

# 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  
69, rue Jean-Proulx unite #301  
Gatineau, Québec J8Z 1W2

Prepared by:



6 Plaza Court  
Ottawa, ON K2H 7W1

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## Table of Contents

|       |                                                 |    |
|-------|-------------------------------------------------|----|
| 1     | Screening .....                                 | 1  |
| 2     | Existing and Planned Conditions.....            | 1  |
| 2.1   | Proposed Development .....                      | 1  |
| 2.2   | Existing Conditions.....                        | 3  |
| 2.2.1 | Area Road Network.....                          | 3  |
| 2.2.2 | Existing Intersections .....                    | 3  |
| 2.2.3 | Existing Driveways .....                        | 4  |
| 2.2.4 | Cycling and Pedestrian Facilities .....         | 4  |
| 2.2.5 | Existing Transit .....                          | 7  |
| 2.2.6 | Existing Area Traffic Management Measures ..... | 9  |
| 2.2.7 | Existing Peak Hour Travel Demand .....          | 9  |
| 2.2.8 | Collision Analysis.....                         | 12 |
| 2.3   | Planned Conditions .....                        | 17 |
| 2.3.1 | Changes to the Area Transportation Network..... | 17 |
| 2.3.2 | Other Study Area Developments .....             | 17 |
| 3     | Study Area and Time Periods.....                | 17 |
| 3.1   | Study Area .....                                | 17 |
| 3.2   | Time Periods .....                              | 18 |
| 3.3   | Horizon Years.....                              | 18 |
| 4     | Exemption Review .....                          | 18 |
| 5     | Development-Generated Travel Demand .....       | 19 |
| 5.1   | Trip Generation and Mode Shares.....            | 19 |
| 5.2   | Trip Distribution.....                          | 20 |
| 5.3   | Trip Assignment .....                           | 20 |
| 6     | Background Network Travel Demands .....         | 21 |
| 6.1   | Transportation Network Plans.....               | 21 |
| 6.2   | Background Growth.....                          | 21 |
| 6.3   | Other Developments .....                        | 22 |
| 7     | Demand Rationalization .....                    | 23 |
| 7.1   | 2024 Future Background Operations.....          | 23 |
| 7.2   | 2029 Future Background Operations.....          | 25 |
| 7.3   | Demand Rationalization Conclusions .....        | 28 |
| 8     | Development Design .....                        | 28 |
| 8.1   | Design for Sustainable Modes .....              | 28 |
| 8.2   | Circulation and Access .....                    | 28 |
| 9     | Parking.....                                    | 28 |
| 9.1   | Parking Supply .....                            | 28 |
| 10    | Boundary Street Design .....                    | 29 |
| 11    | Access Intersections Design.....                | 29 |
| 11.1  | Location and Design of Access.....              | 29 |
| 11.2  | Intersection Control.....                       | 29 |
| 11.3  | Access Intersection Design .....                | 30 |

|        |                                                                   |    |
|--------|-------------------------------------------------------------------|----|
| 11.3.1 | 2024 Future Total Access Intersection Operations.....             | 30 |
| 11.3.2 | 2029 Future Total Access Intersection Operations.....             | 31 |
| 11.3.3 | Access Intersection MMLOS .....                                   | 32 |
| 11.3.4 | Recommended Design Elements .....                                 | 32 |
| 12     | Transportation Demand Management.....                             | 32 |
| 12.1   | Context for TDM .....                                             | 32 |
| 12.2   | Need and Opportunity.....                                         | 32 |
| 12.3   | TDM Program .....                                                 | 32 |
| 13     | Neighbourhood Traffic Management.....                             | 33 |
| 14     | Transit.....                                                      | 33 |
| 14.1   | Route Capacity.....                                               | 33 |
| 14.2   | Transit Priority .....                                            | 33 |
| 15     | Network Intersection Design .....                                 | 33 |
| 15.1   | Network Intersection Control.....                                 | 33 |
| 15.2   | Network Intersection Design .....                                 | 34 |
| 15.2.1 | 2024 Future Total Network Intersection Operations .....           | 34 |
| 15.2.2 | 2029 Future Total Network Intersection Operations .....           | 35 |
| 15.2.3 | Network Intersection MMLOS .....                                  | 36 |
| 15.2.4 | Recommended Design Elements .....                                 | 37 |
| 16     | Summary of Improvements Indicated and Modifications Options ..... | 37 |
| 17     | Conclusion .....                                                  | 40 |

## List of Figures

|                                                                             |    |
|-----------------------------------------------------------------------------|----|
| Figure 1: Area Context Plan .....                                           | 1  |
| Figure 2: Concept Plan.....                                                 | 2  |
| Figure 3: Study Area Pedestrian Facilities .....                            | 5  |
| Figure 4: Study Area Cycling Facilities .....                               | 5  |
| Figure 5: Existing Pedestrian Volumes.....                                  | 6  |
| Figure 6: Existing Cyclist Volumes.....                                     | 7  |
| Figure 7: Existing Study Area Transit Service.....                          | 8  |
| Figure 8: Existing Study Area Transit Stops .....                           | 8  |
| Figure 9: Existing Traffic Counts .....                                     | 10 |
| Figure 10: Study Area Collision Records – Representation of 2014-2018 ..... | 13 |
| Figure 11: New Site Generated Auto Volumes .....                            | 21 |
| Figure 12: 2024 Future Background Volumes .....                             | 23 |
| Figure 13: 2029 Future Background Volumes .....                             | 26 |
| Figure 14: 2024 Future Total Volumes .....                                  | 30 |
| Figure 15: 2029 Future Total Volumes .....                                  | 31 |

## Table of Tables

|                                                |    |
|------------------------------------------------|----|
| Table 1: Intersection Count Date.....          | 9  |
| Table 2: Existing Intersection Operations..... | 10 |

|                                                                                                    |    |
|----------------------------------------------------------------------------------------------------|----|
| Table 3: Study Area Collision Summary, 2014-2018.....                                              | 12 |
| Table 4: Summary of Collision Locations, 2014-2018.....                                            | 13 |
| Table 5: Merivale Road/Clyde Avenue at Lotta Avenue/Merivale Road Collision Summary .....          | 14 |
| Table 6: Merivale Road at Capilano Drive/Withrow Avenue Collision Summary .....                    | 14 |
| Table 7: Clyde Avenue between Baseline Road and Starwood Road Collision Summary .....              | 15 |
| Table 8: Merivale Road between Lotta Avenue and Gilbey Drive Collision Summary .....               | 15 |
| Table 9: Merivale Road between Lotta Avenue and Rita Avenue (Cleto Avenue) Collision Summary ..... | 16 |
| Table 10: Exemption Review .....                                                                   | 18 |
| Table 11: Residential Trip Generation Person Trip Rates by Peak Period .....                       | 19 |
| Table 12: Total Residential Person Trip Generation by Peak Period .....                            | 19 |
| Table 13: Mode Shares – Merivale .....                                                             | 19 |
| Table 14: Residential Peak Period Trip Generation by Mode .....                                    | 19 |
| Table 15: Total Peak Hour Trip Generation by Mode .....                                            | 20 |
| Table 16: OD Survey Distribution - Merivale .....                                                  | 20 |
| Table 17: TRANS Regional Model Projections - Study Area Growth Rates .....                         | 22 |
| Table 18: TRANS Regional Model Projections - Study Area Growth Rates .....                         | 22 |
| Table 19: 2024 Future Background Intersection Operations .....                                     | 24 |
| Table 20: 2029 Future Background Intersection Operations .....                                     | 26 |
| Table 21: Boundary Street MMLOS Analysis .....                                                     | 29 |
| Table 22: 2024 Future Total Access Intersection Operations .....                                   | 30 |
| Table 23: 2029 Future Total Access Intersection Operations .....                                   | 32 |
| Table 24: Trip Generation by Transit Mode.....                                                     | 33 |
| Table 25: 2024 Future Total Network Intersection Operations.....                                   | 34 |
| Table 26: 2029 Future Total Network Intersection Operations.....                                   | 35 |
| Table 27: Study Area Intersection MMLOS Analysis.....                                              | 37 |

## List of Appendices

|                                                                                  |
|----------------------------------------------------------------------------------|
| Appendix A – TIA Screening Form and Certification Form                           |
| Appendix B – Turning Movement Count Data                                         |
| Appendix C – Synchro Intersection Worksheets – Existing Conditions               |
| Appendix D – Collision Data                                                      |
| Appendix E – TRANS Model Plots                                                   |
| Appendix F – Background Development Volumes                                      |
| Appendix G – Synchro Intersection Worksheets – 2024 Future Background Conditions |
| Appendix H – Synchro Intersection Worksheets – 2029 Future Background Conditions |
| Appendix I – Turning Templates                                                   |
| Appendix J – MMLOS Analysis                                                      |
| Appendix K – Synchro Intersection Worksheets – 2024 Future Total Conditions      |
| Appendix L –Synchro Intersection Worksheets – 2029 Future Total Conditions       |
| Appendix M – TDM Checklist                                                       |

## 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



## 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 auxiliary 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.

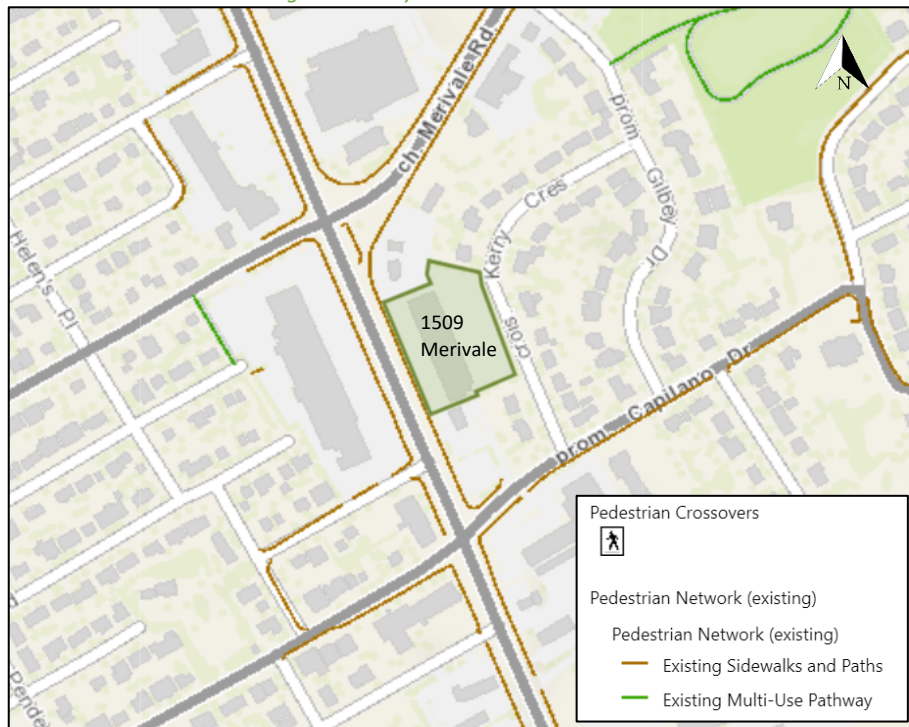
### 2.2.4 Cycling and Pedestrian Facilities

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.

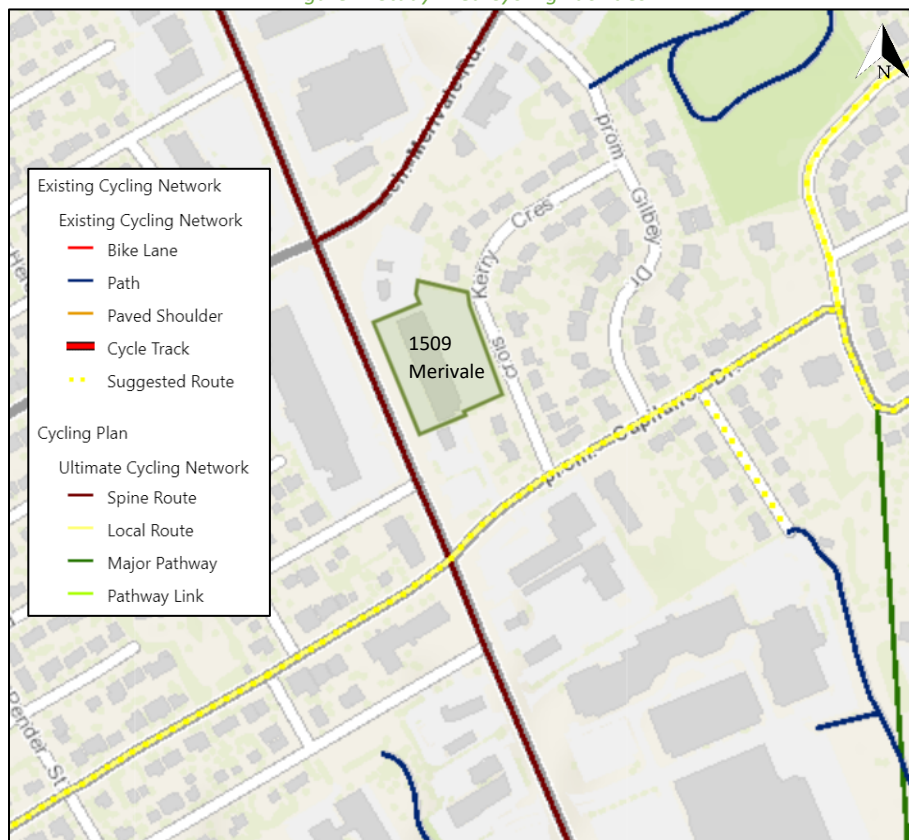
No existing dedicated cycling facilities are present within the study area road network. Merivale Road and Clyde Avenue are spine cycling routes, and Capilano Drive and Withrow Avenue are local routes.

Figure 3: Study Area Pedestrian Facilities



Source: <https://maps.ottawa.ca/geottawabeta/> Accessed: October 1, 2020

Figure 4: Study Area Cycling Facilities



Source: <https://maps.ottawa.ca/geottawabeta/> 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

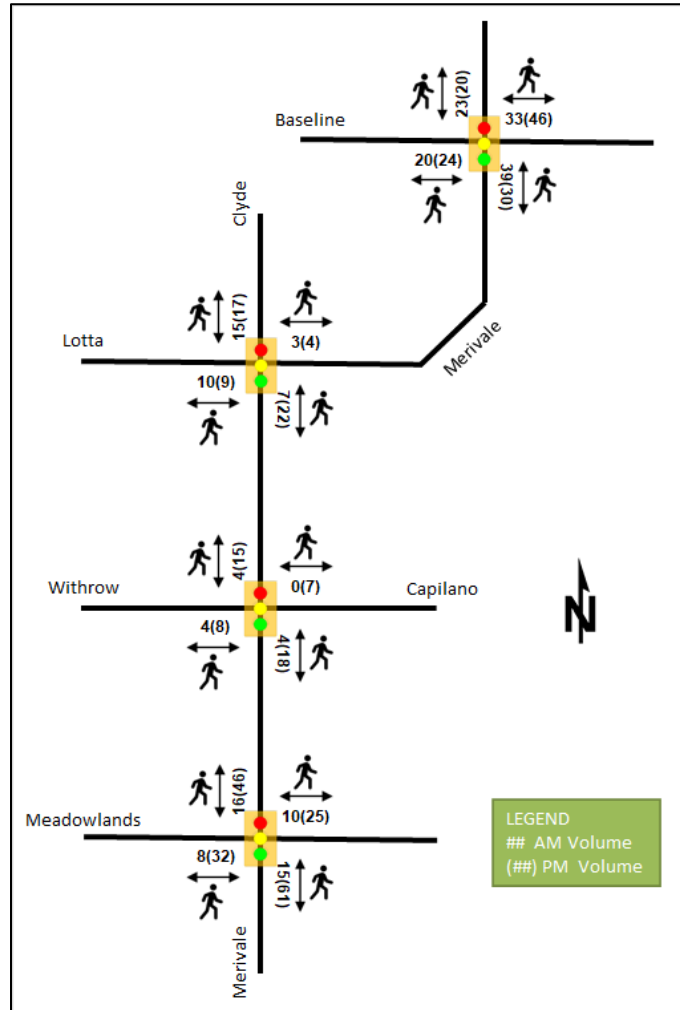
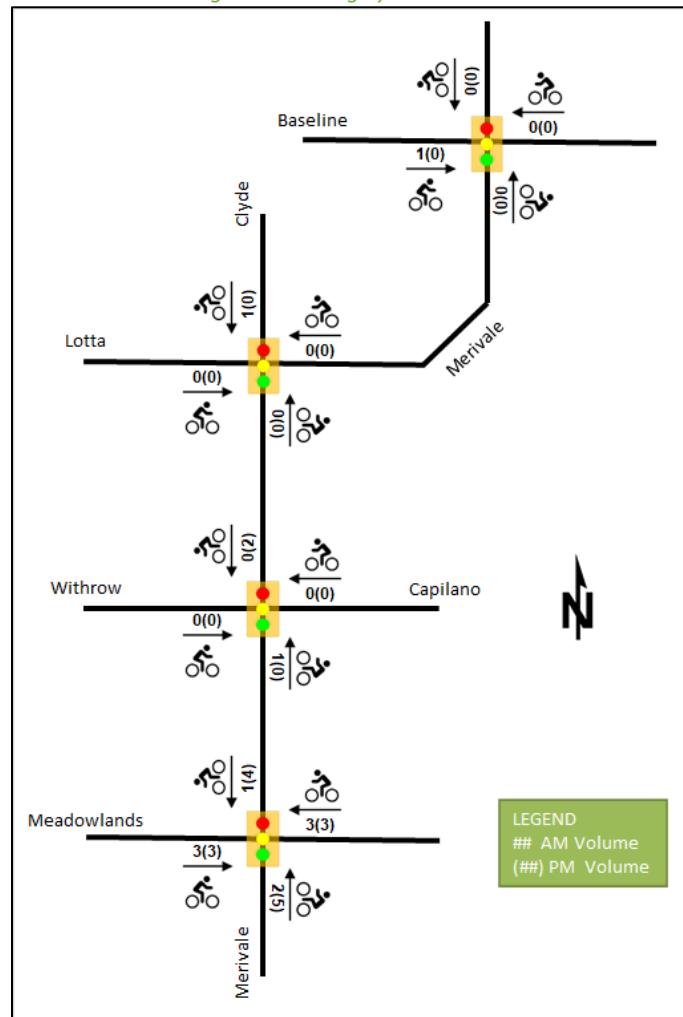


Figure 6: Existing Cyclist Volumes



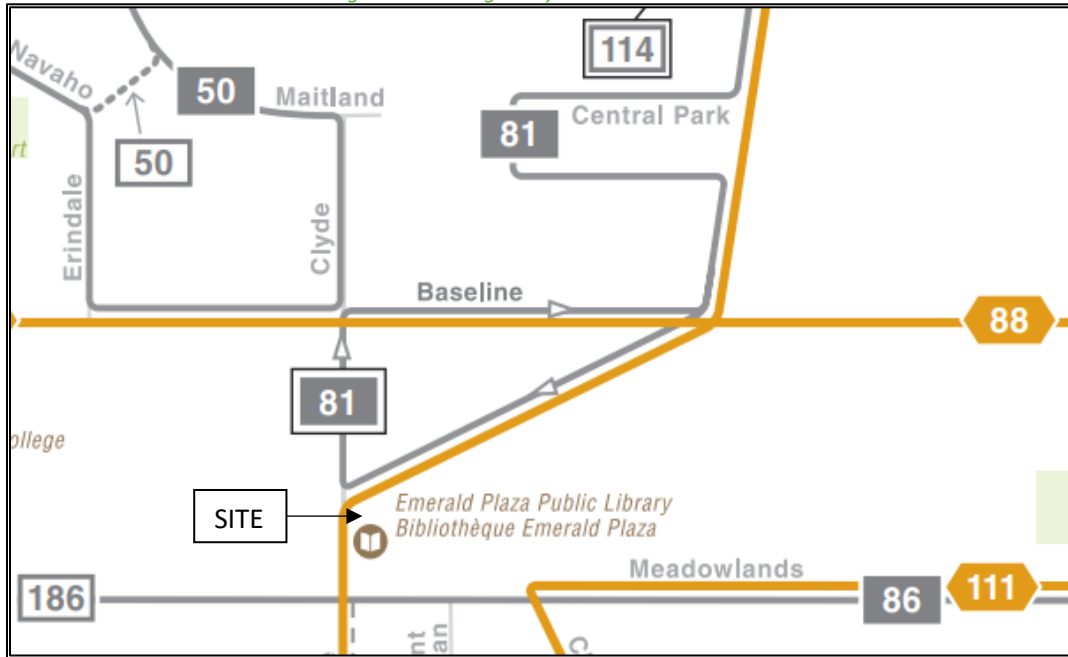
### 2.2.5 Existing Transit

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

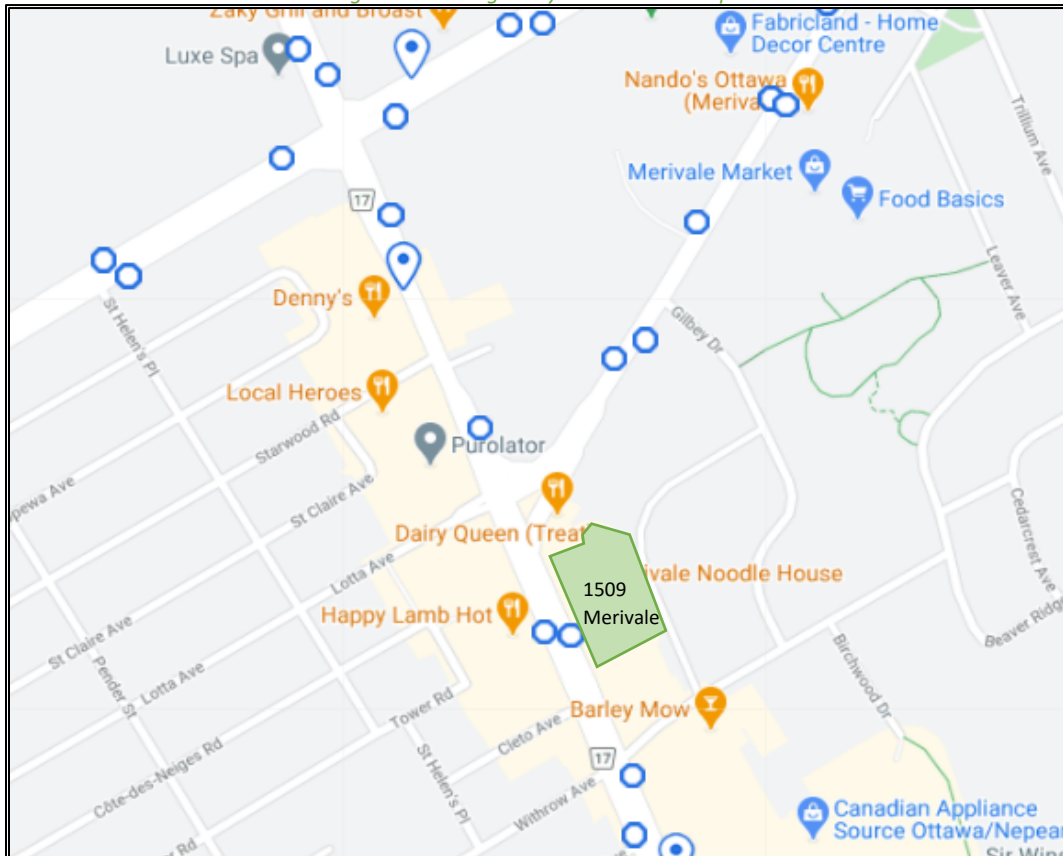
Figure 7 illustrates the transit system map in the study area and Figure 8 illustrates nearby transit stops.

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

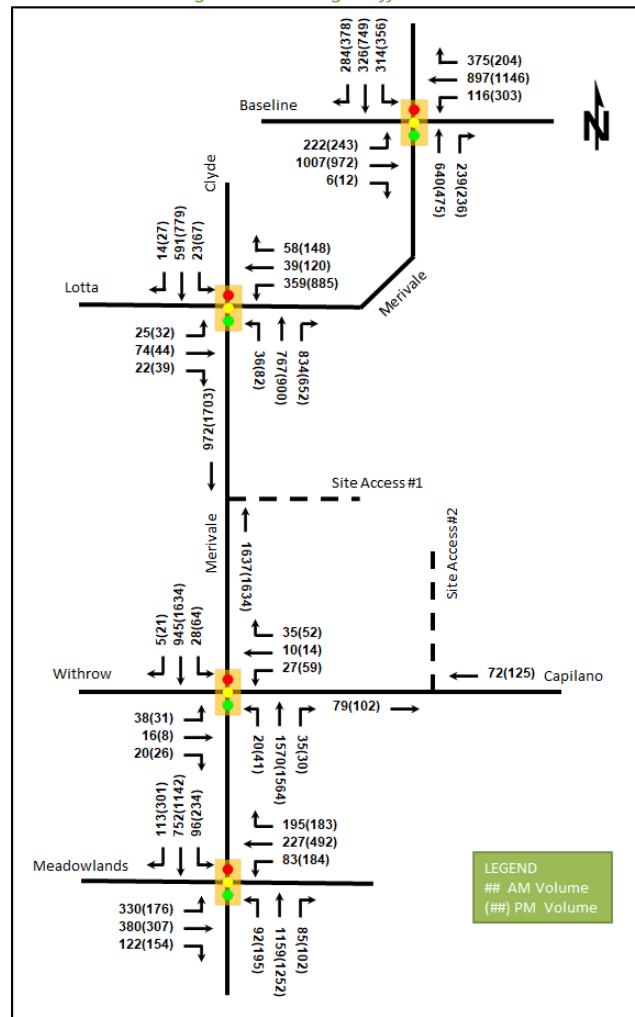


Table 2: Existing Intersection Operations

| Intersection                                        | Lane    | AM Peak Hour |      |       |                       | PM Peak Hour |      |       |                       |
|-----------------------------------------------------|---------|--------------|------|-------|-----------------------|--------------|------|-------|-----------------------|
|                                                     |         | LOS          | V/C  | Delay | Q (95 <sup>th</sup> ) | LOS          | V/C  | Delay | Q (95 <sup>th</sup> ) |
| Merivale Road at Baseline Road<br><i>Signalized</i> | 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 (95 <sup>th</sup> ) | LOS          | V/C         | Delay       | Q (95 <sup>th</sup> ) |
| <b>Merivale Road /<br/>Clyde Avenue at<br/>Lotta Avenue /<br/>Merivale Road<br/>Signalized</b> | 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                |
|                                                                                                | <b>Overall</b> | <b>B</b>     | <b>0.67</b> | <b>22.2</b> | -                     | <b>D</b>     | <b>0.85</b> | <b>51.4</b> | -                     |
| <b>Merivale Road at<br/>Withrow Avenue /<br/>Capilano Drive<br/>Signalized</b>                 | 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                  |
|                                                                                                | <b>Overall</b> | <b>B</b>     | <b>0.67</b> | <b>12.1</b> | -                     | <b>C</b>     | <b>0.73</b> | <b>19.4</b> | -                     |
| <b>Merivale Road at<br/>Meadowlands<br/>Drive<br/>Signalized</b>                               | 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                  |
|                                                                                                | <b>Overall</b> | <b>E</b>     | <b>0.94</b> | <b>42.5</b> | -                     | <b>F</b>     | <b>1.02</b> | <b>57.9</b> | -                     |

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](http://data.ottawa.ca)) for five years prior to the commencement of this TIA for the surrounding study area 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 | %           |
|-------------------------------|-----------------------------|--------|-------------|
| <b>Total Collisions</b>       |                             | 232    | <b>100%</b> |
| <b>Classification</b>         | <b>Fatality</b>             | 1      | <1%         |
|                               | <b>Non-Fatal Injury</b>     | 32     | 14%         |
|                               | <b>Property Damage Only</b> | 199    | 86%         |
| <b>Initial Impact Type</b>    | <b>Angled</b>               | 33     | 14%         |
|                               | <b>Rear end</b>             | 111    | 48%         |
|                               | <b>Sideswipe</b>            | 33     | 14%         |
|                               | <b>Turning Movement</b>     | 42     | 18%         |
|                               | <b>SMV Other</b>            | 9      | 4%          |
|                               | <b>Other</b>                | 4      | 2%          |
| <b>Road Surface Condition</b> | <b>Dry</b>                  | 150    | 65%         |
|                               | <b>Wet</b>                  | 54     | 23%         |
|                               | <b>Loose Snow</b>           | 16     | 7%          |
|                               | <b>Slush</b>                | 7      | 3%          |
|                               | <b>Packed Snow</b>          | 3      | 1%          |
|                               | <b>Ice</b>                  | 2      | 1%          |
| <b>Pedestrian Involved</b>    |                             | 1      | <1%         |
| <b>Cyclists Involved</b>      |                             | 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

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

| Total Collisions       |                      | Number | %    |
|------------------------|----------------------|--------|------|
|                        |                      | 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, daylight 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

| Total Collisions       |                      | Number | %    |
|------------------------|----------------------|--------|------|
|                        |                      | 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    | %           |
|----------------------------|--------------------|-----------|-------------|
| <b>Total Collisions</b>    |                    | <b>38</b> | <b>100%</b> |
|                            | <b>Slush</b>       | 1         | 3%          |
|                            | <b>Packed Snow</b> | 1         | 3%          |
| <b>Pedestrian Involved</b> |                    | 1         | 3%          |
| <b>Cyclists Involved</b>   |                    | 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    | %           |
|-------------------------------|-----------------------------|-----------|-------------|
| <b>Total Collisions</b>       |                             | <b>20</b> | <b>100%</b> |
| <b>Classification</b>         | <b>Fatality</b>             | 0         | 0%          |
|                               | <b>Non-Fatal Injury</b>     | 2         | 10%         |
|                               | <b>Property Damage Only</b> | 18        | 90%         |
| <b>Initial Impact Type</b>    | <b>Angled</b>               | 7         | 35%         |
|                               | <b>Rear end</b>             | 2         | 10%         |
|                               | <b>Sideswipe</b>            | 5         | 25%         |
|                               | <b>Turning Movement</b>     | 4         | 20%         |
|                               | <b>SMV Other</b>            | 1         | 5%          |
|                               | <b>Other</b>                | 1         | 5%          |
| <b>Road Surface Condition</b> | <b>Dry</b>                  | 13        | 65%         |
|                               | <b>Wet</b>                  | 3         | 15%         |
|                               | <b>Loose Snow</b>           | 2         | 10%         |
|                               | <b>Slush</b>                | 2         | 10%         |
| <b>Pedestrian Involved</b>    |                             | 0         | 0%          |
| <b>Cyclists Involved</b>      |                             | 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    | %           |
|-------------------------|-----------------------------|-----------|-------------|
| <b>Total Collisions</b> |                             | <b>16</b> | <b>100%</b> |
| <b>Classification</b>   | <b>Fatality</b>             | 0         | 0%          |
|                         | <b>Non-Fatal Injury</b>     | 1         | 6%          |
|                         | <b>Property Damage Only</b> | 15        | 94%         |

|                               |                         | Number    | %           |
|-------------------------------|-------------------------|-----------|-------------|
| <b>Total Collisions</b>       |                         | <b>16</b> | <b>100%</b> |
| <b>Initial Impact Type</b>    | <b>Angled</b>           | 1         | 6%          |
|                               | <b>Rear end</b>         | 6         | 38%         |
|                               | <b>Sideswipe</b>        | 1         | 6%          |
|                               | <b>Turning Movement</b> | 7         | 44%         |
|                               | <b>SMV Other</b>        | 1         | 6%          |
| <b>Road Surface Condition</b> | <b>Dry</b>              | 10        | 63%         |
|                               | <b>Wet</b>              | 3         | 19%         |
|                               | <b>Loose Snow</b>       | 2         | 13%         |
|                               | <b>Ice</b>              | 1         | 6%          |
| <b>Pedestrian Involved</b>    |                         | 0         | 0%          |
| <b>Cyclists Involved</b>      |                         | 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    | %           |
|-------------------------------|-----------------------------|-----------|-------------|
| <b>Total Collisions</b>       |                             | <b>21</b> | <b>100%</b> |
| <b>Classification</b>         | <b>Fatality</b>             | 0         | 0%          |
|                               | <b>Non-Fatal Injury</b>     | 5         | 24%         |
|                               | <b>Property Damage Only</b> | 16        | 76%         |
| <b>Initial Impact Type</b>    | <b>Angled</b>               | 2         | 10%         |
|                               | <b>Rear end</b>             | 14        | 67%         |
|                               | <b>Sideswipe</b>            | 3         | 14%         |
|                               | <b>Turning Movement</b>     | 2         | 10%         |
| <b>Road Surface Condition</b> | <b>Dry</b>                  | 11        | 52%         |
|                               | <b>Wet</b>                  | 9         | 43%         |
|                               | <b>Loose Snow</b>           | 1         | 5%          |
| <b>Pedestrian Involved</b>    |                             | 0         | 0%          |
| <b>Cyclists Involved</b>      |                             | 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 |
|---------------------------------------------|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| <b>Design Review Component</b>              |                               |                                                                                                                                                                  |                 |
| <b>4.1 Development Design</b>               | 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          |
| <b>4.2 Parking</b>                          | 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          |
| <b>Network Impact Component</b>             |                               |                                                                                                                                                                  |                 |
| <b>4.5 Transportation Demand Management</b> | All Elements                  | Not required for site plans expected to have fewer than 60 employees and/or students on location at any given time                                               | Required        |
| <b>4.6 Neighbourhood Traffic Management</b> | 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        |
| <b>4.8 Network Concept</b>                  |                               | 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<br>(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.

