1813	2	0	1021

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	908	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	239	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	239	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.2	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	239	-
HCM Lane V/C Ratio	-	-	0.071	-
HCM Control Delay (s)	-	-	21.2	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	91	72	1	1	4
Future Vol, veh/h	8	91	72	1	1	4
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	8	91	72	1	1	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	73	0	-	0	180	73
Stage 1	-	-	-	-	73	-
Stage 2	-	-	-	-	107	-
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	-	-	-	810	989
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	917	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1527	-	-	-	805	989
Mov Cap-2 Maneuver	-	-	-	-	805	-
Stage 1	-	-	-	-	944	-
Stage 2	-	-	-	-	917	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1527	-	-	-	946
HCM Lane V/C Ratio	0.005	-	-	-	0.005
HCM Control Delay (s)	7.4	0	-	-	8.8
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	243	1018	19	337	1152	204	0	484	248	356	762	378
Future Volume (vph)	243	1018	19	337	1152	204	0	484	248	356	762	378
Satd. Flow (prot)	1658	3304	0	1658	3316	1483	0	3316	1483	3216	3316	1483
Flt Permitted	0.950			0.950						0.950		
Satd. Flow (perm)	1644	3304	0	1648	3316	1412	0	3316	1380	3056	3316	1415
Satd. Flow (RTOR)		1				134			83			281
Lane Group Flow (vph)	243	1037	0	337	1152	204	0	484	248	356	762	378
Turn Type	Prot	NA		Prot	NA	Perm		NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6			4	1	3	8	
Permitted Phases						6			4			8
Detector Phase	5	2		1	6	6		4	1	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0		10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	12.1	41.1		12.1	41.1	41.1		34.6	12.1	11.5	34.6	34.6
Total Split (s)	25.0	60.0		25.0	60.0	60.0		35.0	25.0	20.0	55.0	55.0
Total Split (%)	17.9%	42.9%		17.9%	42.9%	42.9%		25.0%	17.9%	14.3%	39.3%	39.3%
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.4	3.4		3.4	3.4	3.4		2.9	3.4	2.8	2.9	2.9
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.1	7.1		7.1	7.1	7.1		6.6	7.1	6.5	6.6	6.6
Lead/Lag	Lead	Lag		Lead	Lag	Lag		Lag	Lead	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes		Yes	Yes	Yes		
Recall Mode	None	C-Max		None	C-Max	C-Max		None	None	None	None	None
Act Effct Green (s)	20.9	52.9		20.9	52.9	52.9		25.4	45.8	13.5	45.4	45.4
Actuated g/C Ratio	0.15	0.38		0.15	0.38	0.38		0.18	0.33	0.10	0.32	0.32
v/c Ratio	0.99	0.83		1.37	0.92	0.33		0.80	0.48	1.15	0.71	0.58
Control Delay	112.5	46.4		232.5	54.1	12.4		65.5	24.5	151.9	45.3	13.5
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	112.5	46.4		232.5	54.1	12.4		65.5	24.5	151.9	45.3	13.5
LOS	F	D		F	D	B		E	C	F	D	B
Approach Delay		59.0			84.6			51.6			62.6	
Approach LOS		E			F			D			E	
Queue Length 50th (m)	~77.3	136.1		~131.3	159.1	12.6		66.7	32.7	~59.4	94.5	19.2
Queue Length 95th (m)	#132.1	164.2		#192.4	#201.2	31.7		86.1	56.0	#90.8	116.2	51.1
Internal Link Dist (m)		323.1			324.6			263.9			243.9	
Turn Bay Length (m)	115.0			200.0		40.0			115.0	105.0		50.0
Base Capacity (vph)	246	1249		246	1252	616		672	522	310	1146	673
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	0
Reduced v/c Ratio	0.99	0.83		1.37	0.92	0.33		0.72	0.48	1.15	0.66	0.56

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 19 (14%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.37
Intersection Signal Delay: 67.3 — Intersection LOS: E
Intersection Capacity Utilization 104.4% — ICU Level of Service G
Analysis Period (min) 15

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

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

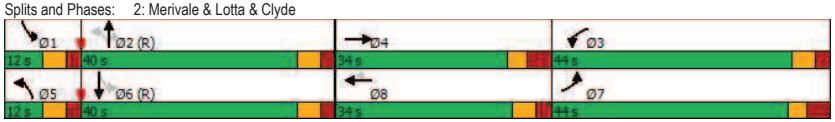
Splits and Phases: 1: Merivale & Baseline