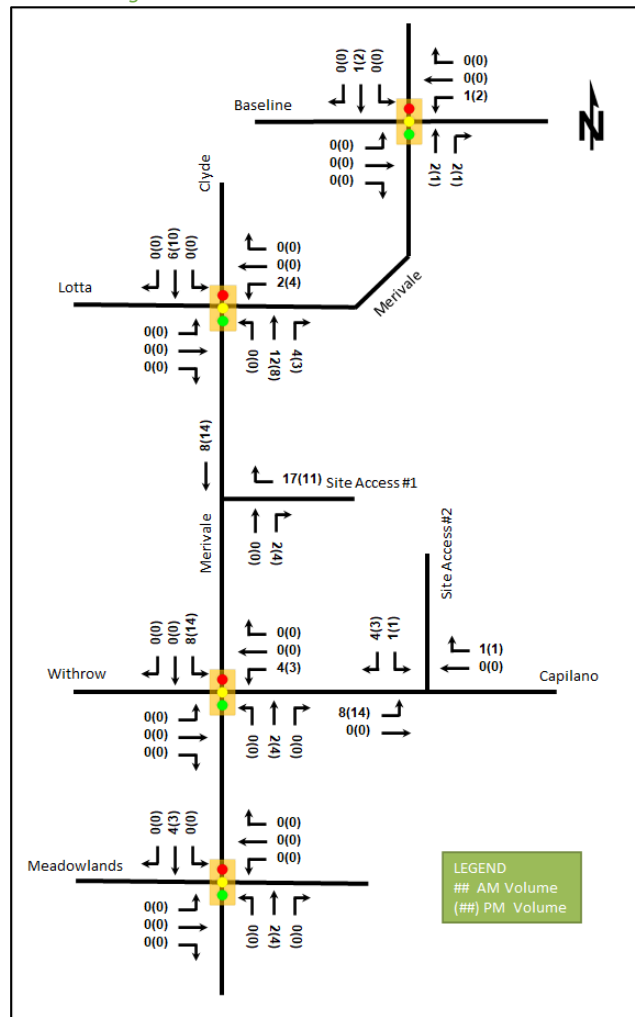
Table 16: OD Survey Distribution - Merivale

| 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

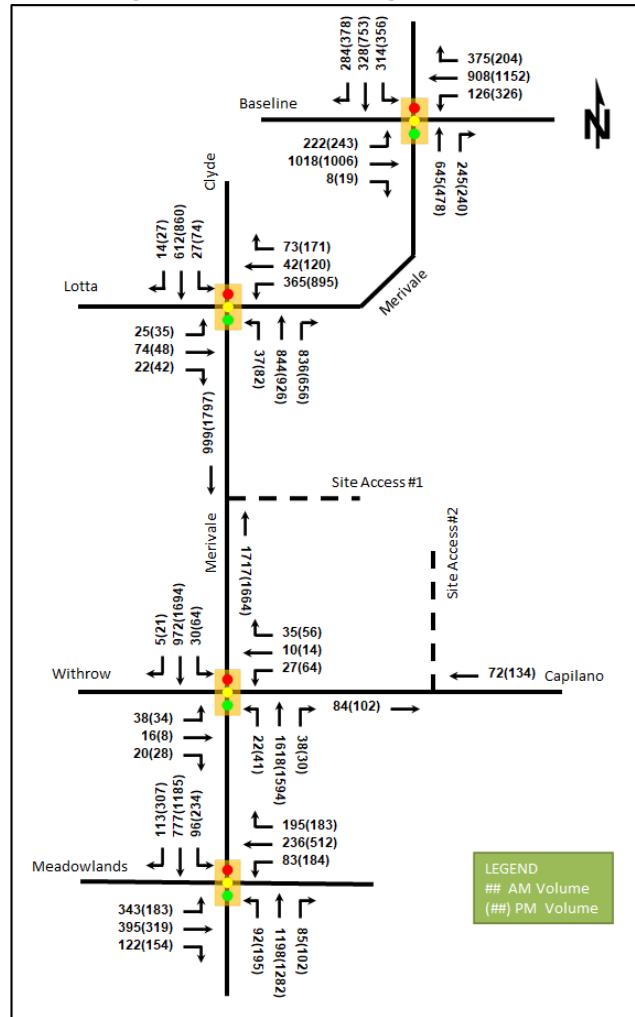


Table 19: 2024 Future Background Intersection Operations

| Intersection                                                                      | Lane    | AM Peak Hour |      |       |                       | PM Peak Hour |      |       |                       |
|-----------------------------------------------------------------------------------|---------|--------------|------|-------|-----------------------|--------------|------|-------|-----------------------|
|                                                                                   |         | LOS          | V/C  | Delay | Q (95 <sup>th</sup> ) | LOS          | V/C  | Delay | Q (95 <sup>th</sup> ) |
| Merivale Road at Baseline Road<br><i>Signalized</i>                               | 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<br><i>Signalized</i> | 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<br><i>Signalized</i>             | 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<br><i>Signalized</i>                           | 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

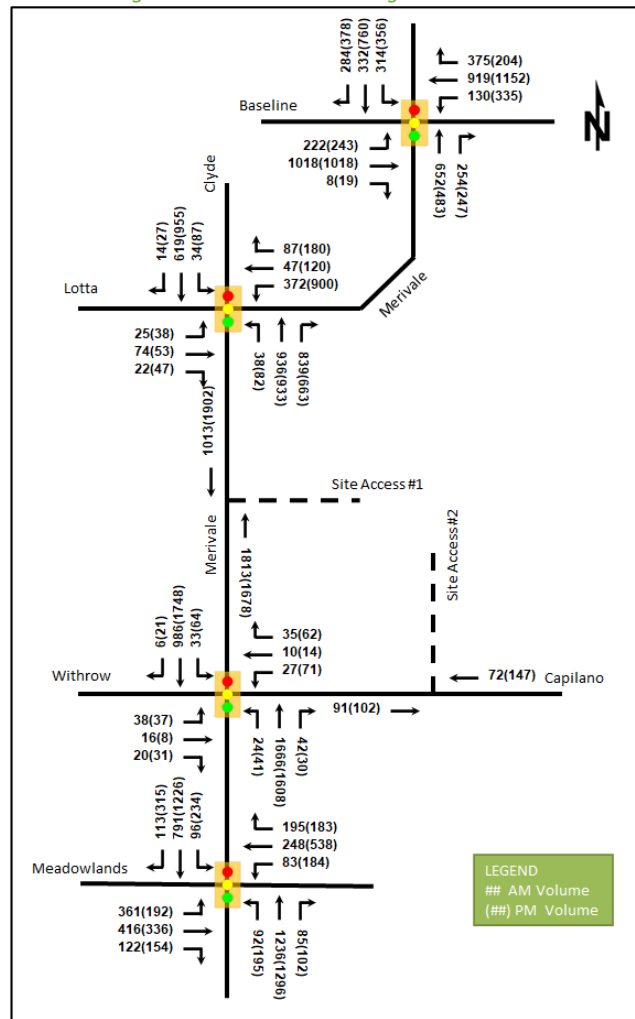


Table 20: 2029 Future Background Intersection Operations

| Intersection                                        | Lane    | AM Peak Hour |      |       |                       | PM Peak Hour |      |       |                       |
|-----------------------------------------------------|---------|--------------|------|-------|-----------------------|--------------|------|-------|-----------------------|
|                                                     |         | LOS          | V/C  | Delay | Q (95 <sup>th</sup> ) | LOS          | V/C  | Delay | Q (95 <sup>th</sup> ) |
| Merivale Road at Baseline Road<br><i>Signalized</i> | 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 (95 <sup>th</sup> ) | LOS          | V/C         | Delay       | Q (95 <sup>th</sup> ) |
| Merivale Road /<br>Clyde Avenue at<br>Lotta Avenue /<br>Merivale Road<br><i>Signalized</i> | 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                |
|                                                                                            | <b>Overall</b> | <b>A</b>     | <b>0.58</b> | <b>19.7</b>  | <b>-</b>              | <b>D</b>     | <b>0.82</b> | <b>44.3</b> | <b>-</b>              |
| Merivale Road at<br>Withrow Avenue /<br>Capilano Drive<br><i>Signalized</i>                | 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                  |
|                                                                                            | <b>Overall</b> | <b>B</b>     | <b>0.64</b> | <b>11.5</b>  | <b>-</b>              | <b>B</b>     | <b>0.70</b> | <b>17.6</b> | <b>-</b>              |
| Merivale Road at<br>Meadowlands<br>Drive<br><i>Signalized</i>                              | EBL            | <b>F</b>     | <b>1.05</b> | <b>100.5</b> | <b>#110.2</b>         | 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                  |
|                                                                                            | <b>Overall</b> | <b>D</b>     | <b>0.90</b> | <b>41.1</b>  | <b>-</b>              | <b>E</b>     | <b>0.96</b> | <b>48.7</b> | <b>-</b>              |

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 |
| <b>Merivale Road</b>  | <b>F</b>       | A      | <b>F</b>    | C      | D           | D      | A         | D      |
| <b>Kerry Crescent</b> | <b>F</b>       | 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

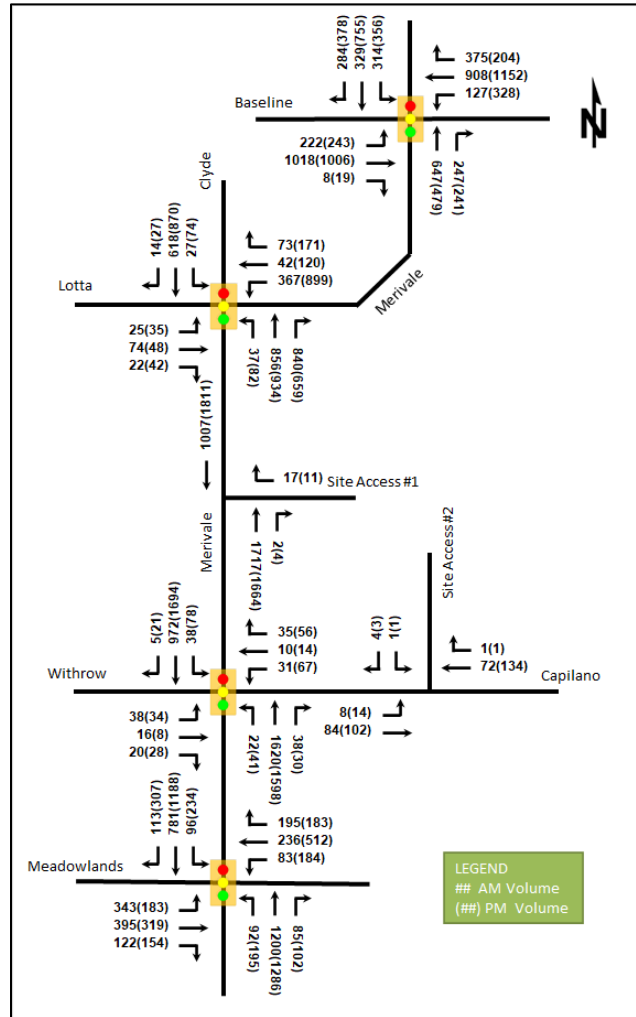


Table 22: 2024 Future Total Access Intersection Operations

| Intersection                              | Lane    | AM Peak Hour |      |       |                       | PM Peak Hour |      |       |                       |
|-------------------------------------------|---------|--------------|------|-------|-----------------------|--------------|------|-------|-----------------------|
|                                           |         | LOS          | V/C  | Delay | Q (95 <sup>th</sup> ) | LOS          | V/C  | Delay | Q (95 <sup>th</sup> ) |
| 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 (95 <sup>th</sup> ) | LOS          | V/C      | Delay      | Q (95 <sup>th</sup> ) |
| <b>Site Access at Capilano Drive Unsignalized</b> | 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                   |
|                                                   | <b>Overall</b> | <b>A</b>     | <b>-</b> | <b>0.6</b> | <b>-</b>              | <b>A</b>     | <b>-</b> | <b>0.6</b> | <b>-</b>              |

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

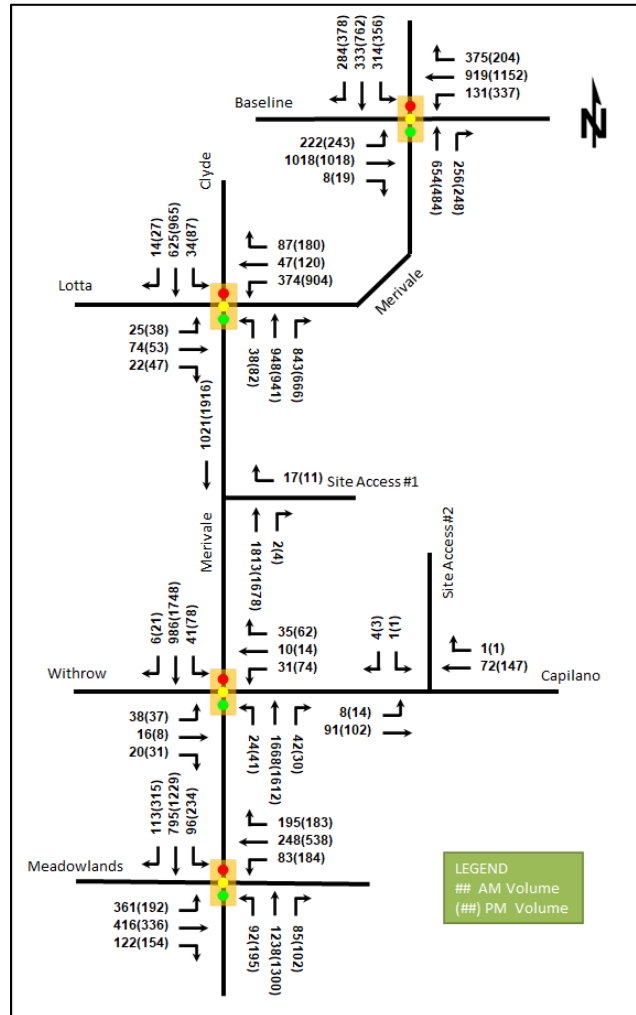


Table 23: 2029 Future Total Access Intersection Operations

| Intersection                                      | Lane           | AM Peak Hour |      |            |                       | PM Peak Hour |      |            |                       |
|---------------------------------------------------|----------------|--------------|------|------------|-----------------------|--------------|------|------------|-----------------------|
|                                                   |                | LOS          | V/C  | Delay      | Q (95 <sup>th</sup> ) | LOS          | V/C  | Delay      | Q (95 <sup>th</sup> ) |
| <b>Merivale Road at Site Access Unsignalized</b>  | WBR            | C            | 0.07 | 21.2       | 1.5                   | C            | 0.04 | 19.2       | 0.8                   |
|                                                   | NBT/R          | -            | -    | -          | -                     | -            | -    | -          | -                     |
|                                                   | SBT            | -            | -    | -          | -                     | -            | -    | -          | -                     |
|                                                   | <b>Overall</b> | <b>A</b>     | -    | <b>0.1</b> | -                     | <b>A</b>     | -    | <b>0.1</b> | -                     |
| <b>Site Access at Capilano Drive Unsignalized</b> | 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                   |
|                                                   | <b>Overall</b> | <b>A</b>     | -    | <b>0.6</b> | -                     | <b>A</b>     | -    | <b>0.5</b> | -                     |

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 95<sup>th</sup> %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<br>AM(PM) | AM Peak Period |     |       | PM Peak Period |     |       |
|----------------|----------------------|----------------|-----|-------|----------------|-----|-------|
|                |                      | In             | Out | Total | In             | Out | Total |
| <b>Transit</b> | 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 (95 <sup>th</sup> ) | LOS          | V/C  | Delay | Q (95 <sup>th</sup> ) |
| Merivale Road at Baseline Road<br><i>Signalized</i>                               | 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<br><i>Signalized</i> | 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<br><i>Signalized</i>             | 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 (95 <sup>th</sup> ) | LOS          | V/C         | Delay       | Q (95 <sup>th</sup> ) |
| <b>Merivale Road at Meadowlands Drive<br/>Signalized</b> | 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                  |
|                                                          | <b>Overall</b> | <b>D</b>     | <b>0.86</b> | <b>38.9</b> | <b>-</b>              | <b>E</b>     | <b>0.93</b> | <b>46.2</b> | <b>-</b>              |

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 (95 <sup>th</sup> ) | LOS          | V/C         | Delay       | Q (95 <sup>th</sup> ) |
| <b>Merivale Road at Baseline Road<br/>Signalized</b> | 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                  |
|                                                      | <b>Overall</b> | <b>E</b>     | <b>0.96</b> | <b>52.0</b> | <b>-</b>              | <b>E</b>     | <b>1.00</b> | <b>67.3</b> | <b>-</b>              |

| Intersection                                                                                   | Lane           | AM Peak Hour |             |             |                       | PM Peak Hour |             |             |                       |
|------------------------------------------------------------------------------------------------|----------------|--------------|-------------|-------------|-----------------------|--------------|-------------|-------------|-----------------------|
|                                                                                                |                | LOS          | V/C         | Delay       | Q (95 <sup>th</sup> ) | LOS          | V/C         | Delay       | Q (95 <sup>th</sup> ) |
| <b>Merivale Road /<br/>Clyde Avenue at<br/>Lotta Avenue /<br/>Merivale Road<br/>Signalized</b> | 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                |
|                                                                                                | <b>Overall</b> | <b>A</b>     | <b>0.59</b> | <b>19.5</b> | <b>-</b>              | <b>D</b>     | <b>0.83</b> | <b>44.9</b> | <b>-</b>              |
| <b>Merivale Road at<br/>Withrow Avenue /<br/>Capilano Drive<br/>Signalized</b>                 | 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                  |
|                                                                                                | <b>Overall</b> | <b>B</b>     | <b>0.64</b> | <b>12.3</b> | <b>-</b>              | <b>C</b>     | <b>0.71</b> | <b>18.4</b> | <b>-</b>              |
| <b>Merivale Road at<br/>Meadowlands<br/>Drive<br/>Signalized</b>                               | 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                  |
|                                                                                                | <b>Overall</b> | <b>E</b>     | <b>0.91</b> | <b>41.1</b> | <b>-</b>              | <b>E</b>     | <b>0.95</b> | <b>48.8</b> | <b>-</b>              |

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 |
| <b>Merivale Road at Baseline Road</b>                               | <b>F</b>       | A      | <b>F</b>    | A      | <b>F</b>    | A      | <b>D</b>  | D      | <b>F</b> | E      |
| <b>Merivale Road / Clyde Avenue at Lotta Avenue / Merivale Road</b> | <b>F</b>       | A      | <b>F</b>    | C      | <b>F</b>    | D      | B         | D      | D        | E      |
| <b>Merivale Road at Withrow Avenue / Capilano Drive</b>             | <b>F</b>       | A      | <b>F</b>    | B      | D           | D      | -         | -      | E        | E      |
| <b>Merivale Road at Meadowlands Drive</b>                           | <b>F</b>       | C      | <b>F</b>    | C      | <b>F</b>    | D      | -         | -      | <b>F</b> | 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 full movement 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

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<sup>1</sup> or registered<sup>2</sup> professional in good standing, whose field of expertise [check ☒ appropriate field(s)] is either transportation engineering ☒ or transportation planning ☐.

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

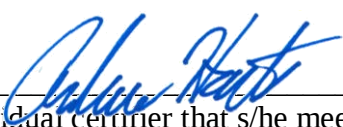
City Of Ottawa  
Infrastructure Services and Community  
Sustainability  
Planning and Growth Management  
110 Laurier Avenue West, 4th fl.  
Ottawa, ON K1P 1J1  
Tel. : 613-580-2424  
Fax: 613-560-6006

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

Dated at Ottawa this 20 day of September, 2018.  
(City)

Name: Andrew Harte  
(Please Print)

Professional Title: Professional Engineer

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

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



# Appendix B

Turning Movement Counts



Transportation Services - Traffic Services  
Turning Movement Count - 15 Minute Summary Report

35707

Transportation Services - Traffic Services  
Turning Movement Count - 15 Minute Summary Report

35707



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                             |  |            |  |            |  |              |  |             |  |
| Time Period                             |  | Northbound |  | Southbound |  | Street Total |  | BASELINE RD |  |
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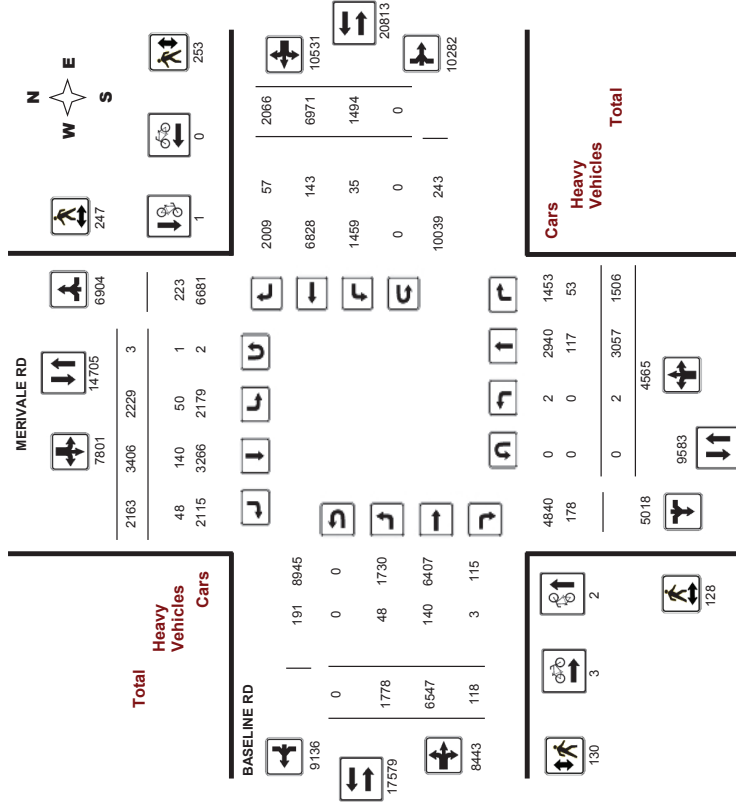


Transportation Services - Traffic Services  
Turning Movement Count - Full Study Diagram

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

| Time Period                                                                                                                                | MERIVALE RD |    |     |            |     |    | BASELINE RD |           |     |     |    |       |           |     |    |           |    |     | Grand Total |     |
|--------------------------------------------------------------------------------------------------------------------------------------------|-------------|----|-----|------------|-----|----|-------------|-----------|-----|-----|----|-------|-----------|-----|----|-----------|----|-----|-------------|-----|
|                                                                                                                                            | Northbound  |    |     | Southbound |     |    | Eastbound   |           |     |     |    |       | Westbound |     |    |           |    |     |             |     |
|                                                                                                                                            | LT          | ST | RT  | N TOT      | LT  | ST | RT          | S STR TOT | LT  | ST  | RT | E TOT | LT        | ST  | RT | W STR TOT |    |     |             |     |
| 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. |             |    |     |            |     |    |             |           |     |     |    |       |           |     |    |           |    |     |             |     |

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 - Full Study Summary Report

#### BASELINE RD @ MERIVALE RD

Survey Date: Tuesday, February 09, 2016

Total Observed U-Turns

AADT Factor

1.00

Northbound: 0

Southbound: 3

Eastbound: 0

Westbound: 0

#### Full Study

| Period                                                                                                         | MERIVALE RD |      |      |            |      |      | BASELINE RD |           |            |           |       |     | Grand<br>Total |           |       |      |       |       |       |
|----------------------------------------------------------------------------------------------------------------|-------------|------|------|------------|------|------|-------------|-----------|------------|-----------|-------|-----|----------------|-----------|-------|------|-------|-------|-------|
|                                                                                                                | Northbound  |      |      | Southbound |      |      | Eastbound   |           |            | Westbound |       |     |                |           |       |      |       |       |       |
|                                                                                                                | LT          | ST   | RT   | NB<br>TOT  | LT   | ST   | RT          | SB<br>TOT | STR<br>TOT | LT        | ST    | RT  |                | WB<br>TOT |       |      |       |       |       |
| 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 | 10631 | 18974 | 31337 |
| U-Turns                                                                                                        |             |      |      | 0          |      |      |             | 3         | 3          |           |       | 0   | 0              |           |       | 0    | 0     | 0     | 3     |
| Total                                                                                                          | 2           | 3057 | 1506 | 4565       | 2229 | 3406 | 2163        | 7801      | 12366      | 1778      | 6547  | 118 | 8443           | 1494      | 6971  | 2066 | 10631 | 18974 | 31340 |
| EQ 12hr                                                                                                        | 3           | 4249 | 2093 | 6345       | 3088 | 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.               |             |      |      |            |      |      |             |           |            |           |       |     |                |           |       |      |       |       |       |
| AVG 12hr                                                                                                       | 3           | 4249 | 2093 | 6345       | 3088 | 4734 | 3007        | 10843     | 17188      | 2471      | 9100  | 164 | 11736          | 2077      | 9690  | 2872 | 14638 | 26374 | 43562 |
| Note: These values are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.              |             |      |      |            |      |      |             |           |            |           |       |     |                |           |       |      |       |       |       |
| AVG 24hr                                                                                                       | 4           | 5566 | 2742 | 8312       | 4059 | 6202 | 3939        | 14205     | 22517      | 3238      | 11921 | 215 | 15374          | 2720      | 12693 | 3762 | 19176 | 34550 | 57067 |
| Note: These values are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor. |             |      |      |            |      |      |             |           |            |           |       |     |                |           |       |      |       |       |       |
| 1.31                                                                                                           |             |      |      |            |      |      |             |           |            |           |       |     |                |           |       |      |       |       |       |