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	53	47	904	120	180	82	941	666	87	965	27
Future Volume (vph)	38	53	47	904	120	180	82	941	666	87	965	27
Satd. Flow (prot)	1658	1602	0	3216	1745	1469	1658	3316	1483	1658	3297	0
Flt Permitted	0.950			0.950			0.101			0.100		
Satd. Flow (perm)	1650	1602	0	3180	1745	1443	176	3316	1414	175	3297	0
Satd. Flow (RTOR)		31				180			555		2	
Lane Group Flow (vph)	38	100	0	904	120	180	82	941	666	87	992	0
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		
Detector Phase	7	4		3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.8	33.8		11.2	33.2	33.2	11.0	30.0	30.0	11.0	30.0	
Total Split (s)	44.0	34.0		44.0	34.0	34.0	12.0	40.0	40.0	12.0	40.0	
Total Split (%)	33.8%	26.2%		33.8%	26.2%	26.2%	9.2%	30.8%	30.8%	9.2%	30.8%	
Yellow Time (s)	3.0	3.0		3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	3.8	3.8		2.5	2.5	2.5	2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.2	6.2	6.2	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lag	Lead		Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Act Effct Green (s)	33.6	14.3		41.2	24.3	24.3	49.2	40.9	40.9	49.8	41.2	
Actuated g/C Ratio	0.26	0.11		0.32	0.19	0.19	0.38	0.31	0.31	0.38	0.32	
v/c Ratio	0.09	0.49		0.89	0.37	0.43	0.51	0.90	0.81	0.53	0.95	
Control Delay	32.7	44.0		53.7	53.1	9.8	41.9	46.8	15.3	39.2	61.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	32.7	44.0		53.7	53.1	9.8	41.9	46.8	15.3	39.2	61.8	
LOS	C	D		D	D	A	D	D	B	D	E	
Approach Delay		40.8			47.0			34.1			59.9	
Approach LOS		D			D			C			E	
Queue Length 50th (m)	6.9	17.2		109.8	29.9	0.0	6.1	123.0	88.7	13.2	131.4	
Queue Length 95th (m)	15.7	30.9		#158.5	44.7	18.9	m17.6	#179.7	#70.0	#35.2	#199.0	
Internal Link Dist (m)		153.9			65.4			109.5			356.1	
Turn Bay Length (m)	35.0						30.0			40.0		
Base Capacity (vph)	509	359		1022	443	501	161	1043	825	164	1046	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.07	0.28		0.88	0.27	0.36	0.51	0.90	0.81	0.53	0.95	

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 98 (75%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95
Intersection Signal Delay: 44.9 — Intersection LOS: D
Intersection Capacity Utilization 83.0% — 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: 2: Merivale & Lotta & Clyde



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	8	31	74	14	62	41	1612	30	78	1748	21
Future Volume (vph)	37	8	31	74	14	62	41	1612	30	78	1748	21
Satd. Flow (prot)	1658	1489	0	1658	1508	0	1658	3316	1483	1658	3316	1483
Flt Permitted	0.708			0.732			0.071			0.087		
Satd. Flow (perm)	1227	1489	0	1267	1508	0	124	3316	1391	152	3316	1399
Satd. Flow (RTOR)		31			62				86			86
Lane Group Flow (vph)	37	39	0	74	76	0	41	1612	30	78	1748	21
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	43.2	43.2		43.2	43.2		11.1	33.1	33.1	11.1	33.1	33.1
Total Split (s)	43.2	43.2		43.2	43.2		12.0	74.8	74.8	12.0	74.8	74.8
Total Split (%)	33.2%	33.2%		33.2%	33.2%		9.2%	57.5%	57.5%	9.2%	57.5%	57.5%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	4.2	4.2		4.2	4.2		2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.2	7.2		7.2	7.2		6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	21.1	21.1		21.1	21.1		89.0	83.2	83.2	91.1	86.0	86.0
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.68	0.64	0.64	0.70	0.66	0.66
v/c Ratio	0.19	0.15		0.36	0.26		0.27	0.76	0.03	0.44	0.80	0.02
Control Delay	43.7	16.5		49.5	14.4		12.1	22.1	0.1	15.1	14.1	0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.7	16.5		49.5	14.4		12.1	22.1	0.1	15.1	14.1	0.0
LOS	D	B		D	B		B	C	A	B	B	A
Approach Delay		29.8			31.7			21.5			13.9	
Approach LOS		C			C			C			B	
Queue Length 50th (m)	9.0	1.9		18.4	3.3		1.8	117.9	0.0	1.4	132.4	0.0
Queue Length 95th (m)	16.1	10.2		27.6	14.5		8.3	#235.0	0.0	m3.1	m#271.9	m0.0
Internal Link Dist (m)		360.6			33.1			203.0			139.3	
Turn Bay Length (m)	20.0			25.0			20.0		10.0	30.0		
Base Capacity (vph)	339	434		350	462		154	2121	920	179	2193	954
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.09		0.21	0.16		0.27	0.76	0.03	0.44	0.80	0.02