## 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<br>(E or W Crossing) | SB Approach<br>(E or W Crossing) | EB Approach<br>(N or S Crossing) | WB Approach<br>(N or S Crossing) | Total | Grand Total |
|-------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|-------|-------------|
| 07:00-07:15 | 1                                | 2                                | 2                                | 4                                | 6     | 9           |
| 07:15-07:30 | 6                                | 2                                | 5                                | 6                                | 11    | 19          |
| 07:30-07:45 | 1                                | 14                               | 2                                | 12                               | 14    | 29          |
| 07:45-08:00 | 5                                | 10                               | 6                                | 11                               | 17    | 32          |
| 07:00-08:00 | 13                               | 28                               | 15                               | 33                               | 48    | 89          |
| 08:00-08:15 | 3                                | 11                               | 4                                | 13                               | 17    | 31          |
| 08:15-08:30 | 5                                | 12                               | 3                                | 12                               | 15    | 32          |
| 08:30-08:45 | 5                                | 3                                | 8                                | 7                                | 15    | 23          |
| 08:45-09:00 | 7                                | 7                                | 14                               | 7                                | 15    | 29          |
| 08:00-09:00 | 20                               | 33                               | 23                               | 39                               | 62    | 115         |
| 09:00-09:15 | 2                                | 1                                | 4                                | 2                                | 6     | 9           |
| 09:15-09:30 | 3                                | 8                                | 2                                | 5                                | 7     | 18          |
| 09:30-09:45 | 3                                | 8                                | 2                                | 9                                | 11    | 22          |
| 09:45-10:00 | 6                                | 3                                | 6                                | 6                                | 12    | 21          |
| 09:00-10:00 | 14                               | 20                               | 14                               | 22                               | 36    | 70          |
| 11:30-11:45 | 3                                | 1                                | 4                                | 3                                | 5     | 9           |
| 11:45-12:00 | 1                                | 3                                | 4                                | 4                                | 6     | 10          |
| 12:00-12:15 | 13                               | 8                                | 21                               | 15                               | 24    | 45          |
| 12:15-12:30 | 0                                | 3                                | 3                                | 2                                | 2     | 5           |
| 11:30-12:30 | 17                               | 15                               | 32                               | 24                               | 37    | 69          |
| 12:30-12:45 | 1                                | 6                                | 7                                | 8                                | 13    | 20          |
| 12:45-13:00 | 6                                | 10                               | 16                               | 10                               | 13    | 29          |
| 13:00-13:15 | 6                                | 3                                | 9                                | 6                                | 9     | 18          |
| 13:15-13:30 | 1                                | 6                                | 7                                | 9                                | 13    | 20          |
| 12:30-13:30 | 14                               | 25                               | 39                               | 33                               | 48    | 87          |
| 15:00-15:15 | 0                                | 7                                | 7                                | 5                                | 7     | 14          |
| 15:15-15:30 | 1                                | 7                                | 8                                | 12                               | 13    | 21          |
| 15:30-15:45 | 6                                | 16                               | 22                               | 17                               | 25    | 47          |
| 15:45-16:00 | 4                                | 14                               | 18                               | 11                               | 16    | 34          |
| 15:00-16:00 | 11                               | 44                               | 55                               | 45                               | 61    | 116         |
| 16:00-16:15 | 4                                | 9                                | 13                               | 7                                | 12    | 25          |
| 16:15-16:30 | 9                                | 13                               | 22                               | 7                                | 14    | 36          |
| 16:30-16:45 | 6                                | 17                               | 23                               | 4                                | 8     | 35          |
| 16:45-17:00 | 3                                | 7                                | 10                               | 5                                | 8     | 18          |
| 16:00-17:00 | 22                               | 46                               | 68                               | 27                               | 46    | 114         |
| 17:00-17:15 | 6                                | 9                                | 15                               | 10                               | 16    | 31          |
| 17:15-17:30 | 3                                | 11                               | 14                               | 4                                | 11    | 25          |
| 17:30-17:45 | 2                                | 12                               | 14                               | 7                                | 9     | 23          |
| 17:45-18:00 | 6                                | 4                                | 10                               | 6                                | 9     | 19          |
| 17:00-18:00 | 17                               | 36                               | 53                               | 30                               | 45    | 98          |
| Total       | 128                              | 247                              | 375                              | 263                              | 383   | 758         |

Comment:



## Transportation Services - Traffic Services

### Turning Movement Count - Full Study Peak Hour Diagram

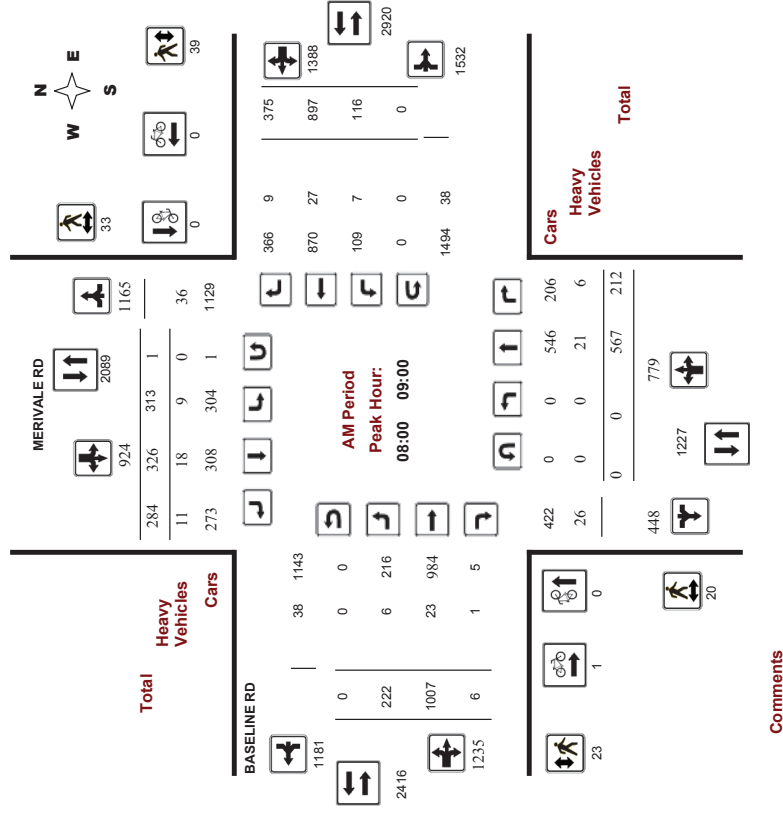
#### BASELINE RD @ MERIVALE RD

Survey Date: Tuesday, February 09, 2016

WO No: 35707

Start Time: 07:00

Device: Miovision



## Transportation Services - Traffic Services

### Turning Movement Count - Full Study Peak Hour Diagram

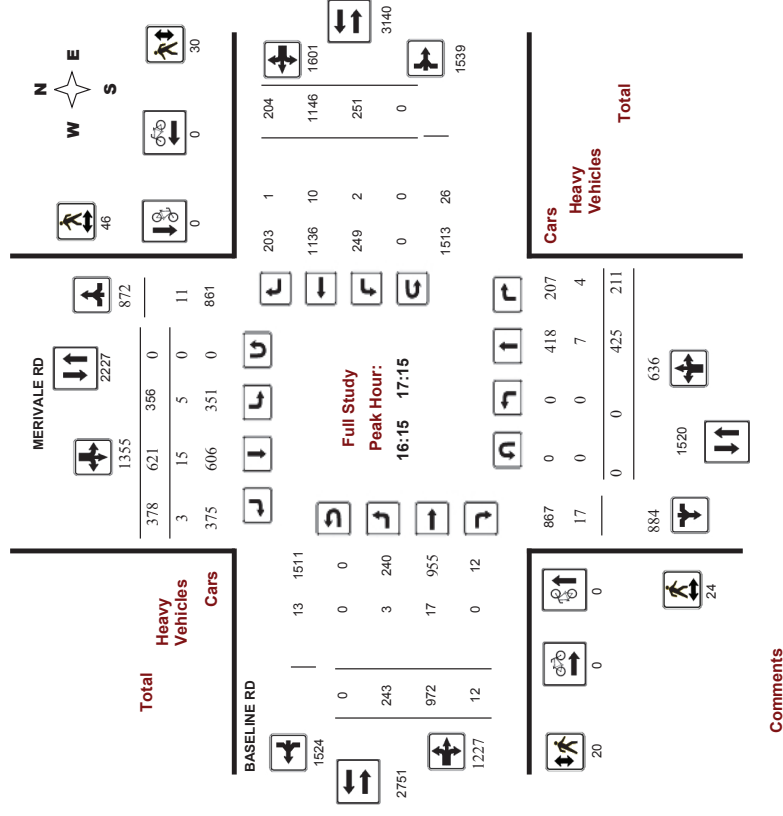
#### BASELINE RD @ MERIVALE RD

Survey Date: Tuesday, February 09, 2016

WO No: 35707

Start Time: 07:00

Device: Miovision





## 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

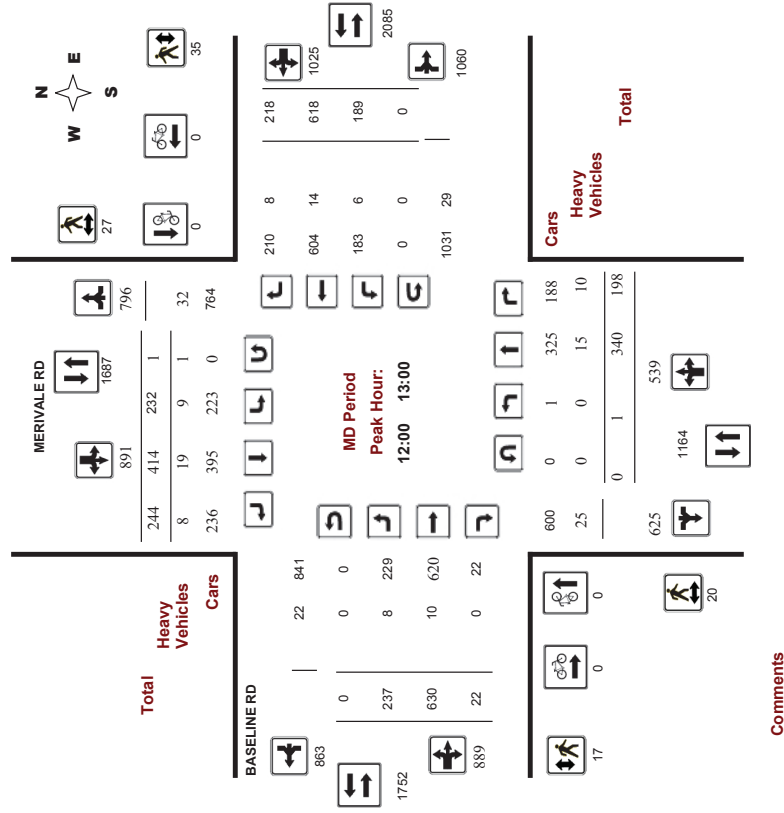
**Device:** Miovision

**Survey Date:** Tuesday, February 09, 2016

WO No: 35707

**Start Time:** 07:00

**Device:** Miovision

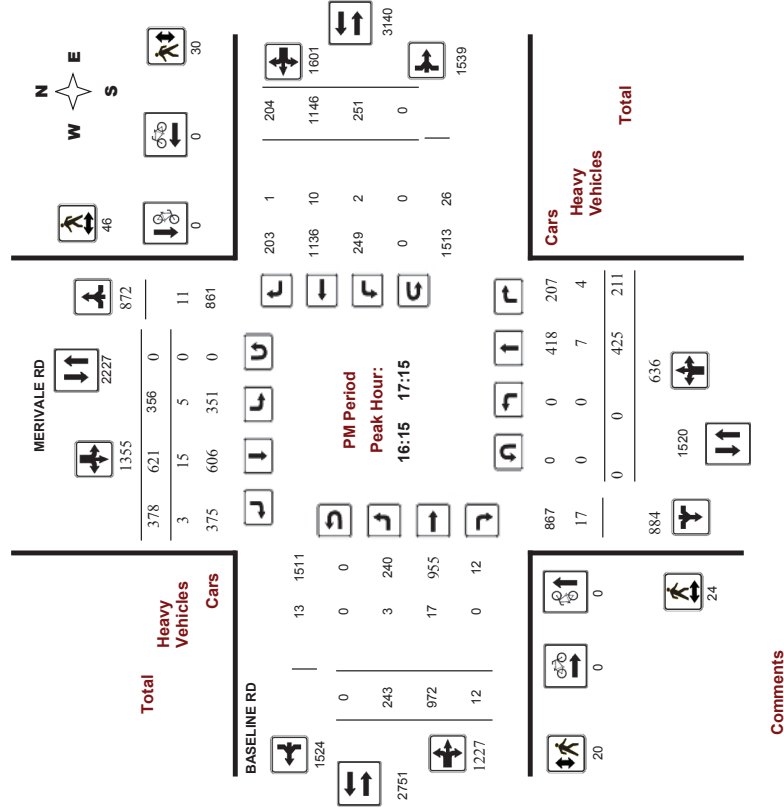


Comments

2017-Jun-20

2017-Jun-20

Page 4 of 4



Comments

2017-Jun-20

Page 4 of 4



## Transportation Services - Traffic Services

Work Order  
35707

822

### Turning Movement Count - 15 Min U-Turn Total Report

#### BASELINE RD @ MERIVALE RD

Survey Date: Tuesday, February 09, 2016

| Time Period | Northbound<br>U-Turn Total | Southbound<br>U-Turn Total | Eastbound<br>U-Turn Total | Westbound<br>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

| Time Period                           | MERIVALE RD |      |      |      |      | BASELINE RD |      |      |       |      | Grand Total |    |      |      |      |          |            |       |       |          |  |
|---------------------------------------|-------------|------|------|------|------|-------------|------|------|-------|------|-------------|----|------|------|------|----------|------------|-------|-------|----------|--|
|                                       | Northbound  |      |      |      |      | Southbound  |      |      |       |      | Westbound   |    |      |      |      | W<br>TOT | STR<br>TOT | TOT   |       |          |  |
|                                       | LT          | ST   | RT   | TOT  | N    | LT          | ST   | RT   | TOT   | S    | STR         | LT | ST   | RT   | TOT  |          |            |       | E     |          |  |
| 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: |  |

Note: U-Turns are included in Totals.

Comment:



Transportation Services - Traffic Services  
Turning Movement Count - Cyclist Volume Report

Work Order  
822

Count Date: Saturday, August 20, 2011

Start Time: 11:00

BASELINE RD @ MERIVALE RD

| Time Period | MERIVALE RD |            |              | BASELINE RD |           |              | Grand Total |
|-------------|-------------|------------|--------------|-------------|-----------|--------------|-------------|
|             | Northbound  | Southbound | Street Total | Eastbound   | Westbound | Street 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:



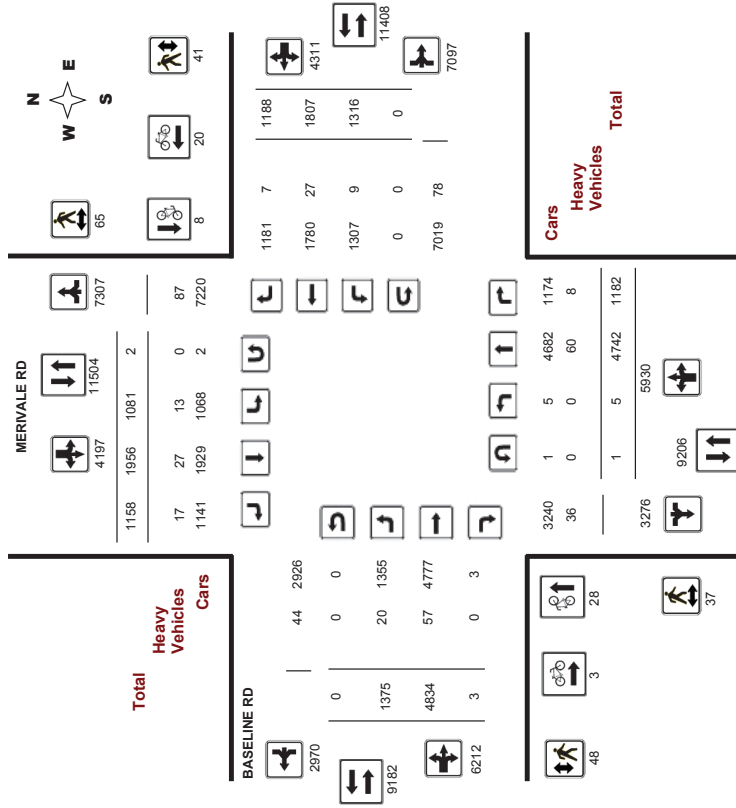
Transportation Services - Traffic Services  
Turning Movement Count - Full Study Diagram

Survey Date: Saturday, August 20, 2011

WO#: 822

Device: Miovision

BASELINE RD @ MERIVALE RD



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



## Transportation Services - Traffic Services

W.O.  
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 | TOT | N          | LT | ST | RT | TOT | S           | LT | ST | RT | TOT | E         | LT | ST | RT  | TOT | W | LT | ST | RT | 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  |    |    |     |             |
| Total                                                                                                                                      | 0  | 60 | 8  | 68  | 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<br>(E or W Crossing) |    |   | SB Approach<br>(E or W Crossing) |    |    | Total | EB Approach<br>(N or S Crossing) |    | WB Approach<br>(N or S Crossing)      |                   | Total | Grand Total |
| 11:00 11:15               | 1                                | 4  |   | 5                                | 0  | 1  | 1     | 1                                |    |                                       |                   | 6     |             |
| 11:15 11:30               | 1                                | 1  | 3 | 2                                | 3  | 1  | 4     | 3                                | 1  | 1                                     | 4                 | 6     | 6           |
| 11:30 11:45               | 1                                | 2  | 1 | 3                                | 1  | 1  | 2     | 3                                | 1  | 1                                     | 2                 | 5     | 5           |
| 11:45 12:00               | 4                                | 8  |   | 12                               | 2  | 4  | 6     | 12                               | 4  | 6                                     | 6                 | 18    | 18          |
| 11:00 12:00               | 7                                | 15 |   | 22                               | 6  | 7  | 13    | 22                               | 6  | 7                                     | 13                | 35    | 35          |
| 12:00 12:15               | 1                                | 0  |   | 1                                | 5  | 1  | 6     | 1                                |    |                                       |                   | 7     | 7           |
| 12:15 12:30               | 0                                | 2  |   | 2                                | 0  | 1  | 3     | 2                                | 1  | 1                                     | 3                 | 3     | 3           |
| 12:30 12:45               | 5                                | 0  |   | 5                                | 4  | 5  | 9     | 5                                | 4  | 5                                     | 9                 | 14    | 14          |
| 12:45 13:00               | 1                                | 3  |   | 4                                | 4  | 3  | 7     | 4                                | 3  | 7                                     | 11                | 7     | 11          |
| 12:00 13:00               | 7                                | 5  |   | 12                               | 13 | 10 | 23    | 12                               | 13 | 10                                    | 23                | 35    | 35          |
| 13:00 13:15               | 4                                | 4  |   | 8                                | 5  | 6  | 11    | 8                                | 5  | 6                                     | 11                | 19    | 19          |
| 13:15 13:30               | 3                                | 5  |   | 8                                | 3  | 3  | 6     | 3                                | 3  | 6                                     | 6                 | 14    | 14          |
| 13:30 13:45               | 5                                | 3  |   | 8                                | 3  | 7  | 10    | 8                                | 3  | 7                                     | 10                | 18    | 18          |
| 13:45 14:00               | 0                                | 1  |   | 1                                | 2  | 0  | 3     | 2                                | 0  | 3                                     | 2                 | 3     | 3           |
| 13:00 14:00               | 12                               | 13 |   | 25                               | 13 | 16 | 29    | 25                               | 13 | 16                                    | 29                | 54    | 54          |
| 14:00 14:15               | 2                                | 1  |   | 3                                | 4  | 1  | 5     | 3                                | 4  | 1                                     | 5                 | 8     | 8           |
| 14:15 14:30               | 0                                | 0  |   | 0                                | 0  | 1  | 1     | 0                                | 1  | 1                                     | 1                 | 1     | 1           |
| 14:30 14:45               | 1                                | 3  |   | 4                                | 0  | 0  | 4     | 0                                | 0  | 0                                     | 4                 | 4     | 4           |
| 14:45 15:00               | 3                                | 4  |   | 7                                | 1  | 4  | 5     | 7                                | 1  | 4                                     | 5                 | 12    | 12          |
| 14:00 15:00               | 6                                | 8  |   | 14                               | 5  | 6  | 11    | 14                               | 5  | 6                                     | 11                | 25    | 25          |
| 15:00 15:15               | 1                                | 8  |   | 9                                | 0  | 0  | 9     | 0                                | 0  | 0                                     | 9                 | 9     | 9           |
| 15:15 15:30               | 0                                | 2  |   | 2                                | 2  | 0  | 2     | 2                                | 0  | 4                                     | 2                 | 4     | 4           |
| 15:30 15:45               | 1                                | 12 |   | 13                               | 3  | 0  | 3     | 13                               | 3  | 3                                     | 16                | 16    | 16          |
| 15:45 16:00               | 3                                | 2  |   | 5                                | 6  | 2  | 8     | 5                                | 6  | 2                                     | 8                 | 13    | 13          |
| 15:00 16:00               | 5                                | 24 |   | 29                               | 11 | 2  | 13    | 29                               | 11 | 2                                     | 13                | 42    | 42          |
| Total                     | 37                               | 65 |   | 102                              | 48 | 41 | 89    | 102                              | 48 | 41                                    | 89                | 191   | 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

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

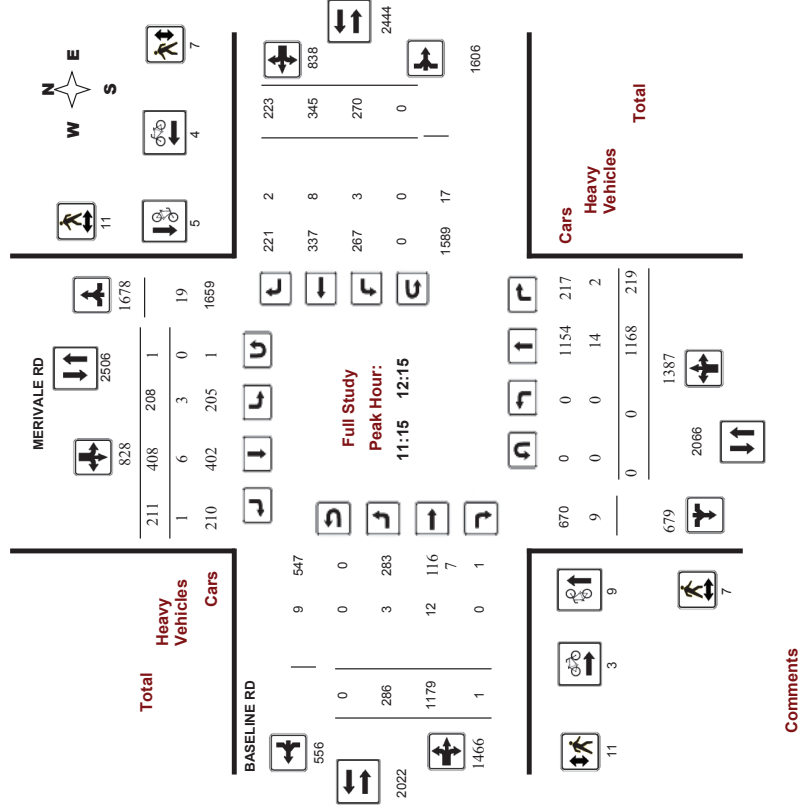
#### BASELINE RD @ MERIVALE RD

Survey Date: Saturday, August 20, 2011

WO No: 822

Device: Miovision

Start Time: 11:00



## Turning Movement Count - 15 Min U-Turn Total Report

### BASELINE RD @ MERIVALE RD

**Survey Date:** Saturday, August 20, 2011

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

## Turning Movement Count - Study Results

### MEADOWLANDS DR @ MERIVALE RD

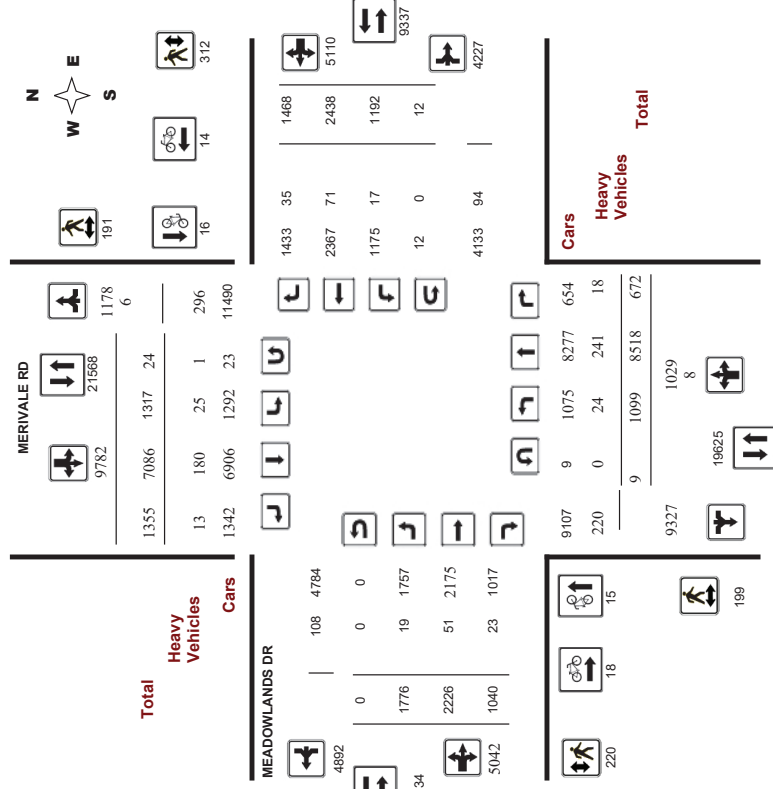
**Survey Date:** Thursday, November 01, 2018

**WO No:** 38079

**Start Time:** 07:00

**Device:** Miovision

### Full Study Diagram





## Transportation Services - Traffic Services

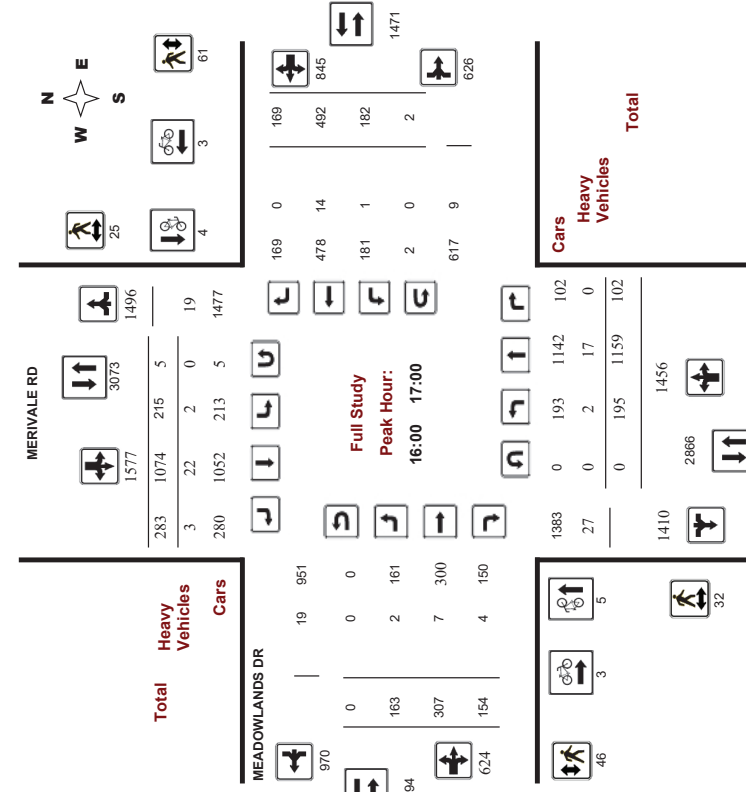
### Turning Movement Count - Study Results

#### MEADOWLANDS DR @ MERIVALE RD

Survey Date: Thursday, November 01, 2018  
Start Time: 07:00

WO No: 38079  
Device: Miovision

#### Full Study Peak Hour Diagram



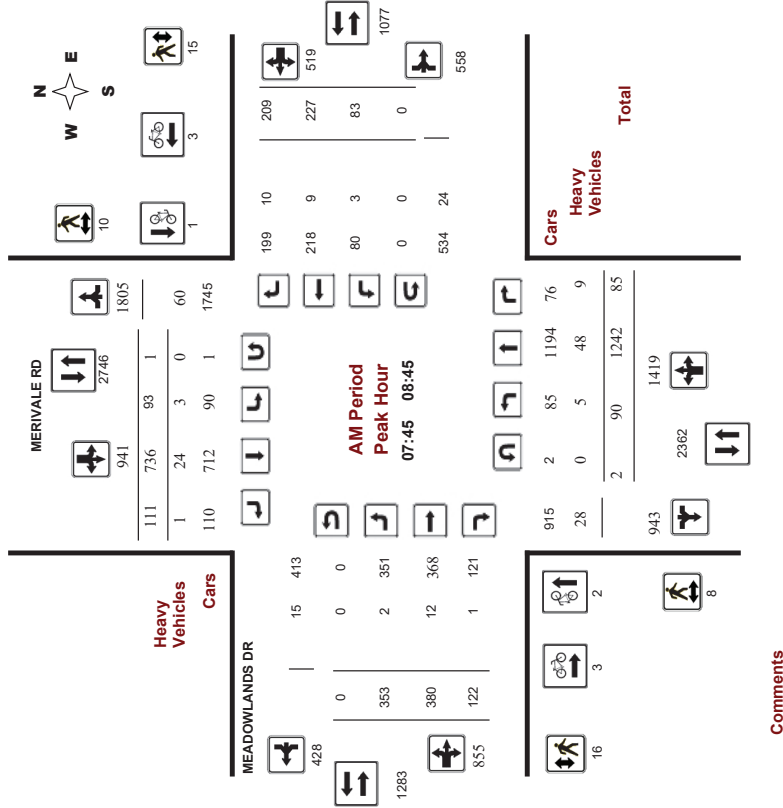
## Transportation Services - Traffic Services

### Turning Movement Count - Peak Hour Diagram

#### MEADOWLANDS DR @ MERIVALE RD

Survey Date: Thursday, November 01, 2018  
Start Time: 07:00

WO No: 38079  
Device: Miovision





## Transportation Services - Traffic Services

### Turning Movement Count - Peak Hour Diagram

MEADOWLANDS DR @ MERIVALE RD

**Survey Date:** Thursday, November 01, 2018

**Start Time:** 07:00

**WO No:** 38079

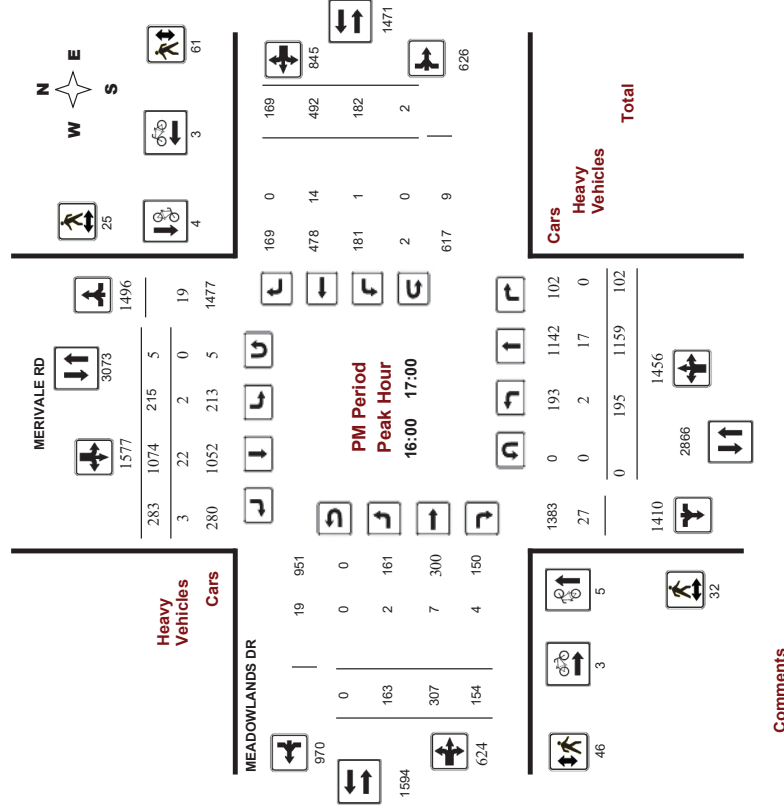
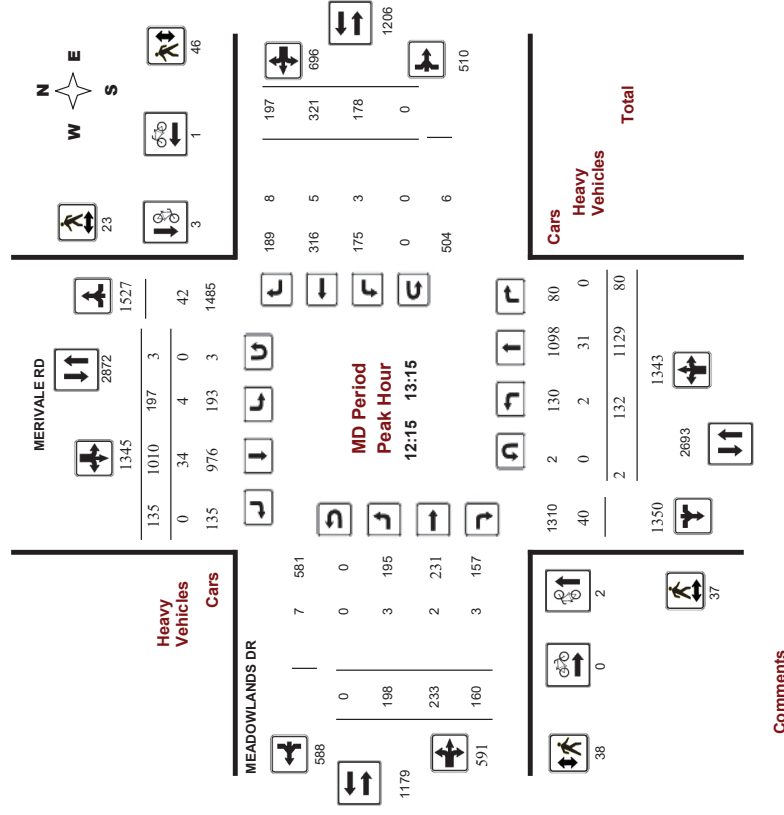
**Device:** Miovision

**Survey Date:** Thursday, November 01, 2018

**Start Time:** 07:00

WO No: 38079

**Device:** Miovision





## Transportation Services - Traffic Services

### Turning Movement Count - Study Results

#### MEADOWLANDS DR @ MERIVALE RD

**Survey Date:** Thursday, November 01, 2018  
**Start Time:** 07:00

**WO No:** 38079  
**Device:** Miovision

### Full Study Summary (8 HR Standard)

**Survey Date:** Thursday, November 01, 2018

**AADT Factor**  
90

**Total Observed U-Turns**  
Northbound: 9 Southbound: 24  
Eastbound: 0 Westbound: 12

| Period                                                                                                          | MERIVALE RD |       |      |            |      |       | MEADOWLANDS DR |           |            |           |      |      | WB<br>TOT | STR<br>TOT | Grand<br>TOT |           |      |       |       |
|-----------------------------------------------------------------------------------------------------------------|-------------|-------|------|------------|------|-------|----------------|-----------|------------|-----------|------|------|-----------|------------|--------------|-----------|------|-------|-------|
|                                                                                                                 | Northbound  |       |      | Southbound |      |       | Eastbound      |           |            | Westbound |      |      |           |            |              |           |      |       |       |
|                                                                                                                 | LT          | ST    | RT   | NB<br>TOT  | LT   | ST    | RT             | SB<br>TOT | STR<br>TOT | LT        | ST   | RT   |           |            |              | EB<br>TOT | LT   | ST    | RT    |
| 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          | 0         | 12   |      | 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.                |             |       |      |            |      |       |                |           |            |           |      |      |           |            |              |           |      |       |       |
| 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.              |             |       |      |            |      |       |                |           |            |           |      |      |           |            |              |           |      |       |       |
| 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. |             |       |      |            |      |       |                |           |            |           |      |      |           |            |              |           |      |       |       |
| 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  
**Start Time:** 07:00

**WO No:** 38079  
**Device:** Miovision

### Full Study 15 Minute Increments

**Survey Date:** Thursday, November 01, 2018

**AADT Factor**  
90

**Total Observed U-Turns**  
Northbound: 9 Southbound: 24  
Eastbound: 0 Westbound: 12

| Time Period | MERIVALE RD |      |     |            |      |      | MEADOWLANDS DR |      |       |           |      |      |      |      |      |      |      |       |       |
|-------------|-------------|------|-----|------------|------|------|----------------|------|-------|-----------|------|------|------|------|------|------|------|-------|-------|
|             | Northbound  |      |     | Southbound |      |      | Eastbound      |      |       | Westbound |      |      |      |      |      |      |      |       |       |
|             | LT          | ST   | RT  | LT         | ST   | RT   | LT             | ST   | RT    | LT        | ST   | RT   |      |      |      |      |      |       |       |
| 07:00 07:15 | 8           | 179  | 11  | 188        | 18   | 131  | 12             | 161  | 389   | 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          | 198  | 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   | 966   |
| 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          | 286  | 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   | 136  | 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   | 112  | 46   | 190  | 343  | 1006 |       |       |
| Total:      | 1108        | 8518 | 672 | 10291      | 1341 | 7086 | 1355           | 9782 | 20080 | 1776      | 2226 | 1040 | 5042 | 1204 | 2438 | 1468 | 5110 | 20080 | 30232 |

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  
**Start Time:** 07:00

**WO No:** 38079  
**Device:** Miovision

### Full Study Cyclist Volume

#### MERIVALE RD MEADOWLANDS DR

| Time Period | 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           |
| 10:00 10:15 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 10:15 10:30 | 0          | 1          | 1            | 0         | 0         | 0            | 1           |
| 10:30 10:45 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 10:45 11:00 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 11:00 11:15 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 11:15 11:30 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 11:30 11:45 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 11:45 12:00 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 12:00 12:15 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 12:15 12:30 | 0          | 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           |
| 13:30 13:45 | 0          | 0          | 0            | 0         | 1         | 1            | 1           |
| 13:45 14:00 | 0          | 0          | 0            | 0         | 1         | 1            | 1           |
| 14:00 14:15 | 0          | 0          | 0            | 0         | 2         | 2            | 2           |
| 14:15 14:30 | 3          | 0          | 3            | 0         | 2         | 2            | 5           |
| 14:30 14:45 | 0          | 0          | 0            | 1         | 0         | 1            | 1           |
| 14:45 15:00 | 0          | 0          | 0            | 0         | 2         | 2            | 2           |
| 15:00 15:15 | 1          | 2          | 3            | 2         | 0         | 2            | 5           |
| 15:15 15:30 | 2          | 0          | 2            | 0         | 2         | 2            | 4           |
| 15:30 15:45 | 1          | 0          | 1            | 1         | 1         | 2            | 3           |
| 15:45 16:00 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 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  
**Start Time:** 07:00

**WO No:** 38079  
**Device:** Miovision

### Full Study Pedestrian Volume

#### MERIVALE RD MEADOWLANDS DR

| Time Period | NB Approach<br>(E or W Crossing) | SB Approach<br>(E or W Crossing) | Total | EB Approach<br>(N or S Crossing) | WB Approach<br>(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          |
| 10:00 10:15 | 7                                | 4                                | 11    | 9                                | 6                                | 15    | 26          |
| 10:15 10:30 | 6                                | 10                               | 16    | 5                                | 17                               | 22    | 38          |
| 10:30 10:45 | 6                                | 11                               | 17    | 7                                | 13                               | 20    | 37          |
| 10:45 11:00 | 11                               | 12                               | 23    | 9                                | 8                                | 17    | 40          |
| 11:00 11:15 | 5                                | 3                                | 8     | 5                                | 14                               | 19    | 27          |
| 11:15 11:30 | 16                               | 5                                | 21    | 13                               | 13                               | 26    | 47          |
| 11:30 11:45 | 5                                | 3                                | 8     | 11                               | 11                               | 22    | 30          |
| 11:45 12:00 | 4                                | 13                               | 17    | 3                                | 9                                | 12    | 29          |
| 12:00 12:15 | 11                               | 6                                | 17    | 7                                | 12                               | 19    | 36          |
| 12:15 12:30 | 11                               | 9                                | 20    | 4                                | 12                               | 16    | 36          |
| 12:30 12:45 | 11                               | 6                                | 17    | 9                                | 8                                | 17    | 34          |
| 12:45 13:00 | 11                               | 10                               | 21    | 4                                | 14                               | 18    | 39          |
| 13:00 13:15 | 8                                | 8                                | 16    | 13                               | 12                               | 25    | 41          |
| 13:15 13:30 | 7                                | 11                               | 18    | 14                               | 22                               | 36    | 54          |
| 13:30 13:45 | 10                               | 2                                | 12    | 8                                | 10                               | 18    | 30          |
| 13:45 14:00 | 6                                | 10                               | 16    | 16                               | 18                               | 34    | 50          |
| 14:00 14:15 | 12                               | 8                                | 20    | 13                               | 12                               | 25    | 45          |
| 14:15 14:30 | 5                                | 11                               | 16    | 9                                | 17                               | 26    | 42          |
| 14:30 14:45 | 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  
**Start Time:** 07:00

**WO No:** 38079  
**Device:** Miovision

#### Full Study Heavy Vehicles

##### MERIVALE RD

##### MEADOWLANDS DR

##### Southbound

| Time Period | Northbound |    |     |     | Southbound |    |     |     | Eastbound |    |    |    | Westbound |     |    |     | Grand Total |     |    |     |    |
|-------------|------------|----|-----|-----|------------|----|-----|-----|-----------|----|----|----|-----------|-----|----|-----|-------------|-----|----|-----|----|
|             | LT         | ST | RT  | TOT | N          | LT | ST  | RT  | TOT       | S  | LT | ST | RT        | TOT | E  | LT  |             | ST  | RT | TOT | W  |
| 07:00       | 0          | 14 | 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  | 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  |    |
| 10:00       | 10:15      | 0  | 10  | 0   | 10         | 2  | 9   | 0   | 11        | 21 | 0  | 2  | 0         | 2   | 0  | 2   | 3           | 5   | 7  | 28  |    |
| 10:15       | 10:30      | 0  | 10  | 1   | 11         | 1  | 5   | 2   | 8         | 19 | 1  | 1  | 1         | 3   | 2  | 1   | 1           | 4   | 7  | 26  |    |
| 10:30       | 10:45      | 1  | 12  | 0   | 13         | 0  | 7   | 0   | 7         | 20 | 1  | 2  | 1         | 4   | 0  | 1   | 0           | 1   | 5  | 25  |    |
| 10:45       | 11:00      | 1  | 11  | 0   | 12         | 4  | 8   | 0   | 12        | 24 | 1  | 0  | 2         | 3   | 1  | 1   | 0           | 2   | 5  | 29  |    |
| 11:00       | 12:00      | 1  | 6   | 0   | 7          | 0  | 9   | 0   | 9         | 16 | 0  | 0  | 1         | 1   | 0  | 2   | 6           | 8   | 9  | 25  |    |
| 11:15       | 12:15      | 0  | 8   | 0   | 8          | 0  | 9   | 0   | 9         | 17 | 0  | 1  | 0         | 1   | 1  | 0   | 2           | 3   | 4  | 21  |    |
| 11:30       | 13:15      | 0  | 6   | 0   | 6          | 0  | 8   | 0   | 8         | 14 | 2  | 1  | 0         | 3   | 1  | 2   | 0           | 3   | 6  | 20  |    |
| 11:45       | 13:30      | 1  | 4   | 0   | 5          | 2  | 7   | 0   | 9         | 15 | 0  | 0  | 1         | 1   | 0  | 2   | 2           | 4   | 5  | 20  |    |
| 12:00       | 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       | 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  
**Start Time:** 07:00

**WO No:** 38079  
**Device:** Miovision

#### Full Study 15 Minute U-Turn Total

##### MERIVALE RD

##### MEADOWLANDS DR

##### Northbound

| Time Period | Northbound |       | Southbound |       | Eastbound |       | Westbound |       | Total |
|-------------|------------|-------|------------|-------|-----------|-------|-----------|-------|-------|
|             | U-Turn     | Total | U-Turn     | Total | U-Turn    | Total | U-Turn    | Total |       |
| 07:00       | 0          | 0     | 0          | 0     | 0         | 0     | 0         | 0     | 0     |
| 07:15       | 0          | 0     | 0          | 0     | 0         | 0     | 0         | 0     | 0     |
| 07:30       | 0          | 0     | 0          | 0     | 0         | 0     | 0         | 0     | 0     |
| 07:45       | 0          | 0     | 0          | 0     | 0         | 0     | 0         | 0     | 0     |
| 08:00       | 0          | 0     | 0          | 0     | 0         | 0     | 0         | 0     | 0     |
| 08:15       | 1          | 1     | 1          | 1     | 0         | 0     | 0         | 0     | 2     |
| 08:30       | 0          | 0     | 0          | 0     | 0         | 0     | 0         | 0     | 0     |
| 08:45       | 1          | 1     | 0          | 0     | 0         | 0     | 0         | 0     | 1     |
| 09:00       | 0          | 0     | 1          | 1     | 0         | 0     | 0         | 0     | 1     |
| 09:15       | 0          | 0     | 2          | 2     | 0         | 0     | 0         | 0     | 2     |
| 09:30       | 0          | 0     | 0          | 0     | 0         | 0     | 0         | 0     | 0     |
| 09:45       | 0          | 0     | 0          | 0     | 0         | 0     | 0         | 0     | 0     |
| 10:00       | 0          | 0     | 0          | 0     | 0         | 0     | 0         | 0     | 0     |
| 10:15       | 0          | 0     | 0          | 0     | 0         | 0     | 0         | 0     | 0     |
| 10:30       | 0          | 0     | 0          | 0     | 0         | 0     | 0         | 0     | 0     |
| 10:45       | 0          | 0     | 0          | 0     | 0         | 0     | 0         | 0     | 0     |
| 11:00       | 0          | 0     | 0          | 0     | 0         | 0     | 0         | 0     | 0     |
| 11:15       | 0          | 0     | 3          | 3     | 0         | 0     | 0         | 0     | 3     |
| 11:30       | 0          | 0     | 2          | 2     | 0         | 0     | 0         | 0     | 2     |
| 11:45       | 0          | 0     | 2          | 2     | 0         | 0     | 0         | 0     | 2     |
| 12:00       | 0          | 0     | 1          | 1     | 0         | 0     | 0         | 0     | 1     |
| 12:15       | 0          | 0     | 1          | 1     | 0         | 0     | 0         | 0     | 1     |
| 12:30       | 0          | 0     | 1          | 1     | 0         | 0     | 0         | 0     | 1     |
| 12:45       | 0          | 0     | 0          | 0     | 0         | 0     | 0         | 0     | 0     |
| 13:00       | 1          | 1     | 0          | 0     | 0         | 0     | 0         | 0     | 1     |
| 13:15       | 0          | 0     | 1          | 1     | 0         | 0     | 0         | 0     | 1     |
| 13:30       | 0          | 0     | 2          | 2     | 0         | 0     | 0         | 0     | 2     |
| 13:45       | 0          | 0     | 2          | 2     | 0         | 0     | 0         | 0     | 2     |
| 14:00       | 0          | 0     | 0          | 0     | 0         | 0     | 0         | 0     | 0     |
| 14:15       | 0          | 0     | 0          | 0     | 0         | 0     | 0         | 0     | 0     |
| 14:30       | 0          | 0     | 1          | 1     | 0         | 0     | 0         | 0     | 1     |
| 14:45       | 0          | 0     | 1          | 1     | 0         | 0     | 0         | 0     | 1     |
| 15:00       | 0          | 0     | 2          | 2     | 0         | 0     | 0         | 0     | 2     |
| 15:15       | 0          | 0     | 0          | 0     | 0         | 0     | 0         | 0     | 0     |
| 15:30       | 0          | 0     | 0          | 0     | 0         | 0     | 0         | 0     | 0     |
| 15:45       | 0          | 0     | 1          | 1     | 0         | 0     | 0         | 0     | 1     |
| 16:00       | 0          | 0     | 2          | 2     | 0         | 0     | 0         | 0     | 2     |
| 16:15       | 0          | 0     | 1          | 1     | 0         | 0     | 0         | 0     | 1     |
| 16:30       | 0          | 0     | 1          | 1     | 0         | 0     | 0         | 0     | 1     |
| 16:45       | 0          | 0     | 1          | 1     | 0         | 0     | 0         | 0     | 1     |
| 17:00       | 0          | 0     | 0          | 0     | 0         | 0     | 0         | 0     | 0     |
| 17:15       | 2          | 2     | 2          | 2     | 0         | 0     | 0         | 0     | 4     |
| 17:30       | 2          | 2     | 1          | 1     | 0         | 0     | 0         | 0     | 3     |
| 17:45       | 1          | 1     | 0          | 0     | 0         | 0     | 0         | 0     | 1     |
| Total       | 9          | 9     | 24         | 24    | 0         | 0     | 0         | 0     | 45    |



## Transportation Services - Traffic Services

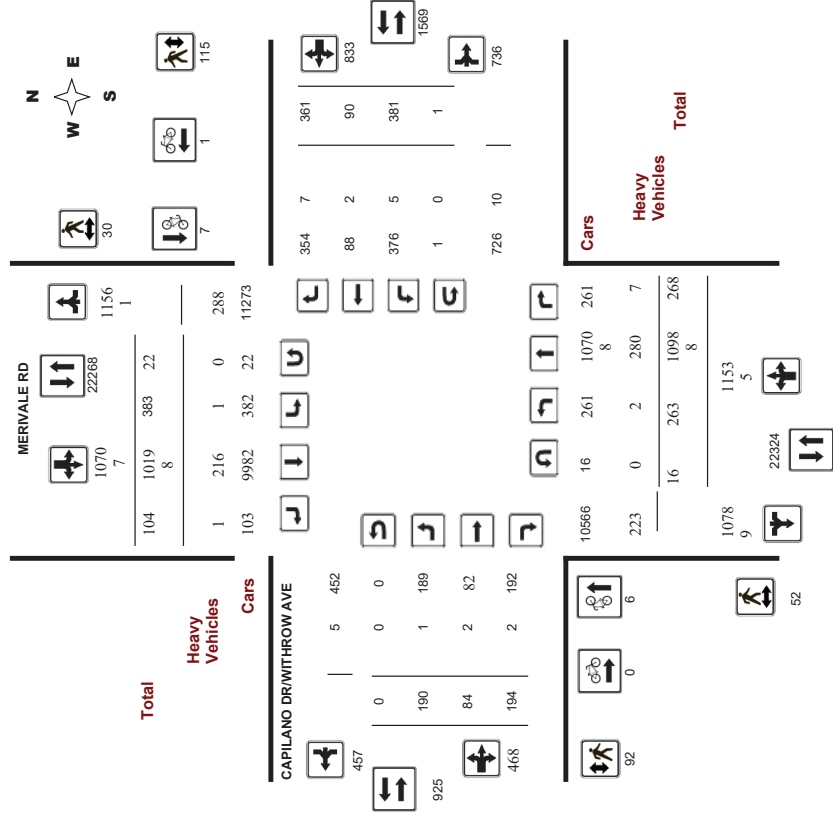
### Turning Movement Count - Study Results

#### MERIVALE RD @ CAPILANO DR/WITHROW AVE

**Survey Date:** Wednesday, February 21, 2018  
**Start Time:** 07:00

**WO No:** 37551  
**Device:** Miovision

#### Full Study Diagram



## Transportation Services - Traffic Services

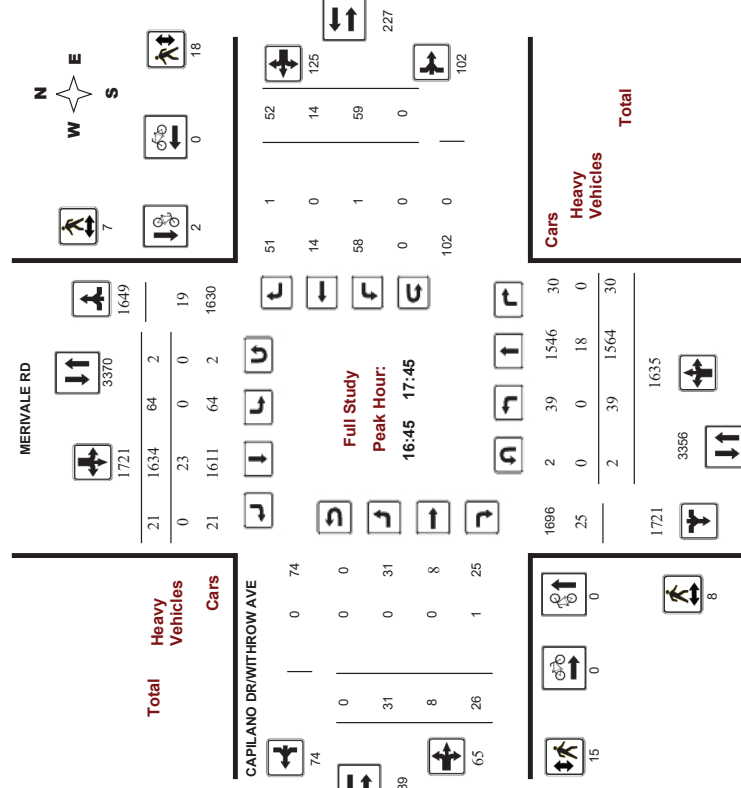
### Turning Movement Count - Study Results

#### MERIVALE RD @ CAPILANO DR/WITHROW AVE

**Survey Date:** Wednesday, February 21, 2018  
**Start Time:** 07:00

**WO No:** 37551  
**Device:** Miovision

#### Full Study Peak Hour Diagram



**Survey Date:** Wednesday, February 21, 2018

**Start Time:** 07:00

WO No: 37551

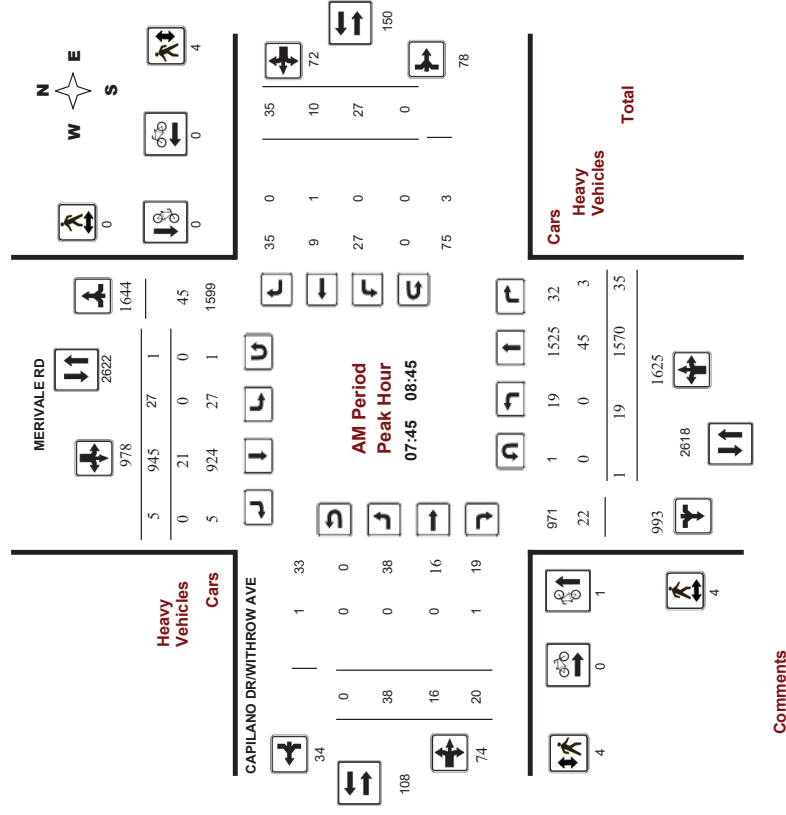
**Device:** Miovision

**Survey Date:** Wednesday, February 21, 2018

**Start Time:** 07:00

WO No: 37551

**Device:** Miovision





## Transportation Services - Traffic Services

### Turning Movement Count - Peak Hour Diagram

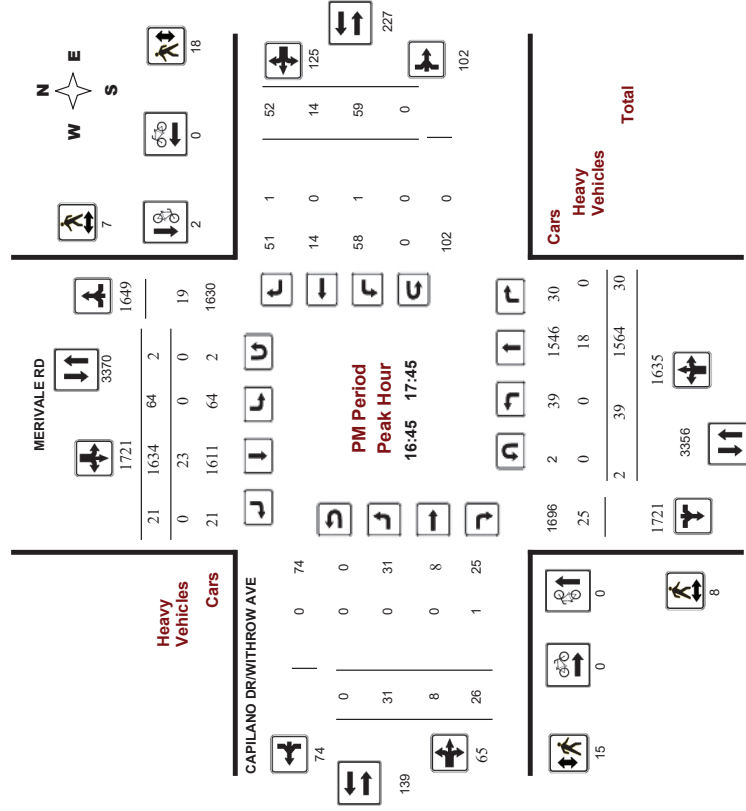
#### MERIVALE RD @ CAPILANO DR/WITHROW AVE

Survey Date: Wednesday, February 21, 2018

Start Time: 07:00

WO No: 37551

Device: Miovision



Comments



## Transportation Services - Traffic Services

### Turning Movement Count - Study Results

#### MERIVALE RD @ CAPILANO DR/WITHROW AVE

Survey Date: Wednesday, February 21, 2018

Start Time: 07:00

WO No: 37551

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

| Period      | Northbound |       |     |       | Southbound |       |     |       | Eastbound |     |     |     | Westbound |     |     |     | WB<br>TOT | STR<br>TOT | Grand<br>TOT |
|-------------|------------|-------|-----|-------|------------|-------|-----|-------|-----------|-----|-----|-----|-----------|-----|-----|-----|-----------|------------|--------------|
|             | LT         | ST    | RT  | TOT   | LT         | ST    | RT  | TOT   | LT        | ST  | RT  | TOT | LT        | ST  | RT  | TOT |           |            |              |
| 07:00 08:00 | 12         | 1278  | 23  | 1313  | 17         | 807   | 4   | 828   | 24        | 4   | 20  | 48  | 20        | 1   | 25  | 46  | 94        | 2235       |              |
| 08:00 09:00 | 22         | 1525  | 29  | 1576  | 32         | 976   | 4   | 1012  | 33        | 18  | 18  | 69  | 21        | 15  | 32  | 68  | 137       | 2775       |              |
| 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         | 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 | 14853 | 30916     | 284 | 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  
**Start Time:** 07:00

**WO No:** 37551  
**Device:** Miovision

### Full Study 15 Minute Increments

MERIVALE RD

CAPILANO DR/WITHROW AVE

| Time Period | Northbound |      |     |       | Southbound |       |     |       | Eastbound |     |    |       | Westbound |     |    |       | Grand Total |         |        |
|-------------|------------|------|-----|-------|------------|-------|-----|-------|-----------|-----|----|-------|-----------|-----|----|-------|-------------|---------|--------|
|             | LT         | ST   | RT  | N TOT | LT         | ST    | RT  | S TOT | LT        | ST  | RT | E TOT | LT        | ST  | RT | W TOT |             | STR TOT |        |
| 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   | 362   | 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          | 383  | 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          | 290  | 8   | 294   | 10         | 277   | 2   | 289   | 24        | 1   | 1  | 6     | 8         | 7   | 3  | 12    | 22          | 24      | 613    |
| 09:30 09:45 | 5          | 299  | 5   | 299   | 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         | 367   | 5   | 375   | 14        | 3   | 2  | 6     | 11        | 14  | 0  | 6     | 20          | 14      | 727    |
| 12:15 12:30 | 11         | 349  | 11  | 349   | 11         | 349   | 11  | 349   | 11        | 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  
**Start Time:** 07:00