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 76 (58%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80
Intersection Signal Delay: 18.4 — Intersection LOS: B
Intersection Capacity Utilization 86.3% — 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: 3: Merivale & Withrow/Capilano

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	192	336	154	184	538	183	195	1300	102	234	1229	315
Future Volume (vph)	192	336	154	184	538	183	195	1300	102	234	1229	315
Satd. Flow (prot)	1658	3085	0	1658	3283	1483	1658	3316	1483	1658	3316	1483
Flt Permitted	0.197			0.254			0.096			0.070		
Satd. Flow (perm)	339	3085	0	434	3283	1402	167	3316	1354	122	3316	1381
Satd. Flow (RTOR)		51				183			134			315
Lane Group Flow (vph)	192	490	0	184	538	183	195	1300	102	234	1229	315
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.5	30.5		11.5	30.5	30.5	11.0	38.0	38.0	11.0	38.0	38.0
Total Split (s)	19.0	31.0		19.0	31.0	31.0	17.0	59.0	59.0	21.0	63.0	63.0
Total Split (%)	14.6%	23.8%		14.6%	23.8%	23.8%	13.1%	45.4%	45.4%	16.2%	48.5%	48.5%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	3.5	3.5		3.5	3.5	3.5	2.3	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	6.5	6.5	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	36.5	24.0		36.1	23.8	23.8	64.8	53.4	53.4	72.5	57.3	57.3
Actuated g/C Ratio	0.28	0.18		0.28	0.18	0.18	0.50	0.41	0.41	0.56	0.44	0.44
v/c Ratio	0.86	0.80		0.78	0.90	0.45	0.92	0.95	0.16	0.95	0.84	0.40
Control Delay	69.3	56.2		56.9	70.3	10.0	72.4	53.1	2.2	80.8	38.9	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
Total Delay	69.3	56.2		56.9	70.3	10.0	72.4	53.1	2.2	80.8	38.9	4.0
LOS	E	E		E	E	A	E	D	A	F	D	A
Approach Delay		59.9			55.4			52.2			38.2	
Approach LOS		E			E			D			D	
Queue Length 50th (m)	36.9	57.3		35.2	71.1	0.0	31.6	168.6	0.0	45.6	145.3	0.0
Queue Length 95th (m)	#72.4	77.3		#57.7	#99.6	19.8	#77.6	#217.1	5.6	#96.0	175.8	16.4
Internal Link Dist (m)		444.5			230.0			176.3			262.1	
Turn Bay Length (m)	100.0			120.0		100.0	85.0		90.0	135.0		165.0
Base Capacity (vph)	222	622		239	618	412	213	1362	635	247	1461	784
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	0.86	0.79		0.77	0.87	0.44	0.92	0.95	0.16	0.95	0.84	0.40

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 61 (47%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95
Intersection Signal Delay: 48.8 — Intersection LOS: D
Intersection Capacity Utilization 101.8% — ICU Level of Service G
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Merivale & Meadowlands

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	11	1678	4	0	1916
Future Vol, veh/h	0	11	1678	4	0	1916
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized		-	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	11	1678	4	0	1916

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	841	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	264	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	264	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.2	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	264	-
HCM Lane V/C Ratio	-	-	0.042	-
HCM Control Delay (s)	-	-	19.2	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	14	102	147	1	1	3
Future Vol, veh/h	14	102	147	1	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized		-	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	14	102	147	1	1	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	148	0	-	0	278	148
Stage 1	-	-	-	-	148	-
Stage 2	-	-	-	-	130	-
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	1434	-	-	-	712	899
Stage 1	-	-	-	-	880	-
Stage 2	-	-	-	-	896	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1434	-	-	-	705	899
Mov Cap-2 Maneuver	-	-	-	-	705	-
Stage 1	-	-	-	-	871	-
Stage 2	-	-	-	-	896	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	9.3
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1434	-	-	-	841
HCM Lane V/C Ratio	0.01	-	-	-	0.005
HCM Control Delay (s)	7.5	0	-	-	9.3
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Appendix M

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 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 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)	☐