**WO No:** 37551  
**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          | 0  | 1            | 1  | 0         | 0 | 0         | 0 | 0            | 0 | 1           | 1  |
| 12:45 13:00 | 1           | 0 | 0          | 0  | 1            | 1  | 0         | 0 | 0         | 0 | 0            | 0 | 1           | 1  |
| 13:00 13:15 | 0           | 0 | 0          | 0  | 0            | 0  | 0         | 0 | 0         | 0 | 0            | 0 | 0           | 0  |
| 13:15 13:30 | 0           | 0 | 0          | 0  | 0            | 0  | 0         | 0 | 0         | 0 | 0            | 0 | 0           | 0  |
| 15:00 15:15 | 0           | 0 | 0          | 0  | 0            | 0  | 0         | 0 | 0         | 0 | 0            | 0 | 0           | 0  |
| 15:15 15:30 | 0           | 0 | 0          | 0  | 0            | 0  | 0         | 0 | 0         | 0 | 0            | 0 | 0           | 0  |
| 15:30 15:45 | 1           | 0 | 0          | 0  | 1            | 1  | 0         | 0 | 0         | 0 | 0            | 0 | 1           | 1  |
| 15:45 16:00 | 0           | 0 | 1          | 1  | 2            | 2  | 0         | 0 | 0         | 0 | 0            | 0 | 2           | 2  |
| 16:00 16:15 | 0           | 0 | 0          | 0  | 0            | 0  | 0         | 0 | 0         | 0 | 0            | 0 | 0           | 0  |
| 16:15 16:30 | 0           | 0 | 0          | 0  | 0            | 0  | 0         | 0 | 0         | 0 | 0            | 0 | 0           | 0  |
| 16:30 16:45 | 1           | 1 | 1          | 1  | 2            | 2  | 0         | 0 | 0         | 0 | 0            | 0 | 3           | 3  |
| 16:45 17:00 | 0           | 0 | 1          | 1  | 2            | 2  | 0         | 0 | 0         | 0 | 0            | 0 | 2           | 2  |
| 17:00 17:15 | 0           | 0 | 0          | 0  | 0            | 0  | 0         | 0 | 0         | 0 | 0            | 0 | 0           | 0  |
| 17:15 17:30 | 0           | 0 | 0          | 0  | 0            | 0  | 0         | 0 | 0         | 0 | 0            | 0 | 0           | 0  |
| 17:30 17:45 | 0           | 1 | 1          | 1  | 3            | 3  | 0         | 0 | 0         | 0 | 0            | 0 | 3           | 3  |
| 17:45 18:00 | 0           | 0 | 0          | 0  | 0            | 0  | 0         | 0 | 0         | 0 | 0            | 0 | 0           | 0  |
| 07:00 07:15 | 1           | 0 | 0          | 0  | 1            | 1  | 0         | 0 | 0         | 0 | 0            | 0 | 1           | 1  |
| 07:15 07:30 | 0           | 0 | 0          | 0  | 0            | 0  | 0         | 0 | 0         | 0 | 0            | 0 | 0           | 0  |
| 07:30 07:45 | 0           | 0 | 0          | 0  | 0            | 0  | 0         | 0 | 0         | 0 | 0            | 0 | 0           | 0  |
| 07:45 08:00 | 0           | 0 | 0          | 0  | 0            | 0  | 0         | 0 | 0         | 0 | 0            | 0 | 0           | 0  |
| 08:00 08:15 | 0           | 0 | 0          | 0  | 0            | 0  | 0         | 0 | 0         | 0 | 0            | 0 | 0           | 0  |
| 08:15 08:30 | 1           | 0 | 0          | 0  | 1            | 1  | 0         | 0 | 0         | 0 | 0            | 0 | 1           | 1  |
| 08:30 08:45 | 0           | 0 | 0          | 0  | 0            | 0  | 0         | 0 | 0         | 0 | 0            | 0 | 0           | 0  |
| 08:45 09:00 | 0           | 0 | 0          | 0  | 0            | 0  | 0         | 0 | 0         | 0 | 0            | 0 | 0           | 0  |
| 09:00 09:15 | 0           | 0 | 0          | 0  | 0            | 0  | 0         | 0 | 0         | 0 | 0            | 0 | 0           | 0  |
| 09:15 09:30 | 0           | 0 | 0          | 0  | 0            | 0  | 0         | 0 | 0         | 0 | 0            | 0 | 0           | 0  |
| 09:30 09:45 | 0           | 0 | 0          | 0  | 0            | 0  | 0         | 0 | 0         | 0 | 0            | 0 | 0           | 0  |
| 09:45 10:00 | 0           | 0 | 0          | 0  | 0            | 0  | 0         | 0 | 0         | 0 | 0            | 0 | 0           | 0  |
| 11:30 11:45 | 0           | 0 | 0          | 0  | 0            | 0  | 0         | 0 | 0         | 0 | 0            | 0 | 0           | 0  |
| 11:45 12:00 | 0           | 0 | 0          | 0  | 0            | 0  | 0         | 0 | 0         | 0 | 0            | 0 | 0           | 0  |
| 12:00 12:15 | 0           | 0 | 1          | 1  | 1            | 1  | 0         | 0 | 0         | 0 | 0            | 0 | 1           | 1  |
| 12:15 12:30 | 0           | 0 | 0          | 0  | 0            | 0  | 0         | 0 | 0         | 0 | 0            | 0 | 0           | 0  |
| Total       | 6           | 7 | 7          | 13 | 13           | 13 | 0         | 0 | 0         | 0 | 0            | 0 | 14          | 14 |



## Transportation Services - Traffic Services

### Turning Movement Count - Study Results

MERIVALE RD @ CAPILANO DR/WITHROW AVE

**Survey Date:** Wednesday, February 21, 2018  
**Start Time:** 07:00

**WO No:** 37551  
**Device:** Miovision

### Full Study Pedestrian Volume

MERIVALE RD  
CAPILANO DR/WITHROW AVE

| Time Period | NB Approach<br>(E or W Crossing) | SB Approach<br>(E or W Crossing) | Total | EB Approach<br>(N or S Crossing) | WB Approach<br>(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  
**Start Time:** 07:00

**WO No:** 37551  
**Device:** Miovision

### Full Study Heavy Vehicles

MERIVALE RD  
CAPILANO DR/WITHROW AVE

| Time Period | Northbound |     |    | Southbound |    |     | Eastbound |     |     | Westbound |    |    | Grand Total |
|-------------|------------|-----|----|------------|----|-----|-----------|-----|-----|-----------|----|----|-------------|
|             | LT         | ST  | RT | LT         | ST | RT  | LT        | ST  | RT  | LT        | ST | RT |             |
| 12:30 12:45 | 0          | 12  | 1  | 13         | 0  | 5   | 0         | 0   | 0   | 0         | 0  | 0  | 19          |
| 12:45 13:00 | 0          | 11  | 0  | 11         | 0  | 8   | 0         | 0   | 0   | 0         | 0  | 0  | 20          |
| 13:00 13:15 | 0          | 12  | 0  | 12         | 0  | 9   | 0         | 0   | 0   | 0         | 0  | 0  | 21          |
| 13:15 13:30 | 0          | 10  | 0  | 10         | 0  | 8   | 0         | 0   | 0   | 0         | 0  | 0  | 18          |
| 15:00 15:15 | 0          | 9   | 0  | 9          | 1  | 6   | 0         | 7   | 16  | 0         | 0  | 0  | 16          |
| 15:15 15:30 | 0          | 13  | 0  | 13         | 0  | 2   | 0         | 2   | 15  | 0         | 0  | 0  | 16          |
| 15:30 15:45 | 0          | 5   | 0  | 5          | 0  | 4   | 0         | 4   | 9   | 0         | 0  | 0  | 10          |
| 15:45 16:00 | 0          | 8   | 1  | 9          | 0  | 6   | 0         | 6   | 15  | 0         | 0  | 0  | 15          |
| 16:00 16:15 | 1          | 7   | 0  | 8          | 0  | 7   | 0         | 7   | 15  | 0         | 0  | 0  | 15          |
| 16:15 16:30 | 0          | 3   | 0  | 3          | 0  | 9   | 0         | 9   | 12  | 0         | 0  | 0  | 13          |
| 16:30 16:45 | 0          | 5   | 0  | 5          | 0  | 5   | 0         | 5   | 10  | 0         | 0  | 0  | 10          |
| 16:45 17:00 | 0          | 3   | 0  | 3          | 0  | 4   | 0         | 4   | 7   | 0         | 0  | 0  | 9           |
| 17:00 17:15 | 0          | 6   | 0  | 6          | 0  | 6   | 0         | 6   | 12  | 0         | 0  | 0  | 13          |
| 17:15 17:30 | 0          | 1   | 0  | 1          | 0  | 7   | 0         | 7   | 8   | 0         | 0  | 0  | 8           |
| 17:30 17:45 | 0          | 8   | 0  | 8          | 0  | 6   | 0         | 6   | 14  | 0         | 0  | 0  | 14          |
| 07:00 07:15 | 0          | 14  | 0  | 14         | 0  | 7   | 0         | 7   | 21  | 0         | 0  | 0  | 21          |
| 07:15 07:30 | 0          | 11  | 1  | 12         | 0  | 9   | 1         | 10  | 22  | 0         | 0  | 0  | 23          |
| 07:30 07:45 | 0          | 11  | 0  | 11         | 0  | 8   | 0         | 8   | 19  | 0         | 0  | 0  | 20          |
| 07:45 08:00 | 0          | 11  | 0  | 11         | 0  | 3   | 0         | 3   | 14  | 0         | 0  | 0  | 14          |
| 08:00 08:15 | 0          | 8   | 1  | 9          | 0  | 5   | 0         | 5   | 14  | 0         | 0  | 0  | 14          |
| 08:15 08:30 | 0          | 13  | 0  | 13         | 0  | 7   | 0         | 7   | 20  | 0         | 0  | 0  | 20          |
| 08:30 08:45 | 0          | 14  | 1  | 15         | 0  | 6   | 0         | 6   | 21  | 0         | 0  | 0  | 23          |
| 08:45 09:00 | 0          | 9   | 0  | 9          | 0  | 5   | 0         | 5   | 14  | 0         | 0  | 0  | 14          |
| 09:00 09:15 | 0          | 15  | 0  | 15         | 0  | 11  | 0         | 11  | 26  | 0         | 0  | 0  | 26          |
| 09:15 09:30 | 0          | 12  | 1  | 13         | 0  | 11  | 0         | 11  | 24  | 0         | 0  | 0  | 25          |
| 09:30 09:45 | 1          | 9   | 0  | 10         | 0  | 6   | 0         | 6   | 16  | 0         | 0  | 0  | 18          |
| 09:45 10:00 | 0          | 5   | 0  | 5          | 0  | 11  | 0         | 11  | 16  | 0         | 0  | 0  | 16          |
| 11:30 11:45 | 0          | 9   | 0  | 9          | 0  | 2   | 0         | 2   | 11  | 0         | 0  | 0  | 12          |
| 11:45 12:00 | 0          | 9   | 0  | 9          | 0  | 12  | 0         | 12  | 21  | 0         | 0  | 0  | 22          |
| 12:00 12:15 | 0          | 5   | 0  | 5          | 0  | 9   | 0         | 9   | 14  | 0         | 0  | 0  | 15          |
| 12:15 12:30 | 0          | 6   | 0  | 6          | 0  | 9   | 0         | 9   | 15  | 0         | 0  | 0  | 15          |
| Total: None | 2          | 280 | 7  | 289        | 1  | 216 | 1         | 218 | 507 | 1         | 2  | 5  | 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

**Device:** Miovision

**Start Time:** 07:00

#### Full Study 15 Minute U-Turn Total

| Time Period | MERIVALE RD             |                         | CAPILANO DR            |                        | WITHROW AVE  |              | Total |
|-------------|-------------------------|-------------------------|------------------------|------------------------|--------------|--------------|-------|
|             | Northbound U-Turn Total | Southbound U-Turn Total | Eastbound U-Turn Total | Westbound U-Turn Total | U-Turn Total | U-Turn Total |       |
| 12:30       | 0                       | 3                       | 0                      | 0                      | 0            | 0            | 3     |
| 12:45       | 0                       | 1                       | 0                      | 0                      | 0            | 0            | 1     |
| 13:00       | 2                       | 3                       | 0                      | 0                      | 0            | 0            | 5     |
| 13:15       | 0                       | 0                       | 0                      | 0                      | 0            | 0            | 0     |
| 13:30       | 0                       | 0                       | 0                      | 0                      | 0            | 0            | 0     |
| 15:00       | 1                       | 0                       | 0                      | 0                      | 0            | 0            | 1     |
| 15:15       | 1                       | 0                       | 0                      | 0                      | 0            | 0            | 1     |
| 15:30       | 1                       | 1                       | 0                      | 0                      | 0            | 0            | 2     |
| 15:45       | 1                       | 2                       | 0                      | 0                      | 0            | 0            | 3     |
| 16:00       | 0                       | 0                       | 0                      | 0                      | 0            | 0            | 0     |
| 16:15       | 1                       | 2                       | 0                      | 0                      | 0            | 0            | 3     |
| 16:30       | 1                       | 0                       | 0                      | 0                      | 0            | 0            | 1     |
| 16:45       | 0                       | 1                       | 0                      | 0                      | 0            | 0            | 1     |
| 17:00       | 1                       | 0                       | 0                      | 0                      | 0            | 0            | 1     |
| 17:15       | 0                       | 1                       | 0                      | 0                      | 0            | 0            | 1     |
| 17:30       | 1                       | 0                       | 0                      | 0                      | 0            | 0            | 1     |
| 17:45       | 0                       | 1                       | 0                      | 0                      | 0            | 0            | 1     |
| 18:00       | 0                       | 1                       | 0                      | 0                      | 0            | 0            | 1     |
| 18:15       | 0                       | 0                       | 0                      | 0                      | 0            | 0            | 0     |
| 18:30       | 0                       | 0                       | 0                      | 0                      | 0            | 0            | 0     |
| 18:45       | 0                       | 0                       | 0                      | 0                      | 0            | 0            | 0     |
| 19:00       | 0                       | 0                       | 0                      | 0                      | 0            | 0            | 0     |
| 19:15       | 0                       | 0                       | 0                      | 0                      | 0            | 0            | 0     |
| 19:30       | 0                       | 0                       | 0                      | 0                      | 0            | 0            | 0     |
| 19:45       | 0                       | 0                       | 0                      | 0                      | 0            | 0            | 0     |
| 20:00       | 0                       | 0                       | 0                      | 0                      | 0            | 0            | 0     |
| 20:15       | 0                       | 0                       | 0                      | 0                      | 0            | 0            | 0     |
| 20:30       | 0                       | 0                       | 0                      | 0                      | 0            | 0            | 0     |
| 20:45       | 0                       | 0                       | 0                      | 0                      | 0            | 0            | 0     |
| 21:00       | 0                       | 0                       | 0                      | 0                      | 0            | 0            | 0     |
| 21:15       | 0                       | 0                       | 0                      | 0                      | 0            | 0            | 0     |
| 21:30       | 0                       | 0                       | 0                      | 0                      | 0            | 0            | 0     |
| 21:45       | 0                       | 0                       | 0                      | 0                      | 0            | 0            | 0     |
| 22:00       | 0                       | 0                       | 0                      | 0                      | 0            | 0            | 0     |
| 22:15       | 0                       | 0                       | 0                      | 0                      | 0            | 0            | 0     |
| 22:30       | 0                       | 1                       | 0                      | 0                      | 0            | 0            | 1     |
| Total       | 16                      | 22                      | 0                      | 0                      | 0            | 0            | 39    |



## Transportation Services - Traffic Services

### Turning Movement Count - Study Results

#### MERIVALE RD/LOTTA AVE @ CLYDE AVE

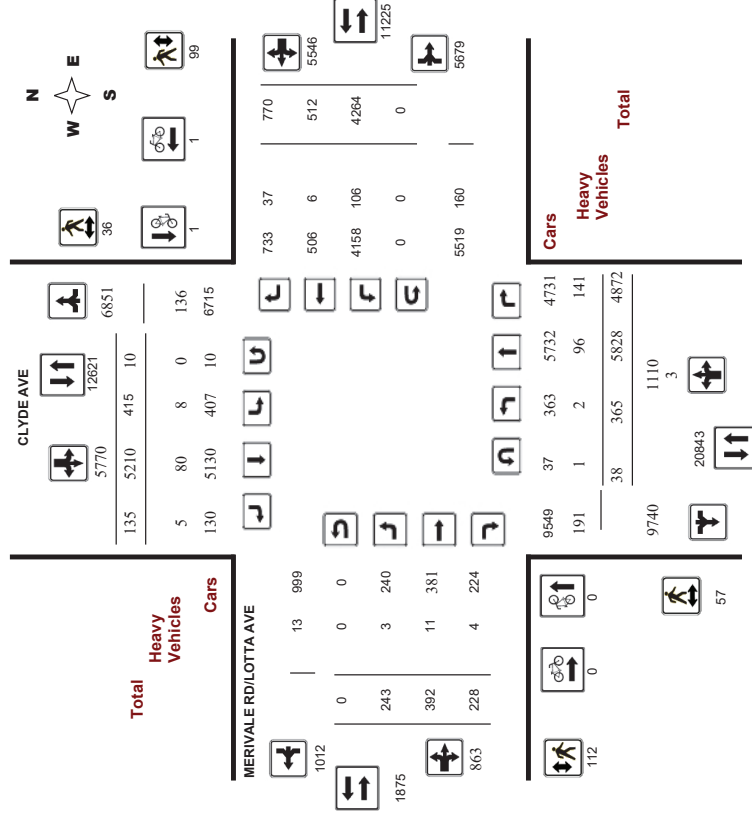
**Survey Date:** Monday, February 10, 2020

**WO No:** 39436

**Device:** Miovision

**Start Time:** 07:00

#### Full Study Diagram





## Transportation Services - Traffic Services

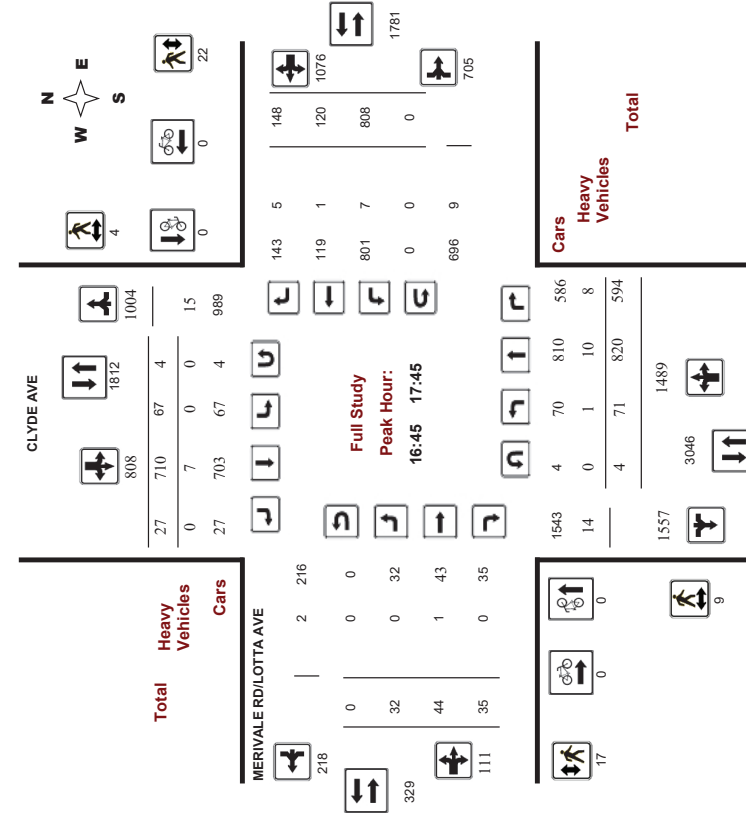
### Turning Movement Count - Study Results

#### MERIVALE RD/LOTTA AVE @ CLYDE AVE

Survey Date: Monday, February 10, 2020  
Start Time: 07:00

WO No: 39436  
Device: Miovision

#### Full Study Peak Hour Diagram



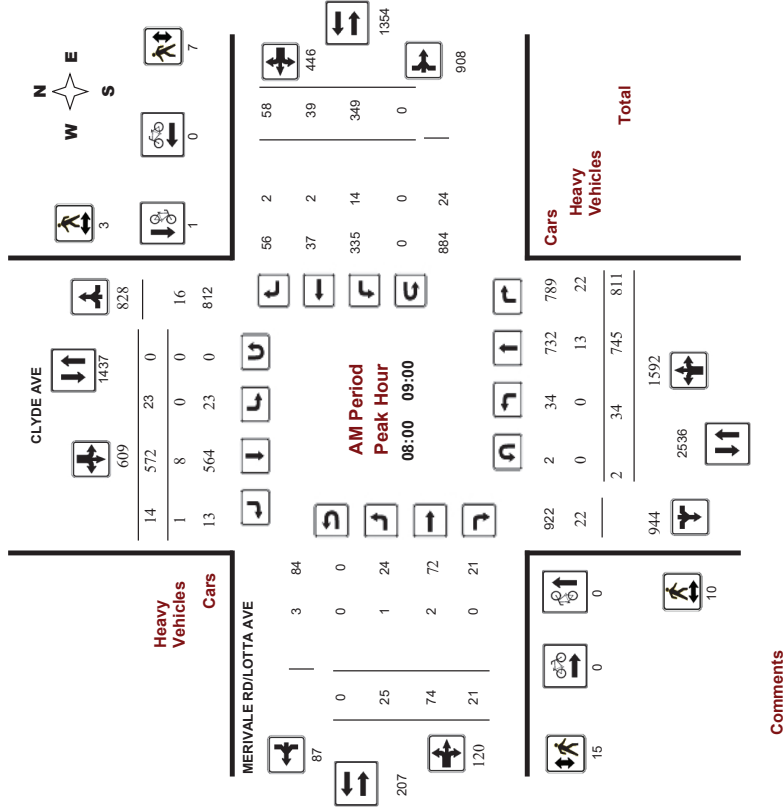
## Transportation Services - Traffic Services

### Turning Movement Count - Peak Hour Diagram

#### MERIVALE RD/LOTTA AVE @ CLYDE AVE

Survey Date: Monday, February 10, 2020  
Start Time: 07:00

WO No: 39436  
Device: Miovision





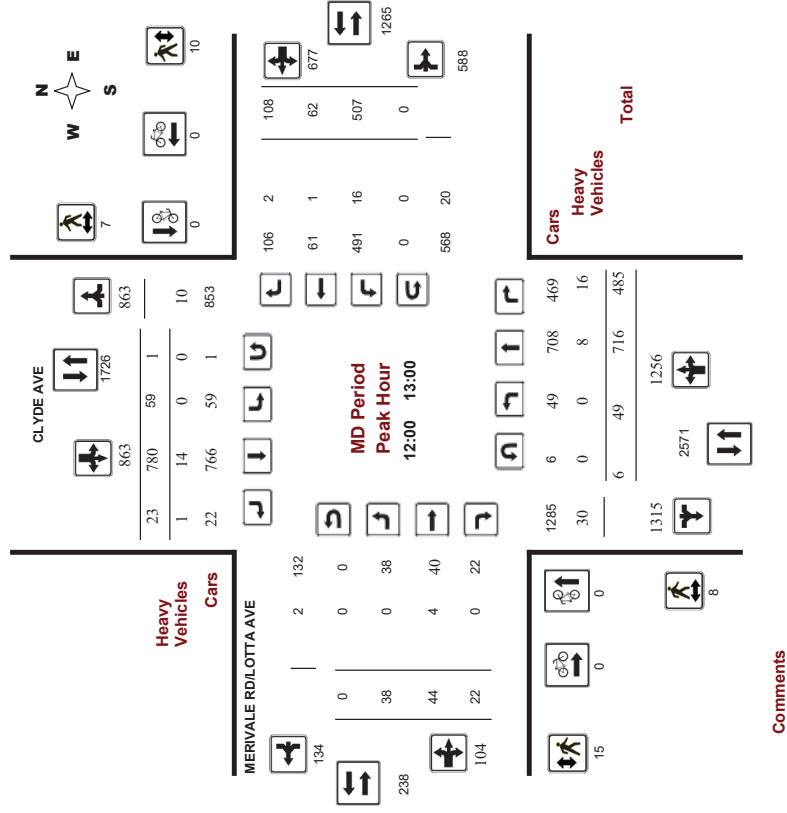
## Transportation Services - Traffic Services

### Turning Movement Count - Peak Hour Diagram

MERIVALE RD/LOTTA AVE @ CLYDE AVE

Survey Date: Monday, February 10, 2020  
Start Time: 07:00

WO No: 39436  
Device: Miovision



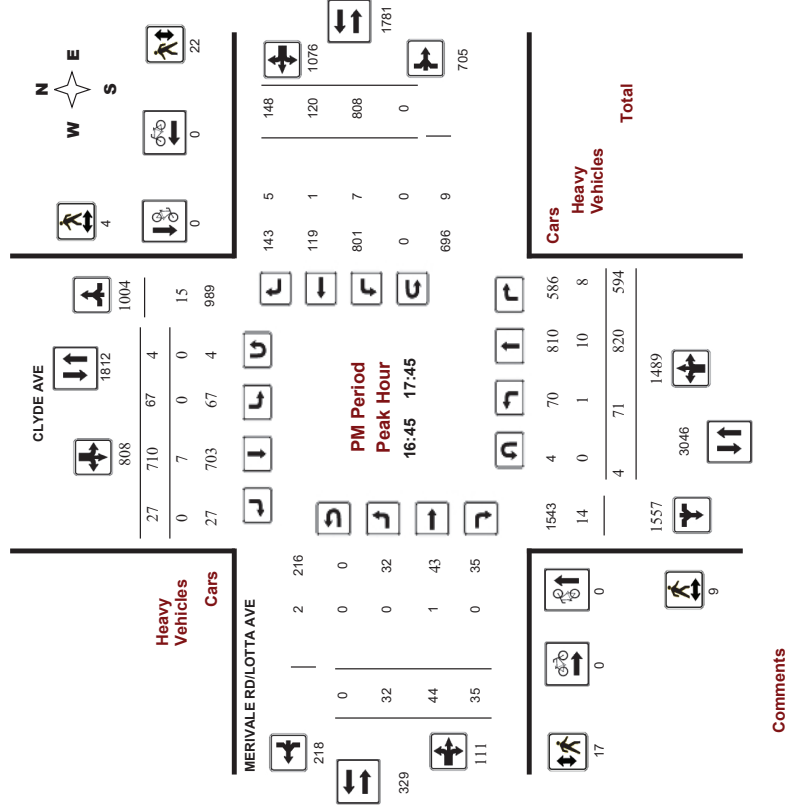
## Transportation Services - Traffic Services

### Turning Movement Count - Peak Hour Diagram

MERIVALE RD/LOTTA AVE @ CLYDE AVE

Survey Date: Monday, February 10, 2020  
Start Time: 07:00

WO No: 39436  
Device: Miovision





## Transportation Services - Traffic Services

### Turning Movement Count - Study Results

MERIVALE RD/LOTTA AVE @ CLYDE AVE

**Survey Date:** Monday, February 10, 2020  
**Start Time:** 07:00

WO No: 39436  
Device: Miovision

### Full Study Summary (8 HR Standard)

**Survey Date:** Monday, February 10, 2020  
**Total Observed U-Turns** 38  
**AADT Factor** 1.00  
Northbound: 38 Southbound: 10  
Eastbound: 0 Westbound: 0

| Period                                                                                                          | CLYDE AVE  |       |      |            |     | MERIVALE RD/LOTTA AVE |           |           |       |     |     |           |      |      |     | WB<br>TOT | STR<br>TOT | Grand<br>TOT |       |  |   |  |  |  |  |
|-----------------------------------------------------------------------------------------------------------------|------------|-------|------|------------|-----|-----------------------|-----------|-----------|-------|-----|-----|-----------|------|------|-----|-----------|------------|--------------|-------|--|---|--|--|--|--|
|                                                                                                                 | Northbound |       |      | Southbound |     |                       | Eastbound |           |       |     |     | Westbound |      |      |     |           |            |              |       |  |   |  |  |  |  |
|                                                                                                                 | LT         | ST    | RT   | NB<br>TOT  | LT  | ST                    | RT        | SB<br>TOT | LT    | ST  | RT  | EB<br>TOT | LT   | ST   | RT  |           |            |              |       |  |   |  |  |  |  |
| 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 |  |  |  |  |
| 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.                |            |       |      |            |     |                       |           |           |       |     |     |           |      |      |     |           |            |              |       |  |   |  |  |  |  |
| 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.              |            |       |      |            |     |                       |           |           |       |     |     |           |      |      |     |           |            |              |       |  |   |  |  |  |  |
| 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. |            |       |      |            |     |                       |           |           |       |     |     |           |      |      |     |           |            |              |       |  |   |  |  |  |  |
| 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  
**Start Time:** 07:00

WO No: 39436  
Device: Miovision

### Full Study 15 Minute Increments

**Survey Date:** Monday, February 10, 2020  
**Start Time:** 07:00

| Time Period | Northbound |      |      |       |     | Southbound |     |      |     |     | Eastbound |     |     |      |     | Westbound |      |     |        |   |     |       |
|-------------|------------|------|------|-------|-----|------------|-----|------|-----|-----|-----------|-----|-----|------|-----|-----------|------|-----|--------|---|-----|-------|
|             | LT         | ST   | RT   | TOT   | N   | LT         | ST  | RT   | TOT | S   | LT        | ST  | RT  | TOT  | E   | LT        | ST   | RT  | TOT    | W | STR | Grand |
| 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   | 148        | 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    |   |     |       |
| 10:00 10:15 | 16         | 147  | 117  | 281   | 14  | 186        | 10  | 211  | 17  | 10  | 15        | 12  | 37  | 111  | 7   | 21        | 139  | 17  | 668    |   |     |       |
| 11:00 11:15 | 10         | 164  | 110  | 286   | 15  | 203        | 6   | 225  | 12  | 4   | 9         | 12  | 25  | 127  | 12  | 20        | 159  | 12  | 695    |   |     |       |
| 11:15 11:30 | 11         | 165  | 123  | 300   | 12  | 197        | 8   | 217  | 14  | 11  | 10        | 4   | 25  | 155  | 17  | 26        | 188  | 14  | 740    |   |     |       |
| 11:30 11:45 | 12         | 169  | 117  | 320   | 17  | 185        | 11  | 213  | 7   | 12  | 7         | 10  | 29  | 111  | 14  | 21        | 146  | 7   | 708    |   |     |       |
| 11:45 12:00 | 12         | 185  | 107  | 315   | 15  | 207        | 1   | 224  | 10  | 5   | 13        | 3   | 21  | 120  | 19  | 27        | 166  | 10  | 726    |   |     |       |
| 12:00 12:15 | 14         | 168  | 138  | 321   | 15  | 191        | 3   | 209  | 8   | 10  | 14        | 5   | 29  | 121  | 12  | 34        | 167  | 8   | 726    |   |     |       |
| 12:15 12:30 | 12         | 186  | 124  | 325   | 14  | 171        | 2   | 187  | 11  | 8   | 10        | 8   | 26  | 124  | 8   | 31        | 163  | 11  | 701    |   |     |       |
| 12:30 12:45 | 10         | 196  | 123  | 329   | 20  | 186        | 4   | 210  | 16  | 7   | 8         | 5   | 20  | 116  | 10  | 26        | 152  | 16  | 711    |   |     |       |
| 12:45 13:00 | 14         | 193  | 159  | 370   | 14  | 181        | 2   | 197  | 12  | 13  | 9         | 5   | 27  | 148  | 21  | 30        | 198  | 12  | 793    |   |     |       |
| 13:00 13:15 | 14         | 199  | 133  | 347   | 17  | 166        | 4   | 188  | 6   | 10  | 15        | 9   | 34  | 196  | 22  | 19        | 237  | 6   | 806    |   |     |       |
| 13:15 13:30 | 10         | 215  | 169  | 395   | 18  | 157        | 2   | 177  | 8   | 8   | 14        | 11  | 33  | 194  | 27  | 28        | 249  | 8   | 854    |   |     |       |
| 13:30 13:45 | 14         | 183  | 123  | 322   | 14  | 153        | 3   | 170  | 12  | 7   | 13        | 4   | 24  | 173  | 35  | 38        | 246  | 12  | 762    |   |     |       |
| 13:45 14:00 | 16         | 180  | 142  | 338   | 16  | 202        | 1   | 220  | 7   | 13  | 14        | 6   | 33  | 202  | 29  | 37        | 268  | 7   | 859    |   |     |       |
| 14:00 14:15 | 13         | 200  | 148  | 363   | 12  | 175        | 2   | 189  | 7   | 7   | 13        | 10  | 30  | 226  | 23  | 31        | 280  | 7   | 862    |   |     |       |
| 14:15 14:30 | 14         | 155  | 141  | 314   | 23  | 206        | 3   | 232  | 5   | 9   | 17        | 15  | 41  | 204  | 26  | 38        | 268  | 5   | 865    |   |     |       |
| 14:30 14:45 | 16         | 203  | 162  | 381   | 15  | 158        | 7   | 182  | 7   | 5   | 6         | 9   | 20  | 223  | 31  | 33        | 287  | 7   | 870    |   |     |       |
| 14:45 15:00 | 21         | 223  | 138  | 384   | 17  | 170        | 6   | 193  | 7   | 9   | 8         | 9   | 26  | 197  | 29  | 40        | 266  | 7   | 869    |   |     |       |
| 15:00 15:15 | 14         | 198  | 146  | 358   | 18  | 183        | 8   | 210  | 7   | 9   | 11        | 6   | 26  | 200  | 40  | 38        | 278  | 7   | 872    |   |     |       |
| 15:15 15:30 | 20         | 196  | 148  | 366   | 17  | 199        | 6   | 223  | 5   | 9   | 19        | 11  | 39  | 188  | 20  | 37        | 245  | 5   | 873    |   |     |       |
| 15:30 15:45 | 15         | 202  | 131  | 350   | 20  | 185        | 4   | 209  | 3   | 9   | 13        | 3   | 25  | 161  | 24  | 43        | 228  | 3   | 812    |   |     |       |
| Total:      | 365        | 5828 | 4872 | 11110 | 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  
**Start Time:** 07:00

**WO No:**  
**Device:**

39436  
Miovision

### Full Study Cyclist Volume

CLYDE AVE      MERIVALE RD/LOTTA AVE

| Time Period | Northbound | Southbound | Street Total | Eastbound | Westbound | Street Total | Grand Total |
|-------------|------------|------------|--------------|-----------|-----------|--------------|-------------|
| 07:00 07:15 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 07:15 07:30 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 07:30 07:45 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 07:45 08:00 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 08:00 08:15 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 08:15 08:30 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 08:30 08:45 | 0          | 1          | 1            | 0         | 0         | 1            | 1           |
| 08:45 09:00 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 09:00 09:15 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 09:15 09:30 | 0          | 0          | 0            | 0         | 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           |
| 10:00 10:15 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 10:15 10:30 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 10:30 10:45 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 10:45 11:00 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 11:00 11:15 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 11:15 11:30 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 11:30 11:45 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 11:45 12:00 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 12:00 12:15 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 12:15 12:30 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 12:30 12:45 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 12:45 13:00 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 13:00 13:15 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 13:15 13:30 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 13:30 13:45 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 13:45 14:00 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 14:00 14:15 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 14:15 14:30 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 14:30 14:45 | 0          | 0          | 0            | 0         | 0         | 0            | 0           |
| 14:45 15:00 | 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  
**Start Time:** 07:00

**WO No:**  
**Device:**

39436  
Miovision

### Full Study Pedestrian Volume

CLYDE AVE      MERIVALE RD/LOTTA AVE

| Time Period | NB Approach<br>(E or W Crossing) | SB Approach<br>(E or W Crossing) | Total | EB Approach<br>(N or S Crossing) | WB Approach<br>(N or S Crossing) | Total | Grand 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           |
| 10:00 10:15 | 2                                | 2                                | 4     | 2                                | 8                                | 10    | 14          |
| 10:15 10:30 | 0                                | 1                                | 1     | 2                                | 0                                | 2     | 3           |
| 10:30 10:45 | 0                                | 3                                | 3     | 4                                | 2                                | 6     | 9           |
| 10:45 11:00 | 1                                | 1                                | 2     | 6                                | 3                                | 9     | 11          |
| 11:00 11:15 | 3                                | 1                                | 4     | 3                                | 1                                | 4     | 8           |
| 11:15 11:30 | 4                                | 2                                | 6     | 2                                | 4                                | 6     | 12          |
| 11:30 11:45 | 1                                | 2                                | 3     | 5                                | 10                               | 15    | 18          |
| 11:45 12:00 | 4                                | 1                                | 5     | 4                                | 7                                | 11    | 16          |
| 12:00 12:15 | 1                                | 0                                | 1     | 6                                | 0                                | 6     | 7           |
| 12:15 12:30 | 4                                | 1                                | 5     | 4                                | 4                                | 8     | 13          |
| 12:30 12:45 | 2                                | 3                                | 5     | 4                                | 3                                | 7     | 12          |
| 12:45 13:00 | 1                                | 1                                | 2     | 3                                | 3                                | 6     | 8           |
| 13:00 13:15 | 2                                | 5                                | 7     | 5                                | 5                                | 10    | 17          |
| 13:15 13:30 | 3                                | 2                                | 5     | 3                                | 4                                | 7     | 12          |
| 13:30 13:45 | 1                                | 1                                | 2     | 4                                | 4                                | 8     | 10          |
| 13:45 14:00 | 3                                | 2                                | 5     | 3                                | 4                                | 7     | 12          |
| 14:00 14:15 | 2                                | 5                                | 7     | 5                                | 5                                | 10    | 17          |
| 14:15 14:30 | 3                                | 2                                | 5     | 3                                | 4                                | 7     | 12          |
| 14:30 14:45 | 1                                | 1                                | 2     | 4                                | 4                                | 8     | 10          |
| 14:45 15:00 | 4                                | 1                                | 5     | 6                                | 4                                | 10    | 16          |
| 15:00 15:15 | 1                                | 1                                | 2     | 7                                | 4                                | 11    | 16          |
| 15:15 15:30 | 1                                | 1                                | 2     | 0                                | 12                               | 14    | 14          |
| 15:30 15:45 | 1                                | 1                                | 2     | 2                                | 2                                | 4     | 6           |
| 15:45 16:00 | 2                                | 0                                | 2     | 2                                | 2                                | 4     | 6           |
| 16:00 16:15 | 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  
**Start Time:** 07:00

**WO No:** 39436  
**Device:** Miovision

#### Full Study Heavy Vehicles

##### CLYDE AVE

###### MERIVALE RD/LOTTA AVE

Southbound

Eastbound

Westbound

| Time Period | LT    |    |    |     | ST  |    |    |     | RT |     |    |     | N |    |     |    | S   |     |     |     | E  |     |   |    | W  |    |     |  | Grand Total |
|-------------|-------|----|----|-----|-----|----|----|-----|----|-----|----|-----|---|----|-----|----|-----|-----|-----|-----|----|-----|---|----|----|----|-----|--|-------------|
|             | LT    | ST | RT | TOT | LT  | ST | RT | TOT | LT | ST  | RT | TOT | N | LT | ST  | RT | TOT | S   | LT  | ST  | RT | TOT | W | LT | ST | RT | TOT |  |             |
| 07:00       | 07:15 | 0  | 3  | 5   | 8   | 1  | 2  | 0   | 3  | 11  | 0  | 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  | 2   | 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  |    |     |   |    |    |    |     |  |             |
| 13:30       | 13:45 | 0  | 4  | 5   | 9   | 0  | 7  | 0   | 7  | 12  | 0  | 0   | 0 | 0  | 7   | 0  | 1   | 8   | 8   | 20  |    |     |   |    |    |    |     |  |             |
| 15:00       | 15:15 | 0  | 1  | 4   | 5   | 0  | 3  | 0   | 3  | 6   | 0  | 0   | 0 | 0  | 0   | 0  | 1   | 1   | 7   |     |    |     |   |    |    |    |     |  |             |
| 15:15       | 15:30 | 0  | 2  | 1   | 3   | 0  | 3  | 0   | 3  | 6   | 0  | 0   | 0 | 0  | 0   | 0  | 1   | 1   | 1   |     |    |     |   |    |    |    |     |  |             |
| 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  | 7   | 0  | 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  
**Start Time:** 07:00

**WO No:** 39436  
**Device:** Miovision

#### Full Study 15 Minute U-Turn Total

##### CLYDE AVE

##### MERIVALE RD/LOTTA AVE

Northbound

Southbound

Eastbound

Westbound

| Time Period | Northbound |       | Southbound |       | Eastbound |       | Westbound |       | Total |
|-------------|------------|-------|------------|-------|-----------|-------|-----------|-------|-------|
|             | U-Turn     | Total | U-Turn     | Total | U-Turn    | Total | U-Turn    | Total |       |
| 07:00       | 0          | 0     | 0          | 0     | 0         | 0     | 0         | 0     | 0     |
| 07:15       | 0          | 0     | 1          | 1     | 0         | 0     | 0         | 0     | 1     |
| 07:30       | 1          | 1     | 0          | 0     | 0         | 0     | 0         | 0     | 1     |
| 07:45       | 0          | 0     | 0          | 0     | 0         | 0     | 0         | 0     | 0     |
| 08:00       | 0          | 0     | 0          | 0     | 0         | 0     | 0         | 0     | 0     |
| 08:15       | 0          | 0     | 0          | 0     | 0         | 0     | 0         | 0     | 0     |
| 08:30       | 1          | 1     | 0          | 0     | 0         | 0     | 0         | 0     | 1     |
| 08:45       | 1          | 1     | 0          | 0     | 0         | 0     | 0         | 0     | 1     |
| 09:00       | 0          | 0     | 0          | 0     | 0         | 0     | 0         | 0     | 0     |
| 09:15       | 1          | 1     | 0          | 0     | 0         | 0     | 0         | 0     | 1     |
| 09:30       | 0          | 0     | 0          | 0     | 0         | 0     | 0         | 0     | 0     |
| 09:45       | 1          | 1     | 0          | 0     | 0         | 0     | 0         | 0     | 1     |
| 10:00       | 0          | 0     | 0          | 0     | 0         | 0     | 0         | 0     | 0     |
| 11:30       | 1          | 1     | 1          | 1     | 0         | 0     | 0         | 0     | 2     |
| 11:45       | 3          | 3     | 1          | 1     | 0         | 0     | 0         | 0     | 4     |
| 12:00       | 1          | 1     | 0          | 0     | 0         | 0     | 0         | 0     | 1     |
| 12:15       | 2          | 2     | 0          | 0     | 0         | 0     | 0         | 0     | 2     |
| 12:30       | 2          | 2     | 1          | 1     | 0         | 0     | 0         | 0     | 3     |
| 12:45       | 1          | 1     | 0          | 0     | 0         | 0     | 0         | 0     | 1     |
| 13:00       | 3          | 3     | 0          | 0     | 0         | 0     | 0         | 0     | 3     |
| 13:15       | 0          | 0     | 0          | 0     | 0         | 0     | 0         | 0     | 0     |
| 13:30       | 4          | 4     | 0          | 0     | 0         | 0     | 0         | 0     | 4     |
| 13:45       | 1          | 1     | 1          | 1     | 0         | 0     | 0         | 0     | 2     |
| 14:00       | 2          | 2     | 0          | 0     | 0         | 0     | 0         | 0     | 2     |
| 14:15       | 2          | 2     | 0          | 0     | 0         | 0     | 0         | 0     | 2     |
| 14:30       | 0          | 0     | 0          | 0     | 0         | 0     | 0         | 0     | 0     |
| 14:45       | 2          | 2     | 0          | 0     | 0         | 0     | 0         | 0     | 2     |
| 15:00       | 0          | 0     | 0          | 0     | 0         | 0     | 0         | 0     | 0     |
| 15:15       | 1          | 1     | 0          | 0     | 0         | 0     | 0         | 0     | 1     |
| 15:30       | 1          | 1     | 0          | 0     | 0         | 0     | 0         | 0     | 1     |
| 15:45       | 2          | 2     | 0          | 0     | 0         | 0     | 0         | 0     | 2     |
| 16:00       | 0          | 0     | 1          | 1     | 0         | 0     | 0         | 0     | 1     |
| 16:15       | 2          | 2     | 0          | 0     | 0         | 0     | 0         | 0     | 2     |
| 16:30       | 4          | 4     | 0          | 0     | 0         | 0     | 0         | 0     | 4     |
| 16:45       | 0          | 0     | 2          | 2     | 0         | 0     | 0         | 0     | 2     |
| 17:00       | 2          | 2     | 0          | 0     | 0         | 0     | 0         | 0     | 2     |
| 17:15       | 0          | 0     | 1          | 1     | 0         | 0     | 0         | 0     | 1     |
| 17:30       | 2          | 2     | 1          | 1     | 0         | 0     | 0         | 0     | 3     |
| 17:45       | 2          | 2     | 0          | 0     | 0         | 0     | 0         | 0     | 2     |
| Total       | 38         | 38    | 10         | 10    | 0         | 0     | 0         | 0     | 48    |

# Appendix C

Synchro Intersection Worksheets – Existing Conditions

Lanes, Volumes, Timings  
1: Merivale & Baseline

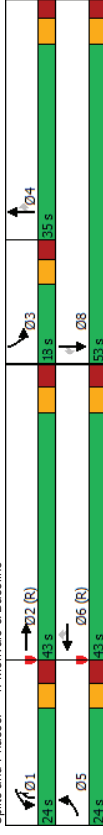
Lanes, Volumes, Timings  
Existing AM AM Peak Hour  
1309 Merivale Road

| 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     |       | Perm   | 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   | 10.0  | 5.0   | 5.0   | 10.0  | 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  | 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  | 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% | 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   | 3.7   | 3.7   |
| All-Red Time (s)                                                    | 3.4    | 3.4    | 3.4   | 3.4    | 3.4   | 3.4    | 2.9   | 3.4   | 2.8   | 2.9   | 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   | 0.0   | 0.0   |
| Total Lost Time (s)                                                 | 7.1    | 7.1    | 7.1   | 7.1    | 7.1   | 7.1    | 6.6   | 7.1   | 6.5   | 6.6   | 6.6   | 6.6   |
| Lead/Lag                                                            | Lead   | Lag    | Lead  | Lag    | Lag   | Lag    | Lead  | Lead  | Lead  | Lead  |       |       |
| Lead-Lag Optimize?                                                  | Yes    | Yes    | Yes   | Yes    | Yes   | Yes    | Yes   | Yes   | Yes   | Yes   |       |       |
| Recall Mode                                                         | None   | C-Max  | None  | C-Max  | None  | 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 2EBT and 6WBT, Start of Green |        |        |       |        |       |        |       |       |       |       |       |       |
| Natural Cycle: 140                                                  |        |        |       |        |       |        |       |       |       |       |       |       |
| Control Type: Actuated-Coordinated                                  |        |        |       |        |       |        |       |       |       |       |       |       |

Lanes, Volumes, Timings  
1: Merivale & Baseline

Lanes, Volumes, Timings  
Existing AM AM Peak Hour  
1309 Merivale Road

|                                                                 |                                 |                     |
|-----------------------------------------------------------------|---------------------------------|---------------------|
| 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                       |                                 |                     |



Lanes, Volumes, Timings  
2: Merivale & Lotta & Clyde

Existing AM AM Peak Hour  
1309 Merivale Road

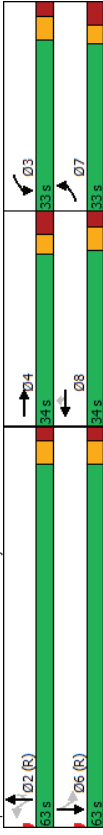
| Lane Group                                                             | EBL   | EBT   | EBR | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR |
|------------------------------------------------------------------------|-------|-------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| Lane Configurations                                                    | 5     | 5     | 5   | 5     | 5     | 5     | 5     | 5     | 5     | 5     | 5     | 5   |
| 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     | 2     | 6     |       |     |
| Permitted Phases                                                       |       |       |     |       |       |       |       |       |       |       |       |     |
| 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:NBTLL and 6:SBTL, Start of Green |       |       |     |       |       |       |       |       |       |       |       |     |
| Natural Cycle: 90                                                      |       |       |     |       |       |       |       |       |       |       |       |     |
| Control Type: Actuated-Coordinated                                     |       |       |     |       |       |       |       |       |       |       |       |     |

Lanes, Volumes, Timings  
2: Merivale & Lotta & Clyde

Existing AM AM Peak Hour  
1309 Merivale Road

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

Splits and Phases: 2: Merivale & Lotta & Clyde

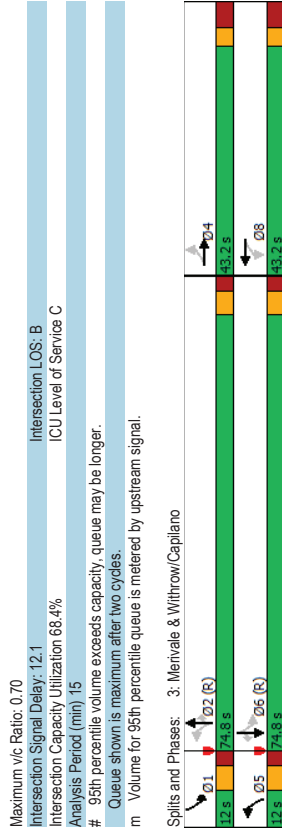


Lanes, Volumes, Timings  
3: Merivale & Withrow/Capilano

Lanes, Volumes, Timings  
3: Merivale & Withrow/Capilano

Existing AM AM Peak Hour  
1309 Merivale Road

| 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    |       | 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  | pm+pt | NA     | Perm  | pm+pt | NA    | Perm  |
| Protected Phases                                                         | 4     | 4     |      | 8     | 8     |     | 2     | 2      | 2     | 1     | 6     |       |
| Permitted Phases                                                         | 4     |       |      | 8     |       |     | 2     | 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  |       |     | 5.0   | 10.0   | 10.0  | 5.0   | 10.0  | 10.0  |
| Minimum Split (s)                                                        | 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  |       |     | 12.0  | 74.8   | 74.8  | 12.0  | 74.8  | 74.8  |
| Total Split (%)                                                          | 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   |       |     | 3.7   | 3.7    | 3.7   | 3.7   | 3.7   | 3.7   |
| All-Red Time (s)                                                         | 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   |
| Total Lost Time (s)                                                      | 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  | C-Max  | C-Max | None  | C-Max | C-Max |
| Act Effct Green (s)                                                      | 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  |       |     | 0.78  | 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                                       |       |       |      |       |       |     |       |        |       |       |       |       |



Lanes, Volumes, Timings  
4: Merivale & Meadowlands

Existing AM AM Peak Hour  
1309 Merivale Road

| 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  | 1395  | 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    | pm-pt | NA    | pm-pt | NA     | pm-pt | NA    | pm-pt | NA    |
| Protected Phases                                                         | 7      | 4     |       | 3     | 8     |       | 5     | 2      |       | 1     | 6     |       |
| Permitted Phases                                                         | 4      |       |       | 8     |       | 8     | 2     | 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  | 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  | C-Max | C-Max  | C-Max | C-Max | 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 |        |       | 282.1 |       |       |
| 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                                       |        |       |       |       |       |       |       |        |       |       |       |       |

Lanes, Volumes, Timings  
4: Merivale & Meadowlands

Existing AM AM Peak Hour  
1309 Merivale Road

|                                                                 |                        |
|-----------------------------------------------------------------|------------------------|
| Maximum v/c Ratio: 1.04                                         | Intersection LOS: D    |
| Intersection Signal Delay: 42.5                                 | ICU Level of Service F |
| Intersection Capacity Utilization 91.2%                         |                        |
| 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                    |                        |
|                                                                 |                        |

Lanes, Volumes, Timings  
1: Merivale & Baseline

Existing PM PM Peak Hour  
1309 Merivale Road

| 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  |       |     |        |        |       |     |       |       |        |       |       |
| 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     |
| 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   |     | Lead  | Lead  | Lead   |       |       |
| Lead-Lag Optimize?                                                  | Yes    | Yes   |     | Yes    | Yes    | Yes   |     | Yes   | Yes   | Yes    |       |       |
| Recall Mode                                                         | None   | C-Max |     | None   | C-Max  | 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 2EBT and 6WBT, Start of Green |        |       |     |        |        |       |     |       |       |        |       |       |
| Natural Cycle: 150                                                  |        |       |     |        |        |       |     |       |       |        |       |       |
| Control Type: Actuated-Coordinated                                  |        |       |     |        |        |       |     |       |       |        |       |       |

Lanes, Volumes, Timings  
1: Merivale & Baseline

Existing PM PM Peak Hour  
1309 Merivale Road

|                                                                 |                        |
|-----------------------------------------------------------------|------------------------|
| Maximum v/c Ratio: 1.42                                         | Intersection LOS: E    |
| Intersection Signal Delay: 78.6                                 | ICU Level of Service G |
| Intersection Capacity Utilization 101.9%                        |                        |
| 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                       |                        |
|                                                                 |                        |

Lanes, Volumes, Timings  
2: Merivale & Lotta & Clyde

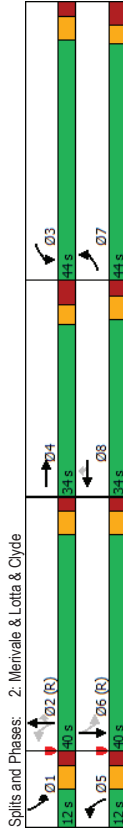
Existing PM PM Peak Hour  
1309 Merivale Road

| Lane Group                                                              | EBL   | EBT   | EBR | WBL    | WBT   | WBR   | NBL   | NBT    | NBR   | SBL   | SBT    | SBR |
|-------------------------------------------------------------------------|-------|-------|-----|--------|-------|-------|-------|--------|-------|-------|--------|-----|
| Lane Configurations                                                     | 3     | 4     | 3   | 3      | 3     | 3     | 3     | 3      | 3     | 3     | 3      | 3   |
| 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  |
| Sat'd. Flow (prot)                                                      | 1658  | 1604  | 0   | 3216   | 1745  | 1469  | 1658  | 3316   | 1483  | 1658  | 3292   | 0   |
| Flt Permitted                                                           | 0.950 |       |     | 0.950  |       |       | 0.115 |        |       | 0.122 |        |     |
| Sat'd. Flow (perm)                                                      | 1650  | 1604  | 0   | 3179   | 1745  | 1443  | 201   | 3316   | 1414  | 213   | 3292   | 0   |
| Sat'd. 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      | 2     | 1     | 6      |     |
| Permitted Phases                                                        |       |       |     | 8      | 2     |       | 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  | 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  | Lag   | Lag    | Lead  | Lag   | Lag    |     |
| Lead-Lag Optimize?                                                      | Yes   | Yes   |     | Yes    | Yes   | Yes   | 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)                                                     | 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 | #28.2 | #24.0 | #170.8 |     |
| Internal Link Dist (m)                                                  | 153.9 |       |     | 65.4   |       |       | 272.8 |        |       | 356.1 |        |     |
| Turn Bay Length (m)                                                     | 35.0  |       |     | 30.0   |       |       | 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                                      |       |       |     |        |       |       |       |        |       |       |        |     |

Lanes, Volumes, Timings  
2: Merivale & Lotta & Clyde

Existing PM PM Peak Hour  
1309 Merivale Road

|                                                                   |                        |
|-------------------------------------------------------------------|------------------------|
| Maximum v/c Ratio: 1.02                                           | Intersection LOS: D    |
| Intersection Signal Delay: 51.4                                   | ICU Level of Service D |
| Intersection Capacity Utilization 78.9%                           |                        |
| Analysis Period (min) 15                                          |                        |
| ~ Volume exceeds capacity, queue is theoretically infinite.       |                        |
| # 95th percentile volume exceeds capacity, queue may be longer.   |                        |
| Queue shown is maximum after two cycles.                          |                        |
| Queue shown is maximum after two cycles.                          |                        |
| m Volume for 95th percentile queue is metered by upstream signal. |                        |



### Lanes, Volumes, Timings

### 3: Merivale & Withrow/Capilano

Existing PM PM Peak Hour

1309 Merivale Road

| Lane Group                                                              | EBL   | EBT   | EBR  | WBL   | WBT   | WBR | NBL   | NBT    | NBR   | SBL         | SBT   | SBR   |
|-------------------------------------------------------------------------|-------|-------|------|-------|-------|-----|-------|--------|-------|-------------|-------|-------|
| Lane Configurations                                                     | 1     | 1     | 1    | 1     | 1     | 1   | 1     | 1      | 1     | 1           | 1     | 1     |
| 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  |
| Fit Permitted                                                           | 0.709 |       |      |       |       |     |       |        |       |             |       |       |
| Satd. Flow (perm)                                                       | 1229  | 1500  | 0    | 1267  | 1516  | 0   | 103   | 3316   | 1391  | 124         | 3316  | 1399  |
| Satd. Flow (RTOR)                                                       | 29    |       |      |       |       |     |       |        |       |             |       |       |
| 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  | pm+pt | NA     | Perm  | pm+pt       | NA    | Perm  |
| Protected Phases                                                        | 4     | 4     |      | 8     | 8     |     | 2     | 2      | 2     | 2           | 1     | 6     |
| Permitted Phases                                                        | 4     | 4     |      | 8     | 8     |     | 5     | 2      | 2     | 2           | 1     | 6     |
| Detector Phase                                                          | 4     | 4     |      | 8     | 8     |     | 5     | 2      | 2     | 2           | 1     | 6     |
| Switch Phase                                                            |       |       |      |       |       |     |       |        |       |             |       |       |
| Minimum Initial (s)                                                     | 10.0  | 10.0  |      | 10.0  | 10.0  |     | 5.0   | 10.0   | 10.0  | 5.0         | 10.0  | 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   |
| All-Red 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 Optimize?                                                      |       |       |      |       |       |     |       |        |       |             |       |       |
| 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   | m2.8m#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   | 168         | 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:NBLT and 6:SBTL, Start of Green |       |       |      |       |       |     |       |        |       |             |       |       |
| Natural Cycle: 130                                                      |       |       |      |       |       |     |       |        |       |             |       |       |
| Control Type: Actuated-Coordinated                                      |       |       |      |       |       |     |       |        |       |             |       |       |

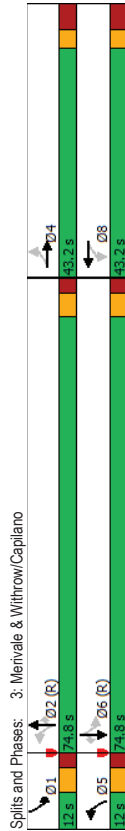
### Lanes, Volumes, Timings

### 3: Merivale & Withrow/Capilano

Existing PM PM Peak Hour

1309 Merivale Road

|                                                                   |                        |
|-------------------------------------------------------------------|------------------------|
| Maximum v/c Ratio: 0.83                                           | Intersection LOS: B    |
| Intersection Signal Delay: 19.4                                   | ICU Level of Service D |
| Intersection Capacity Utilization 81.5%                           |                        |
| 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. |                        |



Lanes, Volumes, Timings  
4: Merivale & Meadowlands

Lanes, Volumes, Timings  
Existing PM PM Peak Hour

1309 Merivale Road

|                                                                        | EBL   | EBT   | EBR   | WBL    | WBT   | WBR   | NBL    | NBT   | NBR    | SBL   | SBT   | SBR   |
|------------------------------------------------------------------------|-------|-------|-------|--------|-------|-------|--------|-------|--------|-------|-------|-------|
| Lane Group                                                             | EBL   | EBT   | EBR   | WBL    | WBT   | WBR   | NBL    | NBT   | NBR    | SBL   | SBT   | SBR   |
| Lane Configurations                                                    | 176   | 307   | 154   | 184    | 492   | 183   | 195    | 1252  | 102    | 234   | 1142  | 301   |
| Traffic Volume (vph)                                                   | 176   | 307   | 154   | 184    | 492   | 183   | 195    | 1252  | 102    | 234   | 1142  | 301   |
| Future Volume (vph)                                                    | 1658  | 3070  | 0     | 1658   | 3283  | 1483  | 1658   | 3316  | 1483   | 1658  | 3316  | 1483  |
| Satd. Flow (prot)                                                      | 0.191 | 0.227 | 0     | 0.227  | 0.082 | 0.082 | 0.082  | 0.082 | 0.082  | 0.082 | 0.082 | 0.082 |
| Fit Permitted                                                          | 329   | 3070  | 0     | 389    | 3283  | 1402  | 143    | 3316  | 1354   | 122   | 3316  | 1381  |
| Satd. Flow (perm)                                                      | 60    | 314   | 0     | 187    | 187   | 187   | 187    | 187   | 187    | 187   | 187   | 187   |
| Satd. Flow (RTOR)                                                      | 196   | 512   | 0     | 204    | 547   | 203   | 217    | 1391  | 113    | 260   | 1269  | 334   |
| Lane Group Flow (vph)                                                  | pm-pt | NA    | pm-pt | NA     | pm-pt | NA    | pm-pt  | NA    | pm-pt  | NA    | pm-pt | NA    |
| Turn Type                                                              | 7     | 4     | 3     | 8      | 8     | 2     | 2      | 2     | 2      | 2     | 2     | 2     |
| Protected Phases                                                       | 4     | 4     | 3     | 8      | 8     | 5     | 5      | 5     | 5      | 5     | 5     | 5     |
| Permitted Phases                                                       | 7     | 4     | 3     | 8      | 8     | 2     | 2      | 2     | 2      | 2     | 2     | 2     |
| Detector Phase                                                         | 7     | 4     | 3     | 8      | 8     | 5     | 5      | 5     | 5      | 5     | 5     | 5     |
| Switch Phase                                                           | 5.0   | 10.0  | 5.0   | 10.0   | 10.0  | 5.0   | 10.0   | 10.0  | 10.0   | 5.0   | 10.0  | 10.0  |
| Minimum Initial (s)                                                    | 11.5  | 30.5  | 11.5  | 30.5   | 30.5  | 11.5  | 30.5   | 30.5  | 30.5   | 11.5  | 30.5  | 30.5  |
| Minimum Split (s)                                                      | 19.0  | 31.0  | 19.0  | 31.0   | 31.0  | 19.0  | 31.0   | 31.0  | 31.0   | 19.0  | 31.0  | 31.0  |
| Total Split (%)                                                        | 14.6% | 23.8% | 14.6% | 23.8%  | 23.8% | 14.6% | 23.8%  | 23.8% | 23.8%  | 14.6% | 23.8% | 23.8% |
| Yellow Time (s)                                                        | 3.0   | 3.0   | 3.0   | 3.0    | 3.0   | 3.0   | 3.0    | 3.0   | 3.0    | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)                                                       | 3.5   | 3.5   | 3.5   | 3.5    | 3.5   | 3.5   | 3.5    | 3.5   | 3.5    | 3.5   | 3.5   | 3.5   |
| Lost Time Adjust (s)                                                   | 0.0   | 0.0   | 0.0   | 0.0    | 0.0   | 0.0   | 0.0    | 0.0   | 0.0    | 0.0   | 0.0   | 0.0   |
| Lost Time (s)                                                          | 6.5   | 6.5   | 6.5   | 6.5    | 6.5   | 6.5   | 6.5    | 6.5   | 6.5    | 6.5   | 6.5   | 6.5   |
| Total Lost Time (s)                                                    | 6.5   | 6.5   | 6.5   | 6.5    | 6.5   | 6.5   | 6.5    | 6.5   | 6.5    | 6.5   | 6.5   | 6.5   |
| Lead/Lag                                                               | Lead  | Lag   | Lead  | Lag    | Lead  | Lag   | Lead   | Lag   | Lead   | Lag   | Lead  | Lag   |
| Lead-Lag Optimize?                                                     | Yes   | Yes   | Yes   | Yes    | Yes   | Yes   | Yes    | Yes   | Yes    | Yes   | Yes   | Yes   |
| Recall Mode                                                            | None  | None  | None  | None   | None  | None  | None   | None  | None   | None  | None  | None  |
| Act Effct Green (s)                                                    | 36.4  | 23.9  | 36.4  | 23.9   | 23.9  | 36.4  | 53.0   | 53.0  | 53.0   | 36.4  | 53.0  | 53.0  |
| Actuated G/C Ratio                                                     | 0.28  | 0.18  | 0.28  | 0.18   | 0.18  | 0.28  | 0.41   | 0.41  | 0.41   | 0.28  | 0.41  | 0.41  |
| v/c Ratio                                                              | 0.89  | 0.83  | 0.89  | 0.91   | 0.50  | 1.06  | 1.03   | 1.03  | 1.03   | 0.89  | 1.04  | 1.04  |
| Control Delay                                                          | 74.0  | 57.8  | 71.8  | 71.7   | 12.6  | 112.2 | 70.4   | 3.1   | 103.0  | 41.2  | 4.9   | 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   | 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   | 4.9   |
| LOS                                                                    | E     | E     | E     | E      | B     | F     | F      | A     | A      | F     | D     | A     |
| Approach Delay                                                         | 62.3  | 59.1  | 71.2  | 71.2   | 43.3  | 43.3  | 43.3   | 43.3  | 43.3   | 43.3  | 43.3  | 43.3  |
| Approach LOS                                                           | E     | E     | E     | E      | D     | D     | D      | D     | D      | D     | D     | 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   | 2.9   |
| Queue Length 95th (m)                                                  | #75.5 | #41.8 | #74.8 | #102.1 | 25.1  | #97.6 | #242.8 | 8.0   | #112.7 | 184.7 | 21.1  | 21.1  |
| Internal Link Dist (m)                                                 | 444.5 | 230.0 | 230.0 | 176.3  | 176.3 | 176.3 | 176.3  | 176.3 | 176.3  | 176.3 | 176.3 | 176.3 |
| Turn Bay Length (m)                                                    | 100.0 | 120.0 | 120.0 | 100.0  | 85.0  | 85.0  | 90.0   | 135.0 | 135.0  | 135.0 | 165.0 | 165.0 |
| Base Capacity (vph)                                                    | 220   | 627   | 230   | 618    | 415   | 205   | 1351   | 631   | 251    | 1453  | 781   | 781   |
| Starvation Cap Reductn                                                 | 0     | 0     | 0     | 0      | 0     | 0     | 0      | 0     | 0      | 0     | 0     | 0     |
| Spillback Cap Reductn                                                  | 0     | 0     | 0     | 0      | 0     | 0     | 0      | 0     | 0      | 0     | 0     | 0     |
| Storage Cap Reductn                                                    | 0     | 0     | 0     | 0      | 0     | 0     | 0      | 0     | 0      | 0     | 0     | 0     |
| Reduced v/c Ratio                                                      | 0.89  | 0.82  | 0.89  | 0.89   | 0.49  | 1.06  | 1.03   | 1.03  | 1.04   | 0.87  | 0.43  | 0.43  |
| Intersection Summary                                                   |       |       |       |        |       |       |        |       |        |       |       |       |
| Cycle Length: 130                                                      |       |       |       |        |       |       |        |       |        |       |       |       |
| Actuated Cycle Length: 130                                             |       |       |       |        |       |       |        |       |        |       |       |       |
| Offset: 61 (47%), Referenced to phase 2:NBT and 6:SBTL, Start of Green |       |       |       |        |       |       |        |       |        |       |       |       |
| Natural Cycle: 135                                                     |       |       |       |        |       |       |        |       |        |       |       |       |
| Control Type: Actuated-Coordinated                                     |       |       |       |        |       |       |        |       |        |       |       |       |

Lanes, Volumes, Timings  
4: Merivale & Meadowlands

Lanes, Volumes, Timings  
Existing PM PM Peak Hour

1309 Merivale Road

|                                                                 |  |                        |  |
|-----------------------------------------------------------------|--|------------------------|--|
| Maximum v/c Ratio: 1.06                                         |  | Intersection LOS: E    |  |
| Intersection Signal Delay: 57.9                                 |  | ICU Level of Service G |  |
| Intersection Capacity Utilization 100.1%                        |  |                        |  |
| 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

| 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     | 03 - P.D. only        | 02 - Angle            | 01 - Dry         |
| 2015-01-09 | 2015 | 8:20  | CLYDE AVE btwn CLYDE AVE & STARWOOD RD             | 01 - Clear | 01 - Daylight | 10 - No control     | 02 - Non-fatal injury | 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

# 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

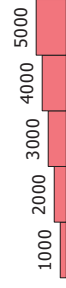
Plot Prepared: October 09, 2020

EMME Scenario: 21711



## Legend

AM Peak Hour Total Traffic Volume



Distance (m)



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.



# 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

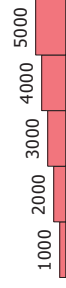
Plot Prepared: October 09, 2020

EMME Scenario: 21711



## Legend

AM Peak Hour Total Traffic Volume



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

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

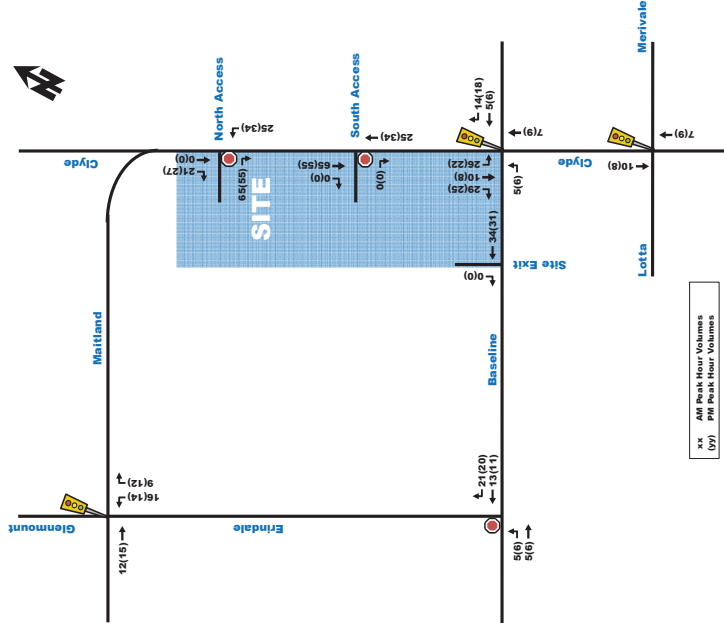


Figure 10: Phase 2 Total Site-Generated Traffic Volumes

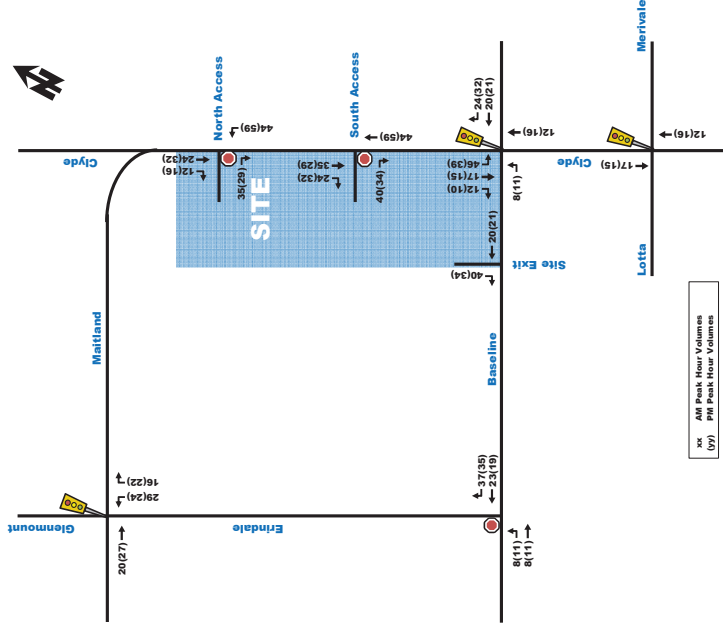


Figure 10 - Site Generated Traffic Volumes - Without Baseline BRT

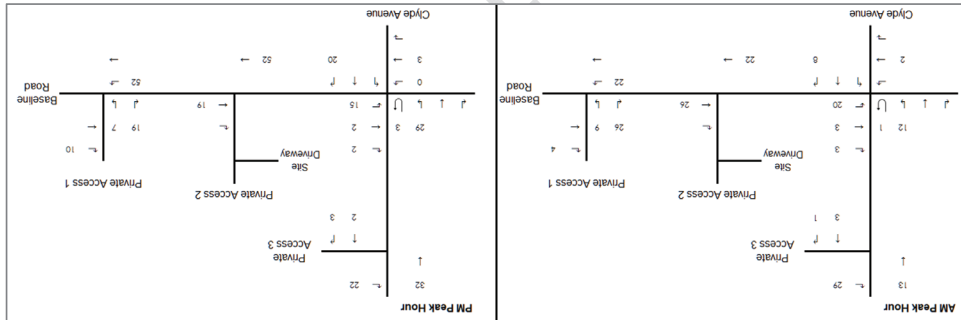


Figure 11 - Site Generated Traffic Volumes - With Baseline BRT

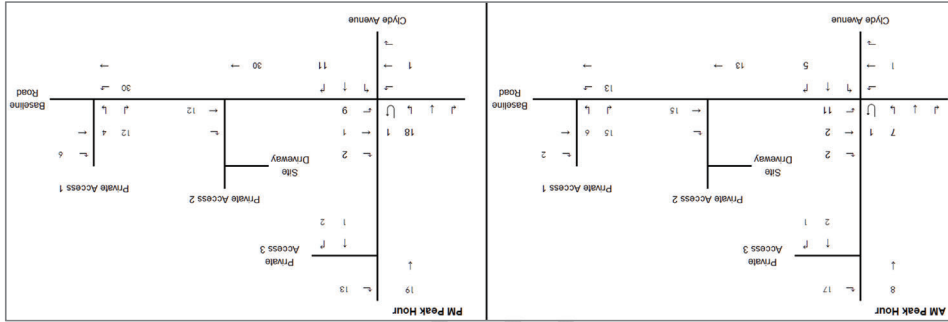
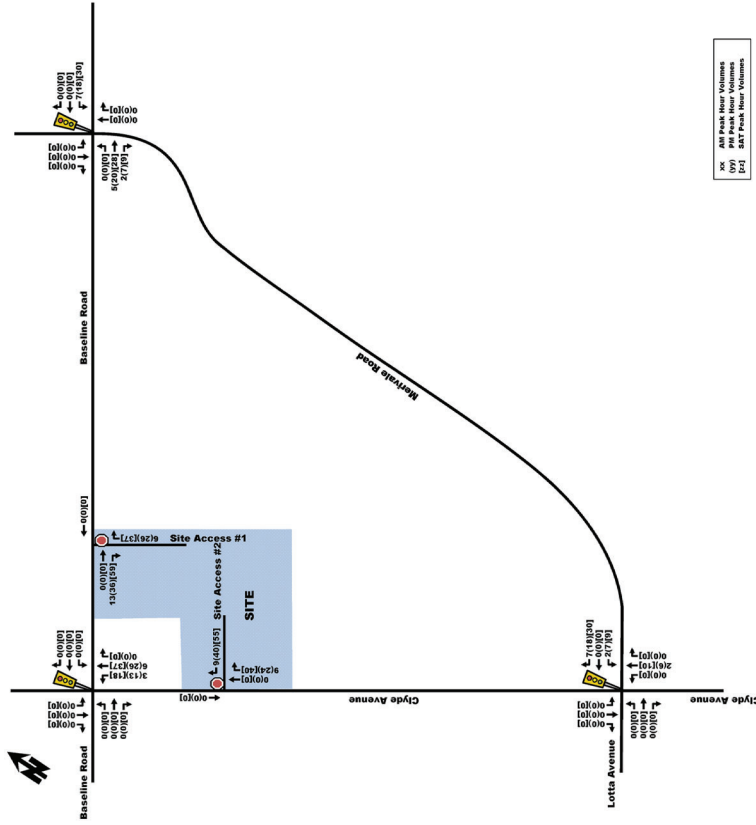


Figure 8: Site Generated Traffic Volumes (Full Build-Out)



### 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.

# Appendix G

Synchro Intersection Worksheets – 2024 Future Background Conditions

Lanes, Volumes, Timings  
1: Merivale & Baseline

Future Background 2024 AM Peak Hour  
1509 Merivale Road

| 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

Lanes, Volumes, Timings  
1: Merivale & Baseline

Future Background 2024 AM Peak Hour  
1509 Merivale Road

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

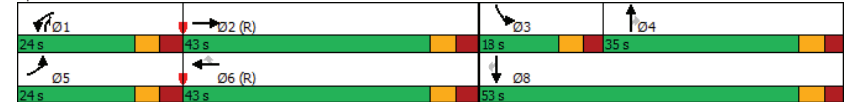
~ Volume exceeds capacity, queue is theoretically infinite.

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



Lanes, Volumes, Timings  
2: Merivale & Lotta & Clyde

Future Background 2024 AM Peak Hour  
1509 Merivale Road

| 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:NBT and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Lanes, Volumes, Timings  
2: Merivale & Lotta & Clyde

Future Background 2024 AM Peak Hour  
1509 Merivale Road

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 19.8

Intersection LOS: B

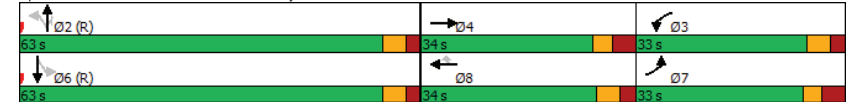
Intersection Capacity Utilization 91.7%

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



Lanes, Volumes, Timings  
3: Merivale & Withrow/Capilano

Future Background 2024 AM Peak Hour  
1509 Merivale Road

| 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:NBT and 6:SBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

04-14-2023  
RM/JK

CGH Transportation  
Page 5

Lanes, Volumes, Timings  
3: Merivale & Withrow/Capilano

Future Background 2024 AM Peak Hour  
1509 Merivale Road

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 11.3

Intersection LOS: B

Intersection Capacity Utilization 69.8%

ICU Level of Service C

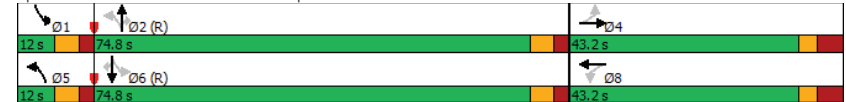
Analysis Period (min) 15

# 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



04-14-2023  
RM/JK

CGH Transportation  
Page 6

Lanes, Volumes, Timings  
4: Merivale & Meadowlands

Future Background 2024 AM Peak Hour  
1509 Merivale Road

|                        | EBL   | EBT   | EBR | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|------------------------|-------|-------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 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  |
| Fit 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  | 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:NBT and 6:SBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Lanes, Volumes, Timings  
4: Merivale & Meadowlands

Future Background 2024 AM Peak Hour  
1509 Merivale Road

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 38.9

Intersection LOS: D

Intersection Capacity Utilization 93.1%

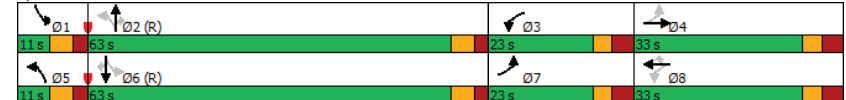
ICU Level of Service F

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



Lanes, Volumes, Timings  
1: Merivale & Baseline

Future Background 2024 PM Peak Hour  
1509 Merivale Road

| 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  |
| Fit 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

Lanes, Volumes, Timings  
1: Merivale & Baseline

Future Background 2024 PM Peak Hour  
1509 Merivale Road

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



Lanes, Volumes, Timings  
2: Merivale & Lotta & Clyde

Future Background 2024 PM Peak Hour  
1509 Merivale Road

| 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  | 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

Lanes, Volumes, Timings  
2: Merivale & Lotta & Clyde

Future Background 2024 PM Peak Hour  
1509 Merivale Road

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 39.7

Intersection LOS: D

Intersection Capacity Utilization 80.1%

ICU Level of Service D

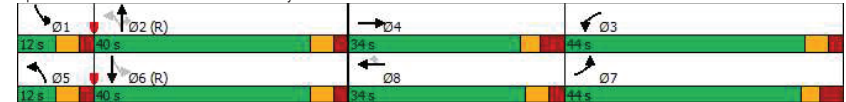
Analysis Period (min) 15

# 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



Lanes, Volumes, Timings  
3: Merivale & Withrow/Capilano

Future Background 2024 PM Peak Hour  
1509 Merivale Road

| 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:NBT and 6:SBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Lanes, Volumes, Timings  
3: Merivale & Withrow/Capilano

Future Background 2024 PM Peak Hour  
1509 Merivale Road

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 17.2

Intersection LOS: B

Intersection Capacity Utilization 81.7%

ICU Level of Service D

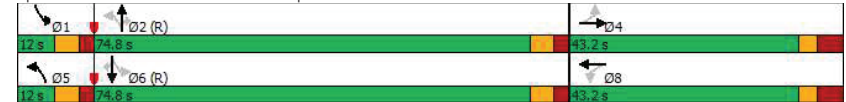
Analysis Period (min) 15

# 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



Lanes, Volumes, Timings  
4: Merivale & Meadowlands

Future Background 2024 PM Peak Hour  
1509 Merivale Road

|                        | ↖     | →     | ↗   | ↖     | ←     | ↖     | ↖     | ↖      | ↖     | ↖     | ↖     | ↖     |
|------------------------|-------|-------|-----|-------|-------|-------|-------|--------|-------|-------|-------|-------|
| 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  | C-Max | C-Max  | None  | C-Max | 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:NBT and 6:SBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Lanes, Volumes, Timings  
4: Merivale & Meadowlands

Future Background 2024 PM Peak Hour  
1509 Merivale Road

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

Lanes, Volumes, Timings  
1: Merivale & Baseline

Future Background 2029 AM Peak Hour  
1509 Merivale Road

| 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

Lanes, Volumes, Timings  
1: Merivale & Baseline

Future Background 2029 AM Peak Hour  
1509 Merivale Road

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



Lanes, Volumes, Timings  
2: Merivale & Lotta & Clyde

Future Background 2029 AM Peak Hour  
1509 Merivale Road

| 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

Lanes, Volumes, Timings  
2: Merivale & Lotta & Clyde

Future Background 2029 AM Peak Hour  
1509 Merivale Road

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 19.7

Intersection LOS: B

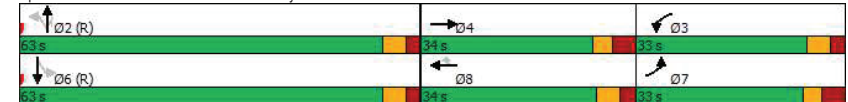
Intersection Capacity Utilization 91.9%

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



Lanes, Volumes, Timings  
3: Merivale & Withrow/Capilano

Future Background 2029 AM Peak Hour  
1509 Merivale Road

| 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:NBT and 6:SBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Lanes, Volumes, Timings  
3: Merivale & Withrow/Capilano

Future Background 2029 AM Peak Hour  
1509 Merivale Road

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 11.5

Intersection LOS: B

Intersection Capacity Utilization 71.2%

ICU Level of Service C

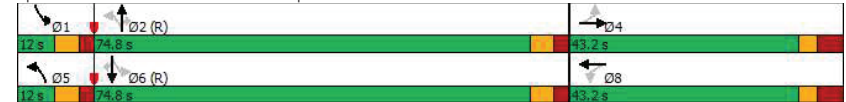
Analysis Period (min) 15

# 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



Lanes, Volumes, Timings  
4: Merivale & Meadowlands

Future Background 2029 AM Peak Hour  
1509 Merivale Road

| 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  | 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:NBT and 6:SBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Lanes, Volumes, Timings  
4: Merivale & Meadowlands

Future Background 2029 AM Peak Hour  
1509 Merivale Road

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



Lanes, Volumes, Timings  
1: Merivale & Baseline

Future Background 2029 PM Peak Hour  
1509 Merivale Road

| 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

Lanes, Volumes, Timings  
1: Merivale & Baseline

Future Background 2029 PM Peak Hour  
1509 Merivale Road

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



Lanes, Volumes, Timings  
2: Merivale & Lotta & Clyde

Future Background 2029 PM Peak Hour  
1509 Merivale Road

| 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  | 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:NBT and 6:SBTL, Start of Green

Natural Cycle: 130

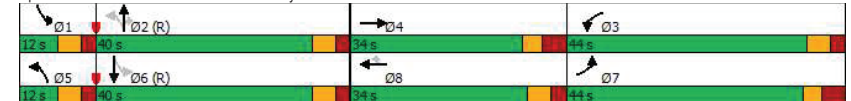
Control Type: Actuated-Coordinated

Lanes, Volumes, Timings  
2: Merivale & Lotta & Clyde

Future Background 2029 PM Peak Hour  
1509 Merivale Road

|                                                                   |                        |
|-------------------------------------------------------------------|------------------------|
| 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



Lanes, Volumes, Timings  
3: Merivale & Withrow/Capilano

Future Background 2029 PM Peak Hour  
1509 Merivale Road

| 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:NBT and 6:SBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Lanes, Volumes, Timings  
3: Merivale & Withrow/Capilano

Future Background 2029 PM Peak Hour  
1509 Merivale Road

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 17.6

Intersection LOS: B

Intersection Capacity Utilization 82.0%

ICU Level of Service E

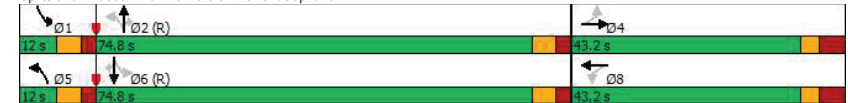
Analysis Period (min) 15

# 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



Lanes, Volumes, Timings  
4: Merivale & Meadowlands

Future Background 2029 PM Peak Hour  
1509 Merivale Road

| 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  |
| Fit 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  | C-Max | C-Max  | None  | C-Max | 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:NBT and 6:SBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Lanes, Volumes, Timings  
4: Merivale & Meadowlands

Future Background 2029 PM Peak Hour  
1509 Merivale Road

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.

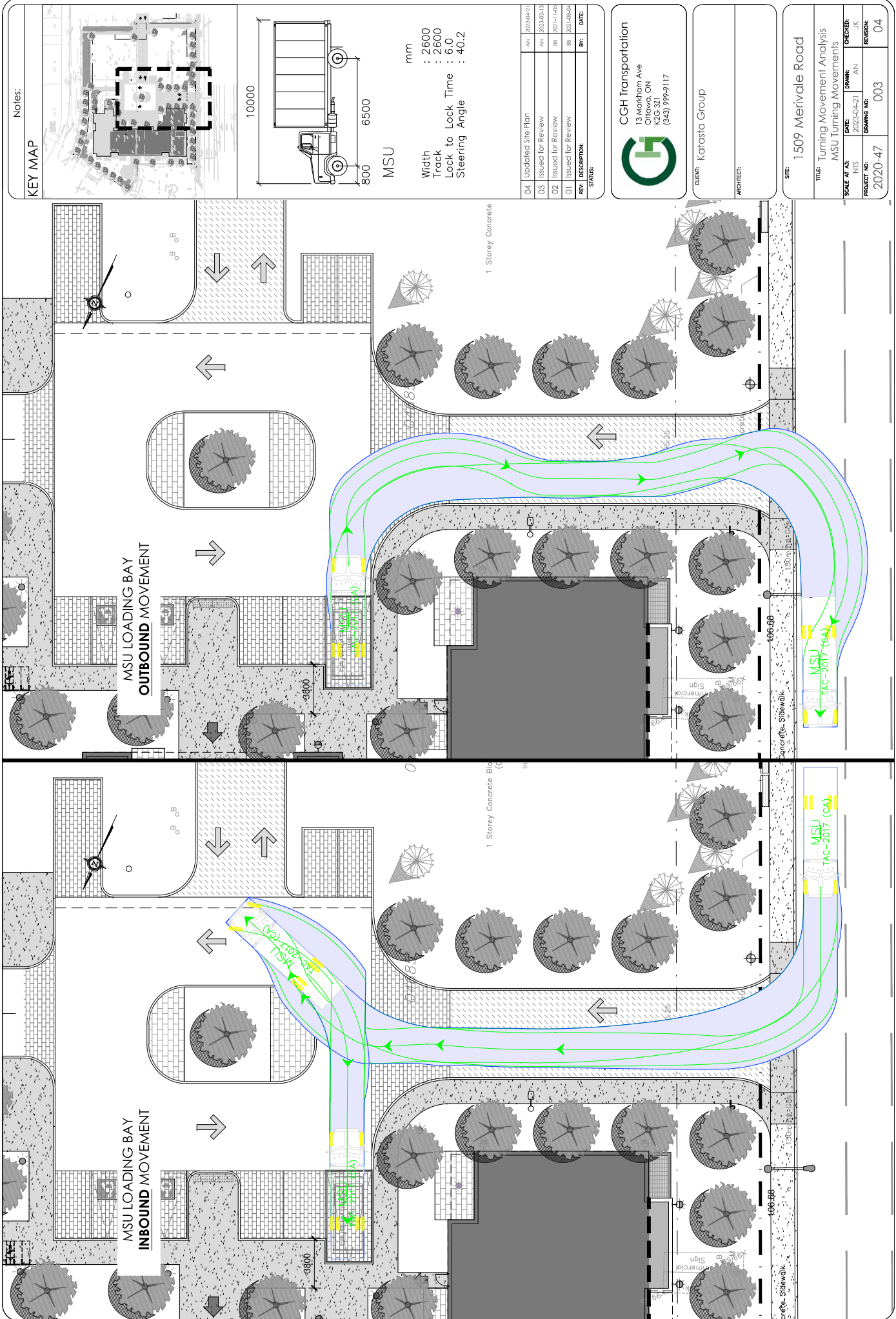
Splits and Phases: 4: Merivale & Meadowlands



# Appendix I

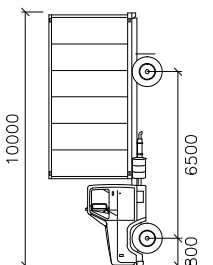
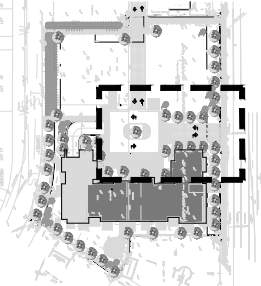
Turning Templates





Notes:

KEY MAP



MSU

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

| REV | DESCRIPTION       | BY | DATE       |
|-----|-------------------|----|------------|
| 01  | Issued for Review | AN | 2020-04-21 |
| 02  | Issued for Review | AN | 2020-04-21 |
| 03  | Issued for Review | AN | 2020-04-21 |
| 04  | Updated Site Plan | AN | 2020-04-21 |

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

CLIENT: Karatista Group

ARCHITECT:

SITE: 1509 Merivale Road

TITLE: Turning Movement Analysis  
MSU Turning Movements

SCALE: 1/200

DATE: 2020-04-21

PROJECT NO: 2020-47

DRAWING NO: 003

REVISION: 04

# Appendix J

MMLOS Analysis

Multi-Modal Level of Service - Segments Form

|                                    |                    |                 |            |
|------------------------------------|--------------------|-----------------|------------|
| Consultant<br>Scenario<br>Comments | CGH Transportation | Project<br>Date | 2020-47    |
|                                    | Existing/Future    |                 | 2020-10-26 |
|                                    |                    |                 |            |
|                                    |                    |                 |            |

| SEGMENTS   |                                           | Street A       | Merivale Rd     | Kerry Cres          | Section |
|------------|-------------------------------------------|----------------|-----------------|---------------------|---------|
|            |                                           |                | 1               | 2                   | 3       |
| Pedestrian | Sidewalk Width                            | F              | ≥ 2 m           | no sidewalk         |         |
|            | Boulevard Width                           |                | < 0.5           | n/a                 |         |
|            | Avg Daily Curb Lane Traffic Volume        |                | > 3000          | ≤ 3000              |         |
|            | Operating Speed                           |                | > 60 km/h       | > 30 to 50 km/h     |         |
|            | On-Street Parking                         |                | no              | 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 Scenario Comments

CGH Transportation  
Existing/Future

Project Date

2020-47  
2020-10-26

| 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                           |    |
| Pedestrian                                               | Lanes                                | 8                                 | 9                                 | 8                                              | 7                                 | 7                              | 6                           | 7                                      | 9                            | 9                            | 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              |    |
|                                                          | Conflicting Left Turns               | Protected                         | Protected                         | Protected                                      | No left turn / Prohib.            | Protected                      | Permissive                  | Protected                              | 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    |    |
|                                                          | Right Turns on Red (RTorR) ?         | 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                             |    |
|                                                          | 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                  | No Channel                             | No Channel                   | No Channel                   | Conventional with Receiving Lane | 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                                   | 5-10m                        | 5-10m                        | 5-10m                            | 5-10m                            | 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      | Sid transverse markings        | Sid transverse markings     | Sid transverse markings                | Zebra stripe hi-vis markings | Zebra stripe hi-vis markings | Zebra stripe hi-vis markings     | Sid transverse 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                          | 8                                | 38                               | 22                               | 22                               | 22                             | 25 |
| Ped. Exposure to Traffic LoS                             | 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                            | E                                | F                                | F                                | F                                | F                              |    |
|                                                          | F                                    |                                   |                                   |                                                |                                   |                                |                             |                                        |                              |                              |                                  |                                  |                                  |                                  |                                |    |
| Approach From                                            |                                      |                                   |                                   |                                                |                                   |                                |                             |                                        |                              |                              |                                  |                                  |                                  |                                  |                                |    |
| Bicycle                                                  | Bicycle Lane Arrangement on Approach | Pocket Bike Lane                  | Pocket Blke Lane                  | Pocket Bike Lane                               | Pocket Bike Lane                  | Mixed Traffic                  | Mixed Traffic               | Mixed Traffic                          | 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 Introduced right turn lane | > 50 m                         | > 50 m                      | > 50 m                                 | > 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 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                         | >25 km/h                         | >25 km/h                         | >25 km/h                       |    |
|                                                          | Cyclist relative to RT motorists     | D                                 | D                                 | C                                              | -                                 | -                              | F                           | -                                      | F                            | D                            | -                                | F                                | F                                | F                                | -                              |    |
|                                                          | Separated or Mixed Traffic           | Separated                         | Separated                         | Separated                                      | Separated                         | Mixed Traffic                  | Mixed Traffic               | Mixed Traffic                          | Mixed Traffic                | Mixed Traffic                | Mixed Traffic                    | Mixed Traffic                    | Mixed Traffic                    | Mixed Traffic                    | Mixed Traffic                  |    |
|                                                          | Left Turn Approach                   | ≥ 2 lanes crossed                 | 1 lane crossed                    | 1 lane crossed                                 | One lane crossed                  | One lane crossed               | One lane crossed            | One lane crossed                       | One lane crossed             | One lane crossed             | One 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                   | ≥ 60 km/h                              | ≥ 60 km/h                    | ≥ 60 km/h                    | ≥ 40 to ≤ 50 km/h                | ≥ 40 to ≤ 50 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                            | B                                | B                                | F                                | F                                | D                              |    |
|                                                          | Level of Service                     | F                                 | D                                 | E                                              | -                                 | -                              | F                           | F                                      | -                            | F                            | -                                | -                                | F                                | F                                | F                              | -  |
|                                                          |                                      | F                                 |                                   |                                                |                                   |                                |                             |                                        |                              |                              |                                  |                                  |                                  |                                  |                                |    |
| Average Signal Delay                                     | > 40 sec                             | > 40 sec                          | > 40 sec                          | > 40 sec                                       | ≤ 30 sec                          | ≤ 30 sec                       | > 40 sec                    | ≤ 40 km/h                              | ≤ 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                                    |                                   |                                   |                                                |                                   |                                |                             |                                        |                              |                              |                                  |                                  |                                  |                                  |                                |    |
| Effective Corner Radius                                  | 10 - 15 m                            | < 10 m                            | > 15 m                            | > 15 m                                         | 10 - 15 m                         | > 15 m                         | > 15 m                      | ≤ 40 km/h                              |                              |                              |                                  |                                  |                                  |                                  |                                |    |
| Number of Receiving Lanes on Departure from Intersection | ≥ 2                                  | ≥ 2                               | ≥ 2                               | ≥ 2                                            | ≥ 2                               | ≥ 2                            | ≥ 2                         | ≥ 2                                    |                              |                              |                                  |                                  |                                  |                                  |                                |    |
| Level of Service                                         | B                                    | D                                 | A                                 | A                                              | B                                 | A                              | A                           | -                                      | -                            | -                            | -                                | -                                | -                                | -                                | -                              |    |
|                                                          |                                      |                                   |                                   |                                                |                                   |                                |                             |                                        |                              |                              |                                  |                                  |                                  |                                  |                                |    |
| Volume to Capacity Ratio                                 | 0.91 - 1.00                          |                                   |                                   |                                                |                                   |                                |                             |                                        |                              |                              |                                  |                                  |                                  |                                  |                                |    |
| Level of Service                                         | E                                    |                                   |                                   |                                                |                                   |                                |                             |                                        |                              |                              |                                  |                                  |                                  |                                  |                                |    |
|                                                          | F                                    |                                   |                                   |                                                |                                   |                                |                             |                                        |                              |                              |                                  |                                  |                                  |                                  |                                |    |

# Appendix K

Synchro Intersection Worksheets – 2024 Future Total Conditions

Lanes, Volumes, Timings  
1: Merivale & Baseline

Future Total 2024 AM Peak Hour  
1509 Merivale Road

| 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

Lanes, Volumes, Timings  
1: Merivale & Baseline

Future Total 2024 AM Peak Hour  
1509 Merivale Road

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



Lanes, Volumes, Timings  
2: Merivale & Lotta & Clyde

Future Total 2024 AM Peak Hour  
1509 Merivale Road

| 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

Lanes, Volumes, Timings  
2: Merivale & Lotta & Clyde

Future Total 2024 AM Peak Hour  
1509 Merivale Road

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 19.5

Intersection LOS: B

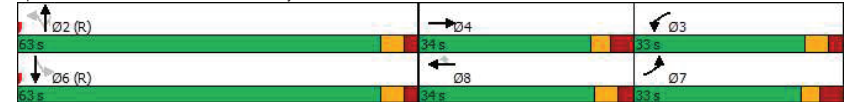
Intersection Capacity Utilization 92.0%

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



Lanes, Volumes, Timings  
3: Merivale & Withrow/Capilano

Future Total 2024 AM Peak Hour  
1509 Merivale Road

|                        | ↖     | →     | ↗   | ↖     | ←     | ↖   | ↖     | ↖      | ↖     | ↖     | ↖     | ↖     |
|------------------------|-------|-------|-----|-------|-------|-----|-------|--------|-------|-------|-------|-------|
| 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:NBT and 6:SBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Lanes, Volumes, Timings  
3: Merivale & Withrow/Capilano

Future Total 2024 AM Peak Hour  
1509 Merivale Road

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 12.0

Intersection LOS: B

Intersection Capacity Utilization 69.9%

ICU Level of Service C

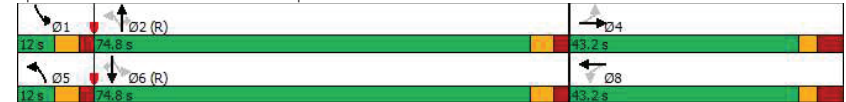
Analysis Period (min) 15

# 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



Lanes, Volumes, Timings  
4: Merivale & Meadowlands

Future Total 2024 AM Peak Hour  
1509 Merivale Road

|                        | ↖     | →     | ↗   | ↖     | ←     | ↖     | ↖     | ↖     | ↖     | ↖     | ↖     | ↖     |
|------------------------|-------|-------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 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  | 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:NBT and 6:SBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Lanes, Volumes, Timings  
4: Merivale & Meadowlands

Future Total 2024 AM Peak Hour  
1509 Merivale Road

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



HCM 6th TWSC  
5: Merivale & Site Access

Future Total 2024 AM Peak Hour  
1509 Merivale Road

| 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      |
| 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    | -      |
| Stage 1              | 0      | -      | -      |
| Stage 2              | 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 | NBRWBLn1 | 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   |

HCM 6th TWSC  
6: Capilano & Site Access

Future Total 2024 AM Peak Hour  
1509 Merivale Road

| 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      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | 4.12   | -      | -      |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | 2.218  | -      | -      |
| Pot Cap-1 Maneuver   | 1527   | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | 1527   | -      | -      |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| 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     |

Lanes, Volumes, Timings  
1: Merivale & Baseline

Future Total 2024 PM Peak Hour  
1509 Merivale Road

| 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

Lanes, Volumes, Timings  
1: Merivale & Baseline

Future Total 2024 PM Peak Hour  
1509 Merivale Road

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



Lanes, Volumes, Timings  
2: Merivale & Lotta & Clyde

Future Total 2024 PM Peak Hour  
1509 Merivale Road

|                        | EBL   | EBT   | EBR | WBL    | WBT   | WBR   | NBL   | NBT    | NBR   | SBL   | SBT    | SBR |
|------------------------|-------|-------|-----|--------|-------|-------|-------|--------|-------|-------|--------|-----|
| 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  | 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

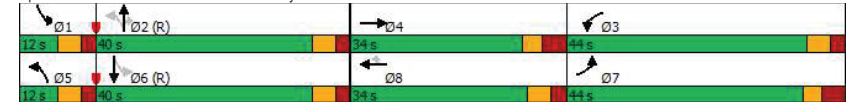
Control Type: Actuated-Coordinated

Lanes, Volumes, Timings  
2: Merivale & Lotta & Clyde

Future Total 2024 PM Peak Hour  
1509 Merivale Road

|                                                                   |                        |
|-------------------------------------------------------------------|------------------------|
| 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



Lanes, Volumes, Timings  
3: Merivale & Withrow/Capilano

Future Total 2024 PM Peak Hour  
1509 Merivale Road

|                        | ↖     | →     | ↗   | ↖     | ←     | ↖   | ↖     | ↖     | ↖     | ↖     | ↖      | ↖     |
|------------------------|-------|-------|-----|-------|-------|-----|-------|-------|-------|-------|--------|-------|
| 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:NBT and 6:SBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Lanes, Volumes, Timings  
3: Merivale & Withrow/Capilano

Future Total 2024 PM Peak Hour  
1509 Merivale Road

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 17.9

Intersection LOS: B

Intersection Capacity Utilization 84.4%

ICU Level of Service E

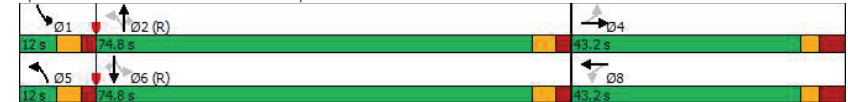
Analysis Period (min) 15

# 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



Lanes, Volumes, Timings  
4: Merivale & Meadowlands

Future Total 2024 PM Peak Hour  
1509 Merivale Road

| 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  | C-Max | C-Max  | None  | C-Max | 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:NBT and 6:SBTL, Start of Green

Natural Cycle: 105

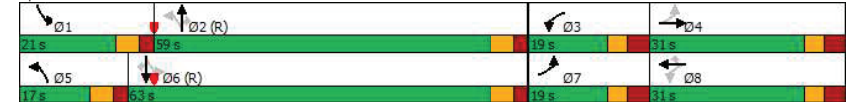
Control Type: Actuated-Coordinated

Lanes, Volumes, Timings  
4: Merivale & Meadowlands

Future Total 2024 PM Peak Hour  
1509 Merivale Road

|                                                                 |                        |
|-----------------------------------------------------------------|------------------------|
| 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



HCM 2010 TWSC  
5: Merivale & Site Access

Future Total 2024 PM Peak Hour  
1509 Merivale Road

| 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 | -    | 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      |
| 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    | -      |
| Stage 1              | 0      | -      | -      |
| Stage 2              | 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 | NBRWBLn1 | 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   |

HCM 2010 TWSC  
6: Capilano & Site Access

Future Total 2024 PM Peak Hour  
1509 Merivale Road

| 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 | -    | 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      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | 4.12   | -      | -      |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | 2.218  | -      | -      |
| Pot Cap-1 Maneuver   | 1449   | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | 1449   | -      | -      |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| 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

Lanes, Volumes, Timings  
1: Merivale & Baseline

Future Total 2024 AM Peak Hour  
1509 Merivale Road

| 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

Lanes, Volumes, Timings  
1: Merivale & Baseline

Future Total 2024 AM Peak Hour  
1509 Merivale Road

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



Lanes, Volumes, Timings  
2: Merivale & Lotta & Clyde

Future Total 2024 AM Peak Hour  
1509 Merivale Road

| 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

Lanes, Volumes, Timings  
2: Merivale & Lotta & Clyde

Future Total 2024 AM Peak Hour  
1509 Merivale Road

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 19.5

Intersection LOS: B

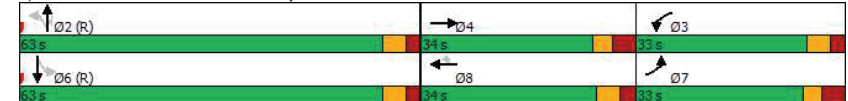
Intersection Capacity Utilization 92.2%

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



Lanes, Volumes, Timings  
3: Merivale & Withrow/Capilano

Future Total 2024 AM Peak Hour  
1509 Merivale Road

| 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:NBT and 6:SBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Lanes, Volumes, Timings  
3: Merivale & Withrow/Capilano

Future Total 2024 AM Peak Hour  
1509 Merivale Road

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 12.3

Intersection LOS: B

Intersection Capacity Utilization 71.3%

ICU Level of Service C

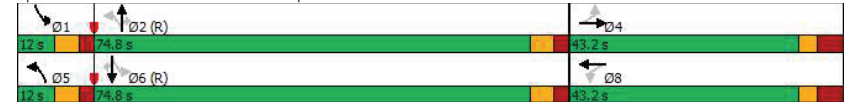
Analysis Period (min) 15

# 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



Lanes, Volumes, Timings  
4: Merivale & Meadowlands

Future Total 2024 AM Peak Hour  
1509 Merivale Road

|                        | ↖      | →     | ↗   | ↖     | ←     | ↖     | ↖     | ↖     | ↖     | ↖     | ↖     | ↖     |
|------------------------|--------|-------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 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  | 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:NBT and 6:SBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

04-14-2023  
RM/JK

CGH Transportation  
Page 7

Lanes, Volumes, Timings  
4: Merivale & Meadowlands

Future Total 2024 AM Peak Hour  
1509 Merivale Road

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



04-14-2023  
RM/JK

CGH Transportation  
Page 8

HCM 2010 TWSC  
5: Merivale & Site Access

Future Total 2024 AM Peak Hour  
1509 Merivale Road

| 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      |
| 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    | -      |
| Stage 1              | 0      | -      | -      |
| Stage 2              | 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 | NBRWBLn1 | 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   |

HCM 2010 TWSC  
6: Capilano & Site Access

Future Total 2024 AM Peak Hour  
1509 Merivale Road

| 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      | 180    |
| Stage 1              | -      | -      | 73     |
| Stage 2              | -      | -      | 107    |
| Critical Hdwy        | 4.12   | -      | 6.42   |
| Critical Hdwy Stg 1  | -      | -      | 5.42   |
| Critical Hdwy Stg 2  | -      | -      | 5.42   |
| Follow-up Hdwy       | 2.218  | -      | 3.518  |
| Pot Cap-1 Maneuver   | 1527   | -      | 810    |
| Stage 1              | -      | -      | 950    |
| Stage 2              | -      | -      | 917    |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | 1527   | -      | 805    |
| 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     |

Lanes, Volumes, Timings  
1: Merivale & Baseline

Future Total 2024 PM Peak Hour  
1509 Merivale Road

|                        | ↖      | →     | ↗   | ↖      | ←      | ↖     | ↖   | ↖     | ↖     | ↖     | ↖     | ↖     |
|------------------------|--------|-------|-----|--------|--------|-------|-----|-------|-------|-------|-------|-------|
| 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

04-14-2023  
RM/JK

CGH Transportation  
Page 1

Lanes, Volumes, Timings  
1: Merivale & Baseline

Future Total 2024 PM Peak Hour  
1509 Merivale Road

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



04-14-2023  
RM/JK

CGH Transportation  
Page 2

Lanes, Volumes, Timings  
2: Merivale & Lotta & Clyde

Future Total 2024 PM Peak Hour  
1509 Merivale Road

|                        | ↖     | →     | ↗   | ↖      | ←     | ↖     | ↖     | ↖      | ↖     | ↖     | ↖      | ↖   |
|------------------------|-------|-------|-----|--------|-------|-------|-------|--------|-------|-------|--------|-----|
| 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  | 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   | 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

04-14-2023  
RM/JK

CGH Transportation  
Page 3

Lanes, Volumes, Timings  
2: Merivale & Lotta & Clyde

Future Total 2024 PM Peak Hour  
1509 Merivale Road

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 44.9

Intersection LOS: D

Intersection Capacity Utilization 83.0%

ICU Level of Service E

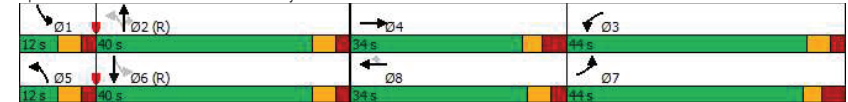
Analysis Period (min) 15

# 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



04-14-2023  
RM/JK

CGH Transportation  
Page 4

|                                |                                |
|--------------------------------|--------------------------------|
| Lanes, Volumes, Timings        | Future Total 2024 PM Peak Hour |
| 3: Merivale & Withrow/Capilano | 1509 Merivale Road             |

|                        |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| 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                                                                              |
| Fit 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 Efect 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

Lanes, Volumes, Timings Future Total 2024 PM Peak Hour  
 3: Merivale & Withrow/Capilano 1509 Merivale Road

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 18.4      Intersection LOS: B

|                                         |                        |
|-----------------------------------------|------------------------|
| Intersection Capacity Utilization 86.3% | ICU Level of Service E |
|-----------------------------------------|------------------------|

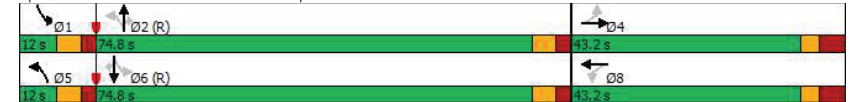
Analysis Period (min) 15

```
# 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



Lanes, Volumes, Timings  
4: Merivale & Meadowlands

Future Total 2024 PM Peak Hour  
1509 Merivale Road

|                        | ↖     | →     | ↗   | ↖     | ←     | ↖     | ↖     | ↖      | ↖     | ↖     | ↖     | ↖     |
|------------------------|-------|-------|-----|-------|-------|-------|-------|--------|-------|-------|-------|-------|
| 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  |
| Fit 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  | C-Max | C-Max  | None  | C-Max | 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:NBT and 6:SBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

04-14-2023  
RM/JK

CGH Transportation  
Page 7

Lanes, Volumes, Timings  
4: Merivale & Meadowlands

Future Total 2024 PM Peak Hour  
1509 Merivale Road

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



04-14-2023  
RM/JK

CGH Transportation  
Page 8

HCM 2010 TWSC  
5: Merivale & Site Access

Future Total 2024 PM Peak Hour  
1509 Merivale Road

| 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 | -     | 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      |
| 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    | -      |
| Stage 1              | 0      | -      | -      |
| Stage 2              | 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 | NBRWBLn1 | 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      | -   |

HCM 2010 TWSC  
6: Capilano & Site Access

Future Total 2024 PM Peak Hour  
1509 Merivale Road

| 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 | -    | 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      | 278    |
| Stage 1              | -      | -      | 148    |
| Stage 2              | -      | -      | 130    |
| Critical Hdwy        | 4.12   | -      | 6.42   |
| Critical Hdwy Stg 1  | -      | -      | 5.42   |
| Critical Hdwy Stg 2  | -      | -      | 5.42   |
| Follow-up Hdwy       | 2.218  | -      | 3.518  |
| Pot Cap-1 Maneuver   | 1434   | -      | 712    |
| Stage 1              | -      | -      | 880    |
| Stage 2              | -      | -      | 896    |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | 1434   | -      | 705    |
| 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

**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 |
|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| <b>1. TDM PROGRAM MANAGEMENT</b>                                    |                                                                                                                                             |                                      |
| <b>1.1 Program coordinator</b>                                      |                                                                                                                                             |                                      |
| BASIC ★                                                             | 1.1.1 Designate an internal coordinator, or contract with an external coordinator                                                           | <input type="checkbox"/>             |
| <b>1.2 Travel surveys</b>                                           |                                                                                                                                             |                                      |
| BETTER                                                              | 1.2.1 Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress            | <input type="checkbox"/>             |
| <b>2. WALKING AND CYCLING</b>                                       |                                                                                                                                             |                                      |
| <b>2.1 Information on walking/cycling routes &amp; destinations</b> |                                                                                                                                             |                                      |
| BASIC                                                               | 2.1.1 Display local area maps with walking/cycling access routes and key destinations at major entrances <i>(multi-family, condominium)</i> | <input checked="" type="checkbox"/>  |
| <b>2.2 Bicycle skills training</b>                                  |                                                                                                                                             |                                      |
| BETTER                                                              | 2.2.1 Offer on-site cycling courses for residents, or subsidize off-site courses                                                            | <input type="checkbox"/>             |

| TDM measures: Residential developments          |                                                                                                                                                | Check if proposed & add descriptions |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| <b>3. TRANSIT</b>                               |                                                                                                                                                |                                      |
| <b>3.1 Transit information</b>                  |                                                                                                                                                |                                      |
| BASIC                                           | 3.1.1 Display relevant transit schedules and route maps at entrances <i>(multi-family, condominium)</i>                                        | <input checked="" type="checkbox"/>  |
| BETTER                                          | 3.1.2 Provide real-time arrival information display at entrances <i>(multi-family, condominium)</i>                                            | <input type="checkbox"/>             |
| <b>3.2 Transit fare incentives</b>              |                                                                                                                                                |                                      |
| BASIC ★                                         | 3.2.1 Offer PRESTO cards preloaded with one monthly transit pass on residence purchase/move-in, to encourage residents to use transit          | <input checked="" type="checkbox"/>  |
| BETTER                                          | 3.2.2 Offer at least one year of free monthly transit passes on residence purchase/move-in                                                     | <input type="checkbox"/>             |
| <b>3.3 Enhanced public transit service</b>      |                                                                                                                                                |                                      |
| BETTER ★                                        | 3.3.1 Contract with OC Transpo to provide early transit services until regular services are warranted by occupancy levels <i>(subdivision)</i> | <input type="checkbox"/>             |
| <b>3.4 Private transit service</b>              |                                                                                                                                                |                                      |
| BETTER                                          | 3.4.1 Provide shuttle service for seniors homes or lifestyle communities (e.g. scheduled mall or supermarket runs)                             | <input type="checkbox"/>             |
| <b>4. CARSHARING &amp; BIKESHARING</b>          |                                                                                                                                                |                                      |
| <b>4.1 Bikeshare stations &amp; memberships</b> |                                                                                                                                                |                                      |
| BETTER                                          | 4.1.1 Contract with provider to install on-site bikeshare station <i>(multi-family)</i>                                                        | <input type="checkbox"/>             |
| BETTER                                          | 4.1.2 Provide residents with bikeshare memberships, either free or subsidized <i>(multi-family)</i>                                            | <input type="checkbox"/>             |
| <b>4.2 Carshare vehicles &amp; memberships</b>  |                                                                                                                                                |                                      |
| BETTER                                          | 4.2.1 Contract with provider to install on-site carshare vehicles and promote their use by residents                                           | <input type="checkbox"/>             |
| BETTER                                          | 4.2.2 Provide residents with carshare memberships, either free or subsidized                                                                   | <input type="checkbox"/>             |
| <b>5. PARKING</b>                               |                                                                                                                                                |                                      |
| <b>5.1 Priced parking</b>                       |                                                                                                                                                |                                      |
| BASIC ★                                         | 5.1.1 Unbundle parking cost from purchase price <i>(condominium)</i>                                                                           | <input checked="" type="checkbox"/>  |
| BASIC ★                                         | 5.1.2 Unbundle parking cost from monthly rent <i>(multi-family)</i>                                                                            | <input checked="" type="checkbox"/>  |

| 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 | <input checked="" type="checkbox"/>  |
| 6.2 Personalized trip planning         |       |                                                                         |                                      |
| BETTER                                 | 6.2.1 | Offer personalized trip planning to new residents                       | <input type="checkbox"/>             |

| TDM-supportive design & infrastructure measures:<br><i>Residential developments</i> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Check if completed &<br>add descriptions, explanations<br>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 <i>Official Plan policy 4.3.10</i> )                                                                                                                                                                                     | <input checked="" type="checkbox"/>                                                  |
| 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 <i>Official Plan policy 4.3.10</i> )                                                                                                                                                                                                        | <input checked="" type="checkbox"/>                                                  |
| 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 <i>Official Plan policy 4.3.11</i> ) | <input checked="" type="checkbox"/>                                                  |
| BASIC                                                                               | 1.2.6 Provide safe, direct and attractive walking routes from building entrances to nearby transit stops                                                                                                                                                                                                                                                                                                                                                       | <input checked="" type="checkbox"/>                                                  |
| BASIC                                                                               | 1.2.7 Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible                                                                                                                                                                                                                                                                                                                                    | <input type="checkbox"/>                                                             |
| 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                                                                                                                                                                                                                                                                                                  | <input type="checkbox"/>                                                             |
| <b>1.3 Amenities for walking &amp; cycling</b>                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                      |
| BASIC                                                                               | 1.3.1 Provide lighting, landscaping and benches along walking and cycling routes between building entrances and streets, sidewalks and trails                                                                                                                                                                                                                                                                                                                  | <input type="checkbox"/>                                                             |
| 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)                                                                                                                                                                                                  | <input type="checkbox"/>                                                             |

| TDM-supportive design & infrastructure measures:<br><i>Residential developments</i> |                                                                                                                                                                                                                                                                                | Check if completed &<br>add descriptions, explanations<br>or plan/drawing references |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <b>2. WALKING &amp; CYCLING: END-OF-TRIP FACILITIES</b>                             |                                                                                                                                                                                                                                                                                |                                                                                      |
| <b>2.1 Bicycle parking</b>                                                          |                                                                                                                                                                                                                                                                                |                                                                                      |
| REQUIRED                                                                            | 2.1.1 Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible (see <i>Official Plan policy 4.3.6</i> )                                                                                                                       | <input checked="" type="checkbox"/>                                                  |
| 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 <i>Zoning By-law Section 111</i> )                                                        | <input checked="" type="checkbox"/>                                                  |
| 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 <i>Zoning By-law Section 111</i> )                                                  | <input checked="" type="checkbox"/>                                                  |
| 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                                                                                                                           | <input type="checkbox"/>                                                             |
| <b>2.2 Secure bicycle parking</b>                                                   |                                                                                                                                                                                                                                                                                |                                                                                      |
| 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 <i>Zoning By-law Section 111</i> ) | <input checked="" type="checkbox"/>                                                  |
| BETTER                                                                              | 2.2.2 Provide secure bicycle parking spaces equivalent to at least the number of units at condominiums or multi-family residential developments                                                                                                                                | <input type="checkbox"/>                                                             |
| <b>2.3 Bicycle repair station</b>                                                   |                                                                                                                                                                                                                                                                                |                                                                                      |
| 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)                                                                                               | <input type="checkbox"/>                                                             |
| <b>3. TRANSIT</b>                                                                   |                                                                                                                                                                                                                                                                                |                                                                                      |
| <b>3.1 Customer amenities</b>                                                       |                                                                                                                                                                                                                                                                                |                                                                                      |
| BASIC                                                                               | 3.1.1 Provide shelters, lighting and benches at any on-site transit stops                                                                                                                                                                                                      | <input type="checkbox"/>                                                             |
| 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                                                                                        | <input type="checkbox"/>                                                             |
| BETTER                                                                              | 3.1.3 Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building                                                                                                                                                        | <input type="checkbox"/>                                                             |

| TDM-supportive design & infrastructure measures:<br><i>Residential developments</i>                                                                                                                                                                                                                                  |  | Check if completed &<br>add descriptions, explanations<br>or plan/drawing references |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------|
| <b>4. RIDESHARING</b>                                                                                                                                                                                                                                                                                                |  |                                                                                      |
| <b>4.1 Pick-up &amp; drop-off facilities</b>                                                                                                                                                                                                                                                                         |  | <input checked="" type="checkbox"/>                                                  |
| <b>BASIC</b><br>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                                                                                                                     |  |                                                                                      |
| <b>5. CARSHARING &amp; BIKESHARING</b>                                                                                                                                                                                                                                                                               |  |                                                                                      |
| <b>5.1 Carshare parking spaces</b>                                                                                                                                                                                                                                                                                   |  | <input type="checkbox"/>                                                             |
| <b>BETTER</b><br>5.1.1 Provide up to three carshare parking spaces in an R3, R4 or R5 Zone for specified residential uses ( <i>see Zoning By-law Section 94</i> )                                                                                                                                                    |  |                                                                                      |
| <b>5.2 Bikeshare station location</b>                                                                                                                                                                                                                                                                                |  | <input type="checkbox"/>                                                             |
| <b>BETTER</b><br>5.2.1 Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection                                                                                                                                                 |  |                                                                                      |
| <b>6. PARKING</b>                                                                                                                                                                                                                                                                                                    |  |                                                                                      |
| <b>6.1 Number of parking spaces</b>                                                                                                                                                                                                                                                                                  |  | <input checked="" type="checkbox"/>                                                  |
| <b>REQUIRED</b><br>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                                                                                                                                                              |  |                                                                                      |
| <b>BASIC</b><br>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                                                                                                                           |  | <input type="checkbox"/>                                                             |
| <b>BASIC</b><br>6.1.3 Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly ( <i>see Zoning By-law Section 104</i> )                                                                                                                        |  | <input type="checkbox"/>                                                             |
| <b>BETTER</b><br>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 ( <i>see Zoning By-law Section 111</i> ) |  | <input type="checkbox"/>                                                             |
| <b>6.2 Separate long-term &amp; short-term parking areas</b>                                                                                                                                                                                                                                                         |  | <input type="checkbox"/>                                                             |
| <b>BETTER</b><br>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)                                                             |  |                                                                                      |